

Appendix 1-1

Summary of Ad Hoc Committee, Crab Rationalization Committee, Advisory Panel, and Council Efforts on Crab Rationalization

This Appendix provides a brief summary of the proceedings of the ad hoc committee and the crab rationalization committee that developed some of the alternatives for rationalizing the crab fisheries.

A-1.1 Summary of ad hoc cooperative committee efforts

October 1999. At its October 1999 meeting, the Council received public testimony and a summary of recent industry meetings aimed at providing relief for the crab fleet. The Council encouraged the industry to continue to work towards a solution with broad industry support. While the industry group was not considered a formal Council committee, two Council members volunteered to facilitate future meetings.

November - December 1999. The industry group met in November and December 1999. During the December meeting, a draft problem statement was reviewed and approved as a working document to be sent to persons holding crab LLP licenses. The group considered several methods to rationalize the fishery, including a buy-back program, cooperatives, IFQs and the status quo, but did not select a preferred method.

March 2000. During its March 2000 meeting, the industry group decided to create two smaller committees to begin developing the details of the buyback and cooperative programs. The Ad-hoc Buyback Committee would try to move quickly to develop a vessel buyback proposal that could be submitted to Washington D.C. The Ad-hoc Cooperative Committee would move forward at a slower pace. (As discussed earlier, the efforts of the Buyback Committee contributed to the buyback program passed by Congress in December 2000.)

April 2000. At its April 2000 meeting, the Ad-hoc Cooperative Committee identified five major issues that required resolution: (1) catch history, (2) processor linkages, (3) community considerations, (4) skipper and crew concerns, and (4) IFQs as an alternative to cooperatives.

1. The Ad-hoc Committee recognized catch history as an important and controversial issue. The Committee, however, decided to postpone detailed discussions of catch history options until its May meeting but stated it would not select an option that included catch history earned after December 31, 1999. The Committee also adopted a motion that only LLP qualified vessels, including the Council's October 1998 recency requirements, would be eligible for the cooperative program.
2. A wide variety of perspectives were offered on the issue of processor linkages. Processor representatives felt that any cooperative (or IFQ) program must recognize and protect the investments of processors, either through co-op linkages or through mirror processor quotas (under an IFQ option). Some processors felt that the AFA-style cooperatives would provide only the minimum protection needed and that a two-pie IFQ program may be preferable. The primary concerns of harvesters centered around the issues of a 'closed class' for processors, requirements to deliver to specific processors and the potential loss of bargaining power that would result, particularly considering the involvement of processor-owned harvesters. They felt that reduced ex-vessel prices could have impacts to communities as well as harvesters.
3. Regarding community issues, the Committee heard from a representative of Dutch Harbor who noted that 60% of the raw fish tax (1999) related to Dutch Harbor was from crab, while a St. Paul representative noted that community was about 85% dependent on crab. Both stressed the importance of crab to these communities and the need to design a program that maintains each community's 'share' and promotes community stability relative to the crab fisheries.

4. A Skippers for Equitable Access (SEA) representative presented their perspective that skippers are responsible to a large degree for the catch history of vessels and, therefore, any program based on that catch history should include skippers. They also stressed that the bargaining position for skippers would be negatively affected if they are not included, because they then become simply 'drivers' of a vessel that has a guaranteed share.
5. The Ad-hoc Committee discussed the issue of whether cooperatives would be the best way to proceed, as opposed to an IFQ program. It was recognized that, under an IFQ program, either sector could buy into the other; i.e., processors could obtain harvester quota shares and vice-versa. Some members of the Committee felt that, in some ways, an IFQ program may offer a more elegant solution that takes into account the concerns of both harvesters and processors.

May 2000. At their May 2000 meeting, the Ad-hoc Cooperative Committee worked off the original, extensive set of options previously developed by the Committee and decided to set alternatives on a fishery-by-fishery basis, starting with Bristol Bay red king crab and opilio. It was noted that the options selected are for determination of allocation percentages, assuming that the Council's collective LLP actions will determine the field of eligible participants. The Ad-hoc Committee also heard proposals from the (1) processing sector, (2) the community of St. Paul, and (3) Skippers for Equitable Access (SEA).

1. The processor proposal essentially would create both harvesting and processing shares (as either quota shares or in a co-op format), which would have to be matched up in a given fishing year. Options for calculating processors' relative shares all were based on more recent participation (1995-1999) in each fishery.
2. The community of St. Paul offered a proposal designed to maintain community participation in the crab fisheries. Rather than a direct allocation of shares, this proposal recommends a minimum amount (percentage) to be delivered to specific geographic regions (Pribilofs, Aleutians and Kodiak) based on historical delivery rates (both floating and shore-based in each area) for the agreed-upon qualifying years. This proposal suggests qualifying years that go back no further than five years. Some Committee members noted that this type of proposal may impose economic inefficiencies, given that the co-op program is designed to eliminate the race for fish and some of the processing centers have developed recently because of the race for fish. It also was noted that there may be legal impediments to this approach.
3. A proposal from SEA was offered which would essentially provide for 10% of the harvest shares to be set aside for allocation to active captains based on their contribution to each vessels' catch history. The Committee accepted this proposal as a starting point for future discussions but noted that the details of the proposal needed further development.

June 2000. In June 2000, it was decided that the Ad-hoc Cooperative Committee needed to continue its work before turning the alternatives over to the Council process for formal analysis. The Committee, however, requested the Council to designate staff support to develop a database that could be used to evaluate landings data, processing data, individual percentages, etc., for harvesters and processors with respect to a given set of years and alternatives. (An Excel spreadsheet program was developed as a result of this request and made available on the Council's web site.)

The Ad-hoc Committee requested that the Council address BSAI crab rationalization as a formal ‘topic of the Council's attention on the Council Agenda.’ They also requested, to the extent possible, that the Council recognize the Ad-hoc Cooperative Committee as the advisory entity to the Council with respect to the development of options for BSAI crab rationalization. Finally, the Ad-hoc Committee received a report from SEA which outlined a new proposal for skipper inclusion (as a compromise to their original proposal for a 10% allocation of any vessels' quota shares). The new proposal is for a guaranteed minimum crew share at traditional rates and a first right of refusal for 10% of any quota shares (QS) sold.

A-1.2 Summary of crab rationalization committee efforts

October 2000. At its October 2000 meeting, the Council received a report from the Ad-hoc Committees regarding the industry initiatives to facilitate a buyback program for the BSAI crab fisheries and development of cooperative or IFQ alternatives for rationalizing those fisheries. The Council voted to formalize the process by establishing a Crab Rationalization Committee whose first task would be to review the following Draft Problem Statement and formulate specific alternatives and options for Council consideration:

The crab fisheries in the BSAI are fully utilized. Despite amendments to the License Limitation Program and AFA sideboards, capacity in these crab fisheries far exceeds available resources. The ability for crab harvesters to diversify into other fisheries has been severely curtailed under the LLP program and other management actions designed to bring stability to other gear groups and species. Many of the concerns identified by the North Pacific Fishery Management Council in 1992 still exist for the BSAI crab fisheries, including:

- 1. Resource problems*
- 2. Excess harvesting capacity*
- 3. Bycatch mortality and deadloss concerns*
- 4. Safety*
- 5. Economic stability*

As a necessary step in the continued process of comprehensive rationalization, prompt action is required to protect the crab resource and to promote stability for those dependent on the crab fisheries, which includes harvesters, processors, and coastal communities.

December 2001. At its December 2001 meeting, the Council reaffirmed its intent to appoint a formal Council committee to address crab rationalization. The Council appointed members to the BSAI Crab Rationalization Committee shortly thereafter, which included representatives for harvesters, processors, skippers and crewmen, communities and environmental organizations. The Committee was tasked with developing elements and options for analysis and reporting to the Council at the April 2001 meeting.

January 2001. In January 2001, the BSAI Crab Rationalization Committee reviewed the Council's Draft Problem Statement and the direction from the Council to develop alternatives, elements, and options for crab rationalization which would be forwarded to the Council for formal analysis. The formal Committee discussed and recognized the importance of the work previously done by the Ad-hoc Cooperative Committee as a starting point for further development. While the Committee's charge was not to develop a preferred alternative for the Council, there was a consensus that they should strive for as much definition as possible in program design, to facilitate both the staff's analysis and the Council's deliberations. Because of the

economic state of the crab fisheries, it was also noted that the industry's potential response to the \$50 million loan for the buyback could be affected by the timeliness and commitment to rationalization and the ultimate design of the program.

February 2001. The BSAI Crab Rationalization Committee met in Seattle on February 15-16, 2001. While the focus of the Ad-hoc Committee had been on coop-style approaches to rationalization, the formal Committee focused mainly on IFQ-type programs. The Committee reviewed proposals from representatives for each sector, including harvesters, processors and communities (representatives for skippers/crew and the environmental organizations were absent). These three proposals became the basis for the three components of the IFQ program alternative considered in this analysis.

The harvesting sector proposal included a problem statement, a set of objectives, a suite of options for IFQs for catcher vessels and a set of conditions that would make a two-pie system more acceptable for harvesters. The IFQ options would apply either to a harvester-only (i.e., one-pie) IFQ system or to a two-pie IFQ system that would allocate separate quota shares to harvesters and processors. The main issues discussed included the following:

1. General consensus was reached to include years 1990-1999 only. While a few expressed an interest in including 2000/2001, the vast majority recommended that 2000/2001 be excluded. The main reasons cited for excluding 2000/2001 were (a) processing side-boards were in effect, (b) the low GHGs in both 2000 and 2001, (c) icy conditions in 2000 delayed the season, and (d) the harvester strike in 2001.
2. The Committee agreed that deadloss would not count in the initial allocation but would count against a harvester's quota. The main reason cited for excluding deadloss in the initial allocation was to avoid rewarding those with high deadloss. Also, there was concern that the method used to report deadloss in the early years was not accurate.
3. The Committee had a lot of discussion on who would be eligible to receive quota shares by transfer. As proposed, only initial recipients or eligible crew members could receive quota shares by transfer. Concerns were raised that this may create a "closed class" system. Others suggested that participants in other (Federal) fisheries should be able to buy into the crab fishery. The Committee was not able to reach consensus on this issue and agreed to postpone further discussion until the March meeting.
4. The Committee discussed the various options for transferability. Since many felt that the options for transferability would require significant more thought and discussion, the Committee decided to postpone further discussion of transferability until the March meeting.

The Committee next considered a proposal for processing quota shares from representatives of the processing sector. The proposal suggested a two-pie system, in which processor shares for a predetermined percentage of the GHG would be allocated to eligible processors based on processing history, with the remainder of the GHG available to any processor as a means to promote competition. The Committee accepted the range of allocated shares suggested by the processors of 80 to 90% of the GHG, recognizing that the Council was free to broaden the range for analytical purposes. (There was much discussion and lack of consensus on this range of percentages.)

The Committee then discussed how the processing quota share system would be implemented. In order to implement the processing quota share system, harvesters would receive two classes of harvesting quota shares, A and B. Any amount harvested using Class A shares must be delivered to a processor holding processing quota shares. Any harvest using Class B shares may be delivered to any processor qualified to receive harvest under the “open access” terms and conditions.

With respect to the two-pie IFQ proposal, the Committee discussed several other issues identified by those representing the harvesting sector. The Committee agreed that the degree of vertical integration (processor ownership of harvesters) should be analyzed. The degree of vertical integration is viewed as relevant to whether restrictions are needed to prevent further vertical integration of the industry. Staff noted that determination of the degree of vertical integration may be expensive and time consuming. Members representing the processing sector agreed that processors would provide this information.

The Committee next reviewed a proposal to restrict transfers of harvesting and/or processing shares between regions of the BSAI. Two regions were proposed: a Pribilof /Bering Sea Region (PBS) and an Aleutian Chain/Alaska Peninsula Region (ACAP). Under the proposal, an endorsement would be assigned to processing shares which restricts the region in which the shares may be used based on deliveries to the region in the past. The endorsements would be assigned to harvesting shares, if processing shares are not approved. Under the regionalization model, harvesting and/or processing quota shares may be transferred within a region but transfers between regions would be restricted. The Committee agreed that the proposed regionalization model should be considered as an overlay to the harvester and/or processor quota share programs for purposes of analysis.

March 2001. The Crab Rationalization Committee met in Anchorage on March 22-23. The Committee further refined the proposals and options developed at its last meeting and considered a letter from ADF&G dated March 22, 2001 that outlined some of the State’s views on rationalization. The Committee also received proposals from representatives of Skippers for Equitable Access (SEA) and the Alaska Marine Conservation Council (AMCC).

Representatives from ADF&G provided an overview of the State’s letter. In general, the ADF&G letter expressed support for rationalization but also outlined several concerns, including the following: (1) if guideline harvest levels (GHLs) are replaced by total allowable catches (TACs), ADF&G may need to be more conservative for some crab stocks, (2) seasonality will continue to be an issue since certain characteristics of the fishery (e.g., soft shell stage) will continue to warrant controls, (3) funding sources for management, research and enforcement, (4) rationalization efforts need to keep community interests in mind, and (5) more aggressive data collection is needed to monitor economic impacts. The Committee discussed these issues and agreed to recommend that the Council request the State to work with staff to address two issues: (1) collection of economic data to monitor the impact of rationalization, and (2) funding sources for management, research and enforcement.

The Committee next considered a proposal from AMCC. In general, AMCC indicated that it is not opposed to rationalization but supported measures that would promote conservation and safety, and provide incentives for clean fishing. Some specific options that AMCC expressed support for included (1) an option that does not include processing shares, (2) measures that would preserve choices for harvesters and opportunities for processors, and (3) an option for a periodic program review of the program.

The SEA representative presented a proposal for skippers and crew members. The proposal reflected SEA's desire to protect traditional crew share percentages and provide eligible crew members with a "first right of refusal" on 10 percent of all shares transferred. In addition, the proposal included an option for a low interest-rate loan program to assist crew purchases of QS.

The Committee devoted the remainder of its time to finalizing the options for analysis, focusing in particular on the transferability issues and how the different components of the program would fit together. Some of the issues that involved extensive discussion by the Committee include (1) who is eligible to receive QS by transfer, (2) whether there should be an allocation of QS to communities or CDQ groups, (3) ownership caps on harvester QS, (4) qualifying years for processor shares, (5) percentage of GHLL for which processor shares would be issued, (6) regionalization, (7) whether AFA vessels should be allowed to form a cooperative for Bristol Bay red king crab, (8) caps on processor ownership of harvester QS, (9) whether 1990 and 1991 should be dropped from the options for harvester QS qualifying periods, and (10) whether the analysis could address the effects of catch history of vessels that are no longer in the fishery on the initial allocation of harvester QS.

A-1.3 Summary of Council and advisory panel efforts

April 2001. At the April 2001 Council meeting, the Crab Rationalization Committee's recommended elements and options for a crab rationalization program were presented to both the Council's Advisory Panel (AP) and to the Council. Both the AP and Council received public testimony on this agenda item.

Based on public testimony and discussion among its members, the AP added a number of options to the Committee's proposal for the Council's consideration. For example, the AP significantly expanded the options for qualifying years for the processing quota share allocation and added an alternative approach to processing shares that would issue processing shares on a percentage of the season's GHLL that ranged from 105 percent to 130 percent of the GHLL. The AP also amended the options for ownership caps, added options for roll-over provisions, and requested that the analysis provide a brief discussion on the use of private-sector (non-governmental) binding arbitration for failed price negotiations. Finally, the AP recommended the analysis address 18 specific issues, most of which focused on the degree of vertical integration between harvesters and processors and the implications of the different IFQ models (i.e., one-pie, two-pie, with or without regionalization) on the competitive structure of the crab industry.

Given the complexity of the proposed elements and options and issues raised during public testimony, the Council moved to direct staff to develop a discussion paper for the June meeting on the proposed elements and options for the BSAI Crab Rationalization program. Specifically, the Council requested staff to provide perspectives on the anticipated amount of effort and time required to analyze the suite of options under consideration and, where possible, identify ways to make the analytical task more manageable. The Council requested staff to highlight in the discussion paper any proposed options that may be problematic in terms of data requirements, analytical difficulty, and management aspects in light of the Council's desire for the analysis to be completed by December 2001. The staff was instructed to use the AP motion (which includes alternatives from the Crab Rationalization Committee) as the focus of the discussion paper.

While the Council directed staff to use the AP motion as a starting point, the Council also requested that the discussion paper address several additional options as follows: (1) an expanded the range for processing shares of 0-100 percent; (2) an initial allocation of 0, 10 percent, or 20 percent of harvesting quota shares

distributed equally to qualifying crew members; (3) expanded range of 0-20 percent for crew shares that would receive first-right-of-refusal; and (4) controls on vertical integration.

The Council also adopted the following problem statement for rationalization of the BSAI crab fisheries:

BSAI crab rationalization problem statement

The crab fisheries in the Bering Sea/Aleutian Islands are fully utilized. Despite amendments to the LLP Program and AFA sideboards, capacity in these crab fisheries far exceeds available resources. The ability of crab harvesters to diversify into other fisheries has been severely curtailed under the LLP program and other management actions designed to bring stability to other gear groups and species. Many of the concerns identified by the NPFMC at the beginning of the comprehensive rationalization process in 1992 still exist for the BSAI crab fisheries. The race for fish continues to result in:

1. Resource/conservation management problems
2. Bycatch/handling mortality and dead loss
3. Excess harvesting capacity
4. Lack of economic stability
5. Safety issues

In the continued process of comprehensive rationalization, prompt action is needed to protect the crab resource and to promote stability for those dependent on the crab fisheries. In order to achieve a balanced resolution, the concerns of harvesters, processors and coastal communities must be addressed.

June 2001. At the June 2001 meeting, staff presented its discussion paper on the proposed elements and options for rationalization of the BSAI crab fisheries to the AP and Council (a copy of the discussion paper is provided in Appendix I). While the discussion paper was not an analysis of the proposed options, it was intended to assist the Council in finalizing a suite of alternatives, elements and options for formal analysis.

The discussion paper first addressed several legal considerations including the scope of analysis required to fulfill the mandate from Congress that the Council analyze various options for rationalization. The paper then described the various components of the proposed IFQ program alternative and discussed data requirements, particularly ownership information that would be needed from industry. (Note that industry representatives had agreed to provide the required ownership information during the Crab Rationalization Committee meetings.) The paper then discussed a variety of analytical issues for each component of the proposed IFQ program, including options for the harvesting and processing sectors, options governing the interaction between harvesters and processors, and options for regionalization. Finally, the paper provided estimates of the analytical time requirements and suggestions for streamlining the analysis. Overall, it was noted that it may not be possible to reduce the required analytical effort because of the inherent complexity of the proposed rationalization program, the number of crab fisheries under consideration and the complexity of the issues involved.

The AP recommended to the Council a number of refinements to the proposed crab rationalization options, including the following:

- identification of the crab fisheries included in the program;
- clarification of the eligibility requirements for receiving an initial allocation of QS, the basis for the QS distribution and method for calculating the distribution;
- refinement of the options for qualifying periods for harvesting QS;
- definition of sea time for the options to receive harvesting QS by transfer;
- replacement of the options governing the use of individual fishing quotas (IFQs) by catcher vessels and catcher/processors;
- elimination of options for treatment of discards under IFQs;
- elimination of one of the skipper/crew options for protection of traditional crew share percentages with no sunset;
- restatement of roll-over provisions as overage provisions;
- reduction in the number of options for qualifying periods for processing quota shares; and
- elimination of options for issuing processing shares on 105 percent-130 percent of the GHL.

Furthermore, the AP provided more detailed guidance on the option for a private-sector (non-governmental) binding arbitration process for settlement of pricing disputes since this was viewed by many to be a key design feature in a two-pie IFQ model. The AP also recommended that the Council include a comparative analysis of the proposed IFQ program models to two types of coop-style models, AFA-type and “Dooley-Hall” type coops. (Note that the basic difference between these two coop models is that, under an AFA-type coop, harvesters would be linked to processors while, under a Dooley-Hall coop, harvesters and processors would not be linked.) Finally, the AP recommended that the Council reaffirm its earlier policy statement that catch history in the crab fisheries beyond December 31, 1998 may not count in future rationalization programs, including a fishery cooperative system.

After consideration of the staff’s discussion paper, the AP’s recommendations and public testimony, the Council adopted a suite of alternatives, elements and options for rationalization of the BSAI crab fisheries (see Section 1.2 for the complete list of elements and options). The Council motion included the recommendations of the AP, amended as follows:

1. Addition of a detailed set of options for a co-op program as another alternative to the IFQ program and in addition to the AFA-style and Dooley-Hall style coops recommended by the AP. The set of options referenced many of the elements and options proposed for the IFQ program but included additional options unique to cooperatives. This coop alternative was further amended to include (a) an option to protect traditional crew share percentages, (b) a minimum of 4 (instead of 3) vessels per coop for confidentiality reasons, and (c) options for accounting for discards under a coops.

2. Addition of another option to grant harvesting QS to persons that own catch history and/or fishing rights of BSAI crab vessels (as opposed to granting QS to persons that own a certified vessel) and an accompanying option that describes the basis for the distribution of harvesting QS.
3. Addition of the period 1996-2000 (best 4 seasons) as additional options for harvester qualifying periods for the opilio, Bristol Bay red king and brown king crab fisheries. These same options were also added under the qualifying period options for processor quota shares. These options were included in order to address the need for the Council to give consideration to recent participants in the crab fisheries.
4. Clarification of the definition of sea time to require sea time in the applicable commercial fisheries in a harvesting capacity.
5. Clarification of the options for catcher/processors as follows: (a) eligible catcher/processors would be granted processing quota shares based on their processing history, (b) catcher/processors may purchase catcher vessel QS but may not process any crab harvested with such QS, and (c) catcher/processors may sell processed or unprocessed crab.
6. Reinstatement of the options for treatment of discards under IFQs which the AP had eliminated.
7. For the option to allocate 0-20 percent of harvesting QS to eligible skippers/crew, addition of an option to distribute the QS based on a point system presented during public testimony. The option to protect traditional crew share percentages (which had been eliminated by the AP) based on the Canadian Groundfish Development Authority Code of Conduct was also reinstated.
8. Under regionalization, addition of an option for a third region (an Aleutian Region) with an option to split deliveries of Aleutian Islands brown king crab and Adak red king crab into a western and eastern area, with a suboption to require up to 50 percent of the western Aleutian Islands brown king crab processed in the western region.
9. Addition of an option to sunset the program after 5 years or 7 years.
10. Addition of options for allocations to the existing CDQ program, including (1) no change, (2) expand existing CDQ program to all BSAI crab species included in rationalization program, (3) increase allocation for all crab species to 10 percent, (4) increase allocation for all crab species to 12.5 percent, and (5) for Aleutian Islands brown king crab, allocate the percentage of the resource unutilized during the qualifying period to the community of Adak.
11. Expansion of the options for program review to require “an analysis of post-rationalization impacts to coastal communities in terms of adverse economic impacts and options for mitigating those impacts.”

As part of the Council’s discussion of the motion, the Council’s representative from ADF&G articulated the State’s perspective on the overall goals of rationalization. From the State’s perspective, the first priority is conservation and sustainable fisheries management, and achieving economic efficiency in the harvest of the

fishery resources off Alaska. There is a need, however, to balance the goals of conserving stocks, reducing bycatch, minimizing habitat impacts and achieving full utilization of the fishery resources. Thus, any strategies for more sustainable and efficient fisheries should contain explicit mechanisms to provide measurable reductions in bycatch on a fishery-by-fishery basis and measurable reductions in habitat impacts, including allowances to transition to lower-impact gear types where possible. The State also considers safety to be a major concern. Additionally, the State considers that any rationalization program needs to include the harvesting sector, processing sectors and communities, and protect their interests to the extent possible. Regarding communities, the economies of fishery-dependent communities should be protected but also allowed to grow with new opportunities. Other goals highlighted by the State's representative included measures to maintain an owner-operated fleet by Alaskans, controls on excessive consolidation and vertical integration, and provisions that recognize the contributions of skippers and crew members.

The Council also identified several additional issues that should be addressed in the analysis as follows: (1) effects of the proposed crab rationalization alternatives on other fisheries, such as salmon and herring processing and tendering activities; (2) the potential downside of excessive economic planning by government, including the decrease in asset values and decrease in the value of quota shares that may result from some of the proposed measures; and (3) in general, the adverse impacts to society and individuals that would result from diminishing economic freedom.

Finally, the Council reaffirmed its earlier policy statement (made at its October 1999 meeting) that catch history in the crab fisheries beyond December 31, 1998 may not count in future rationalization programs, including a fishery cooperative system.

Appendix 1-2

Bering Sea Crab Rationalization Harvest Data Base

Harvest information was taken from State of Alaska electronic fish ticket data from the ADF&G Shellfish database. These data were received through the Alaska Fisheries Information Network (AKFIN) after the Commercial Fisheries Entry Commission's (CFEC) permit matching and gross earnings estimate processes had been run. The data reflect the ADF&G electronic shellfish data base as of:

Year	Date
2001	August 3, 2001
2000	January 6, 2001
1999	November 13, 2000
1998	November 13, 2000
1997	November 13, 2000
1996	November 13, 2000
1995	November 13, 2000
1994	November 13, 2000
1993	November 13, 2000
1992	November 13, 2000
1991	November 13, 2000

King and Tanner crab species from the Bering Sea were selected, excepting *Lithodes couesi* (scarlet king crab), *T. Tanneri*, and *T. angularis*. Harvests associated with CDQ, test fishing, cost recovery harvests, home pack/personal use, and confiscated deliveries were removed from the data base.

Table 1. Summary of Bering Sea crab data excluded from data base.

Species	Harvest Type	Pounds
King	CDQ Harvests	1,846,498
King	Confiscated	195,602
King	Deadloss	3,314,037
King	Personal Use	205,652
King	Test Fishing	1,240,672
King	Total	6,802,461
Tanner	CDQ Harvests	22,866,679
Tanner	Confiscated	120,675
Tanner	Deadloss	20,800,964
Tanner	Personal Use	67,192
Tanner	Test Fishing	26,345
Tanner	Total	43,881,855

Season totals from the Bering Sea crab rationalization data base were compared to the season totals shown in SAFE documents in Table 2 to evaluate the fish ticket data's completeness.

Table 2. Comparison of harvests from SAFE documents to Bering Sea Crab rationalization data base, by fishery and season.

Fishery	Season	Safe reports (incl deadloss)	Crab rationalization data base + excluded deadloss	Difference	Percent	Safe figures from:
AI BRN	1991-1992	7,702,141	7,676,192	25,949	0.3%	TABLE 4.3 1999 CRAB SAFE
AI BRN	1992-1993	6,291,197	6,247,869	43,328	0.7%	TABLE 4.3 1999 CRAB SAFE
AI BRN	1993-1994	5,551,143	5,551,143	0	0.0%	TABLE 4.3 1999 CRAB SAFE
AI BRN	1994-1995	8,128,297	8,106,912	21,385	0.3%	TABLE 4.3 1999 CRAB SAFE
AI BRN	1995-1996	6,890,906	6,960,725	-69,819	-1.0%	TABLE 4.3 1999 CRAB SAFE
AI BRN	1996-1997	5,854,236	5,771,036	83,200	1.4%	TABLE 4.3 1999 CRAB SAFE
AI BRN	1997-1998	5,945,682	5,973,868	-28,186	-0.5%	TABLE 4.3 1999 CRAB SAFE
AI BRN	1998-1999	4,939,248	4,939,248	0	0.0%	TABLE 4-4 2001 CRAB SAFE
AI BRN	1999-2000	5,838,788	5,838,788	0	0.0%	TABLE 4-4 2001 CRAB SAFE
AI BRN	2000-2001	6,018,761	6,100,125	81,364	-1.	Preliminary/F. Bowers
BB RED	1991	17,177,894	16,956,415	221,479	1.3%	TABLE 5-1 1999 CRAB SAFE
BB RED	1992	8,043,018	7,996,040	46,978	0.6%	TABLE 5-1 1999 CRAB SAFE
BB RED	1993	14,628,639	14,475,680	152,959	1.0%	TABLE 5-1 1999 CRAB SAFE
BB RED	1996	8,405,614	8,344,921	60,693	0.7%	TABLE 5-1 1999 CRAB SAFE
BB RED	1997	8,756,490	8,756,065	425	0.0%	TABLE 5-1 1999 CRAB SAFE
BB RED	1998	14,233,063	14,233,063	0	0.0%	TABLE 5-1 1999 CRAB SAFE
BB RED	1999	11,090,930	11,070,612	20,318	0.2%	TABLE 5-1 2001 CRAB SAFE
BB RED	2000	7,546,145	7,544,523	1,622	0.0%	TABLE 5-1 2001 CRAB SAFE
BS OPIE	1991	328,647,269	328,647,269	0	0.0%	TABLE 5-24 1999 CRAB SAFE
BS OPIE	1992	315,302,034	315,156,256	145,778	0.0%	TABLE 5-24 1999 CRAB SAFE
BS OPIE	1993	230,787,000	230,747,760	39,240	0.0%	TABLE 5-24 1999 CRAB SAFE
BS OPIE	1994	149,775,765	149,792,718	-16,953	0.0%	TABLE 5-24 1999 CRAB SAFE
BS OPIE	1995	75,252,677	75,294,328	-41,651	-0.1%	TABLE 5-24 1999 CRAB SAFE
BS OPIE	1996	65,712,797	65,696,173	16,624	0.0%	TABLE 5-24 1999 CRAB SAFE
BS OPIE	1997	119,543,024	119,543,024	0	0.0%	TABLE 5-24 1999 CRAB SAFE
BS OPIE	1998	243,341,381	243,341,381	0	0.0%	TABLE 5-24 1999 CRAB SAFE
BS OPIE	1999	184,529,821	184,529,821	0	0.0%	TABLE 5-25 2001 CRAB SAFE
BS OPIE	2000	30,774,838	30,716,208	58,630	0.2%	TABLE 5-25 2001 CRAB SAFE
BS TANN	1991-1992	31,796,381	31,794,086	2,295	0.0%	TABLE 5-23 1999 CRAB SAFE
BS TANN	1992-1993	35,130,866	35,130,866	0	0.0%	TABLE 5-23 1999 CRAB SAFE
BS TANN	1993-1994	16,891,320	16,893,368	-2,048	0.0%	TABLE 5-23 1999 CRAB SAFE
BS TANN	1994	7,766,886	7,766,886	0	0.0%	TABLE 5-23 1999 CRAB SAFE
BS TANN	1995	4,233,061	4,228,510	4,551	0.1%	TABLE 5-23 1999 CRAB SAFE
BS TANN	1996	1,806,077	1,802,710	3,367	0.2%	TABLE 5-23 1999 CRAB SAFE
PR RB	1993	2,607,634	2,586,438	21,196	0.8%	TABLE 5-6 1999 CRAB SAFE
PR RB	1994	1,338,953	1,338,953	0	0.0%	TABLE 5-6 1999 CRAB SAFE
PR RB	1995	2,138,627	2,282,653	-144,026	-6.7%	TABLE 5-6 1999 CRAB SAFE
PR RB	1996	1,137,336	1,131,684	5,652	0.5%	TABLE 5-6 1999 CRAB SAFE
PR RB	1997	1,269,192	1,263,920	5,272	0.4%	TABLE 5-6 1999 CRAB SAFE
PR RB	1998	1,027,361	1,026,671	690	0.1%	TABLE 5-6 1999 CRAB SAFE
STM BLU	1991	3,372,066	3,372,066	0	0.0%	TABLE 5-9 1999 CRAB SAFE
STM BLU	1992	2,474,080	2,475,916	-1,836	-0.1%	TABLE 5-9 1999 CRAB SAFE
STM BLU	1993	2,999,921	3,003,089	-3,168	-0.1%	TABLE 5-9 1999 CRAB SAFE
STM BLU	1994	3,764,262	3,764,262	0	0.0%	TABLE 5-9 1999 CRAB SAFE
STM BLU	1995	3,166,093	3,166,093	0	0.0%	TABLE 5-9 1999 CRAB SAFE
STM BLU	1996	3,080,916	3,078,959	1,957	0.1%	TABLE 5-9 1999 CRAB SAFE
STM BLU	1997	4,649,660	4,649,660	0	0.0%	TABLE 5-9 1999 CRAB SAFE
STM BLU	1998	2,868,965	2,869,655	-690	0.0%	TABLE 5-9 1999 CRAB SAFE

Yearly data were merged with annual ADF&G Intent to Operate files to append processor information (e.g. processor’s name, type, processing vessel id, processing vessel name etc.) Processor codes not matching to the year in question were merged to an all-years intent file which contained the most recent information for a given code.

A data set of the season opening and closing dates¹ for each fishery was made using information from Crab SAFEs and Annual Management Reports. This information was matched with fish ticket records to determine whether the landing date of the crab harvest fell within the season opening dates and to assign a season to the records. There were 23 out of season records identified throughout the time period..

Summary of Out of Season Landings, by Species, 1991-2001

	Records	Pounds
red king crab	7	58,116
brown king crab	10	64,192
T. bardi	1	0
T. opilio	5	217,017

After the identification of out of season harvests, Adak golden king crab harvest occurring east of 174 W longitude was reassigned to the Dutch Harbor golden king crab fishery. A new, hybrid closing date was constructed for the Dutch Harbor golden king crab datter (opening date of the Dutch Harbor fishery and closing date of the Adak fishery).

The next step was to merge the fish ticket data to the CFEC vessel license file, by year, and append vessel owner information to the record.

The identification of catcher processor records was done after this step, and after a few coding corrections to the Intent to Operate’s processing vessel ADF&G numbers. Records were flagged as catcher/processor data if the ADF&G number of the harvesting vessel was equal to the ADF&G number of the processing vessel on each ticket. Records of catcher/vessels delivering to catcher/processers were also flagged . Information from the ADF&G registration lists was added at this time.

A special file was constructed to cross-referenced a consistent ‘company’ name to individual processor codes and also to cross- reference a consistent plant identifier for each facility across time.. This was important to accomplish because the existing Intent to Operate data did not have a satisfactory way to group or link processor codes for a given company across years and because a given plant could have had numerous State of Alaska processor codes throughout the period. This special file was also annotated with a ‘Qualified’ processor flag. This flag came from selecting the unique processor codes in the 1998 and 1999 shellfish Bering Sea fish ticket data, excepting non-commercial and CDQ harvest. The consistent company name from these records was then merged back to the base data so that all facilities of a company which had processed commercial Bering Sea crab in 1998 or 1999 were given a qualified processor flag of “YES”.

¹The closing date of the fishery refers to the date on which fishing must cease. Since the fleet has a period of time after the close to offload the crab a second date was added to cover this period.

Separate flags for boats meeting the general qualification period, the endorsement qualification period, and the general recency qualification period were added . The remaining two assigned flags were a vertical integration flag (and company) for vessels owned by processors, as identified by the processing sector (10 percent or more).

A regionalization flag was created as follows: Information from the ADF&G ITO file was used to assign shore based processors to a port. These ports were then assigned to either a northern or a southern region. Industry supplied the seasonal location(s) for the floating processors. Because responses were not received from all processors, some of the harvests delivered to the floating sector could not be assigned to a region.

The resulting data base can be summarized in terms of qualified/unqualified vessels or processors, region of processing,, company ownership of catcher vessels, catcher-processors /catcher-vessel harvests, catcher vessel ownership, etc.

Appendix 2-1

BSAI Crab Vessel Participation Tables

Bering Sea <i>C. opilio</i> qualified catcher vessels												
1992	1993	1994	1995	1996	1997	1998	1999	2000	Years	Unique Vessels	Cum Vessels	Cum%
155	155	155	155	155	155	155	155	155	9	155	155	63.5%
0	7	7	7	7	7	7	7	7	8	7	162	66.4%
2	2	0	2	2	2	2	2	2	8	2	164	67.2%
2	2	2	0	2	2	2	2	2	8	2	166	68.0%
2	2	2	2	2	0	2	2	2	8	2	168	68.9%
1	1	1	1	1	1	0	1	1	8	1	169	69.3%
1	1	1	1	1	1	1	0	1	8	1	170	69.7%
9	9	9	9	9	9	9	9	0	8	9	179	73.4%
0	0	6	6	6	6	6	6	6	7	6	185	75.8%
1	0	0	1	1	1	1	1	1	7	1	186	76.2%
1	0	1	1	0	1	1	1	1	7	1	187	76.6%
1	1	1	0	0	1	1	1	1	7	1	188	77.0%
0	1	1	1	1	1	1	1	0	7	1	189	77.5%
1	1	0	1	1	1	1	1	0	7	1	190	77.9%
1	1	1	1	0	1	1	1	0	7	1	191	78.3%
1	1	1	1	1	1	0	1	0	7	1	192	78.7%
1	1	1	1	1	1	1	0	0	7	1	193	79.1%
0	0	1	1	1	0	1	1	1	6	1	194	79.5%
1	1	1	0	0	0	1	1	1	6	1	195	79.9%
0	1	1	1	1	0	0	1	1	6	1	196	80.3%
1	1	1	1	0	0	0	1	1	6	1	197	80.7%
1	1	1	1	0	0	1	0	1	6	1	198	81.1%
2	2	2	2	2	2	0	0	0	6	2	200	82.0%
1	0	0	0	0	1	1	1	1	5	1	201	82.4%
1	1	0	1	0	1	0	0	1	5	1	202	82.8%
3	3	3	3	3	0	0	0	0	5	3	205	84.0%
1	0	0	0	0	0	1	1	1	4	1	206	84.4%
0	0	1	0	1	0	0	1	1	4	1	207	84.8%
0	0	0	1	1	1	0	0	1	4	1	208	85.2%
1	0	0	0	0	1	1	1	0	4	1	209	85.7%
1	0	1	0	0	0	1	1	0	4	1	210	86.1%
0	2	2	2	2	0	0	0	0	4	2	212	86.9%
1	0	1	1	1	0	0	0	0	4	1	213	87.3%
0	0	0	0	1	1	0	0	1	3	1	214	87.7%
0	1	1	0	0	0	0	1	0	3	1	215	88.1%
1	1	0	0	0	0	0	1	0	3	1	216	88.5%
1	0	0	1	0	0	1	0	0	3	1	217	88.9%
0	1	0	0	1	1	0	0	0	3	1	218	89.3%
0	0	1	1	0	1	0	0	0	3	1	219	89.8%
0	0	1	1	1	0	0	0	0	3	1	220	90.2%
0	0	0	0	0	0	0	1	1	2	1	221	90.6%
0	0	0	1	0	0	0	0	1	2	1	222	91.0%
0	0	1	0	0	0	0	0	1	2	1	223	91.4%
0	0	0	0	0	0	1	1	0	2	1	224	91.8%
0	0	1	0	1	0	0	0	0	2	1	225	92.2%
0	0	2	2	0	0	0	0	0	2	2	227	93.0%
1	0	0	1	0	0	0	0	0	2	1	228	93.4%
0	2	2	0	0	0	0	0	0	2	2	230	94.3%
0	0	0	0	0	0	0	0	4	1	4	234	95.9%
0	0	0	0	0	0	0	2	0	1	2	236	96.7%
0	0	0	0	2	0	0	0	0	1	2	238	97.5%
0	0	2	0	0	0	0	0	0	1	2	240	98.4%
0	2	0	0	0	0	0	0	0	1	2	242	99.2%
2	0	0	0	0	0	0	0	0	1	2	244	100.0%
198	204	215	211	208	200	200	206	197		244		

Bering Sea <i>C. opilio</i> qualified catcher/processors												
1992	1993	1994	1995	1996	1997	1998	1999	2000	Years	Unique Vessels	Cum Vessels	Cum Percent
7	7	7	7	7	7	7	7	7	9	7	7	38.9%
1	1	1	1	1	0	1	1	1	8	1	8	44.4%
1	1	1	1	1	1	1	1	0	8	1	9	50.0%
1	1	1	1	1	1	1	1	0	7	1	10	55.6%
1	1	1	1	1	1	0	0	0	6	1	11	61.1%
3	3	3	3	3	0	0	0	0	5	3	14	77.8%
0	1	1	1	1	0	0	0	0	4	1	15	83.3%
1	0	0	0	0	1	0	0	0	2	1	16	88.9%
0	0	2	0	0	0	0	0	0	1	2	18	100.0%

Bering Sea <i>C. opilio</i> qualified catcher/processors												
1992	1993	1994	1995	1996	1997	1998	1999	2000	Years	Unique Vessels	Cum Vessels	Cum Percent
7	7	7	7	7	7	7	7	7	9	7	7	38.9%
1	1	1	1	1	0	1	1	1	8	1	8	44.4%
1	1	1	1	1	1	1	1	0	8	1	9	50.0%
1	1	1	1	1	1	1	0	0	7	1	10	55.6%
1	1	1	1	1	1	0	0	0	6	1	11	61.1%
3	3	3	3	3	0	0	0	0	5	3	14	77.8%
0	1	1	1	1	0	0	0	0	4	1	15	83.3%
1	0	0	0	0	1	0	0	0	2	1	16	88.9%
0	0	2	0	0	0	0	0	0	1	2	18	100.0%
15	15	17	15	15	11	10	9	8		18		

Bristol Bay Red King Crab Qualified Catcher Vessels

1992	1993	1994	1995	1996	1997	1998	1999	2000	Years	Unique Vessels	Cum Vessels	Cum Percent
131	131	0	0	131	131	131	131	131	7	131	131	51.4%
30	30	0	0	0	30	30	30	30	6	30	161	63.1%
5	0	0	0	5	5	5	5	5	6	5	166	65.1%
0	4	0	0	4	4	4	4	4	6	4	170	66.7%
4	4	0	0	4	4	4	0	4	6	4	174	68.2%
3	3	0	0	3	0	3	3	3	6	3	177	69.4%
4	4	0	0	4	4	4	4	0	6	4	181	71.0%
0	6	0	0	0	6	6	6	6	5	6	187	73.3%
4	0	0	0	0	4	4	4	4	5	4	191	74.9%
4	4	0	0	0	0	4	4	4	5	4	195	76.5%
0	0	0	0	2	2	2	2	2	5	2	197	77.3%
2	2	0	0	0	2	2	0	2	5	2	199	78.0%
0	1	0	0	1	0	1	1	1	5	1	200	78.4%
1	1	0	0	0	1	0	1	1	5	1	201	78.8%
8	8	0	0	0	8	8	8	0	5	8	209	82.0%
0	3	0	0	3	3	3	3	0	5	3	212	83.1%
2	0	0	0	2	2	2	2	0	5	2	214	83.9%
8	8	0	0	8	8	8	0	0	5	8	222	87.1%
2	2	0	0	0	0	2	0	2	4	2	224	87.8%
1	0	0	0	0	0	1	1	1	4	1	225	88.2%
0	1	0	0	0	1	0	1	1	4	1	226	88.6%
1	0	0	0	1	0	0	1	1	4	1	227	89.0%
0	1	0	0	0	1	1	0	1	4	1	228	89.4%
1	0	0	0	0	1	1	0	1	4	1	229	89.8%
0	2	0	0	0	2	2	2	0	4	2	231	90.6%
1	1	0	0	0	0	1	1	0	4	1	232	91.0%
1	1	0	0	0	1	1	0	0	4	1	233	91.4%
2	2	0	0	2	2	0	0	0	4	2	235	92.2%
0	0	0	0	1	1	0	0	1	3	1	236	92.5%
1	0	0	0	1	0	0	1	0	3	1	237	92.9%
1	1	0	0	0	0	0	1	0	3	1	238	93.3%
1	1	0	0	0	0	1	0	0	3	1	239	93.7%
3	3	0	0	3	0	0	0	0	3	3	242	94.9%
0	0	0	0	0	0	0	1	1	2	1	243	95.3%
0	1	0	0	0	0	0	0	1	2	1	244	95.7%
0	0	0	0	0	1	1	0	0	2	1	245	96.1%
0	1	0	0	0	1	0	0	0	2	1	246	96.5%
4	4	0	0	0	0	0	0	0	2	4	250	98.0%
0	5	0	0	0	0	0	0	0	1	5	255	100.0%
225	235	0	0	175	225	232	217	207		255		

From BSAI Crab Rationalization Data Base. 2001-1

Bering Sea *C. Bairdii* Qualified Catcher Vessels

1991-1992	1992-1993	1993-1994	1994	1995	1996	Years	Vessels	Cumulative Vessels	Cumulative Percent
116	116	116	116	116	116	6	116	116	45.8%
20	20	20	0	20	20	5	20	136	53.8%
11	11	11	11	0	11	5	11	147	58.1%
0	2	2	2	2	2	5	2	149	58.9%
2	2	0	2	2	2	5	2	151	59.7%
10	10	10	10	10	0	5	10	161	63.6%
11	11	11	0	0	11	4	11	172	68.0%
2	2	0	0	2	2	4	2	174	68.8%
0	1	1	1	0	1	4	1	175	69.2%
0	1	0	1	1	1	4	1	176	69.6%
1	0	0	1	1	1	4	1	177	70.0%
11	11	11	11	0	0	4	11	188	74.3%
0	6	6	6	6	0	4	6	194	76.7%
6	6	6	0	6	0	4	6	200	79.1%
3	3	0	0	0	3	3	3	203	80.2%
2	0	2	0	0	2	3	2	205	81.0%
0	0	1	1	0	1	3	1	206	81.4%
0	1	1	0	0	1	3	1	207	81.8%
1	0	0	0	1	1	3	1	208	82.2%
16	16	16	0	0	0	3	16	224	88.5%
0	0	1	1	1	0	3	1	225	88.9%
0	1	0	1	1	0	3	1	226	89.3%
1	0	1	0	1	0	3	1	227	89.7%
0	3	3	0	3	0	3	3	230	90.9%
0	0	1	0	0	1	2	1	231	91.3%
0	0	0	0	1	1	2	1	232	91.7%
0	7	7	0	0	0	2	7	239	94.5%
2	0	2	0	0	0	2	2	241	95.3%
6	6	0	0	0	0	2	6	247	97.6%
0	0	1	0	1	0	2	1	248	98.0%
0	0	3	0	0	0	1	3	251	99.2%
0	1	0	0	0	0	1	1	252	99.6%
1	0	0	0	0	0	1	1	253	100.0%
222	237	233	164	175	177		253		

Bristol Bay Red King Crab Qualified Catcher/Processors

1992	1993	1994	1995	1996	1997	1998	1999	2000	Years	Unique Vessels	Cum Vessels	Cum Percent
2	2	0	0	2	2	2	2	2	7	2	2	12.5%
2	2	0	0	0	2	2	2	2	6	2	4	25.0%
0	1	0	0	1	1	1	1	1	6	1	5	31.3%
0	1	0	0	0	1	1	1	1	5	1	6	37.5%
0	2	0	0	0	2	2	0	0	3	2	8	50.0%
0	0	0	0	0	0	1	1	0	2	1	9	56.3%
1	0	0	0	1	0	0	0	0	2	1	10	62.5%
4	4	0	0	0	0	0	0	0	2	4	14	87.5%
0	2	0	0	0	0	0	0	0	1	2	16	100.0%
9	14	0	0	4	8	9	7	6		16		

Bering Sea *C. bairdi* Qualified Catcher/Processors

1991-1992	1992-1993	1993-1994	1994	1995	1996	Years	Vessels	Cumulative Vessels	Cumulative Percent
1	1	1	1	1	1	6	1	1	6.3%
1	1	1	0	1	1	5	1	2	12.5%
4	4	4	4	4	0	5	4	6	37.5%
1	1	1	0	0	1	4	1	7	43.8%
2	2	2	0	2	0	4	2	9	56.3%
1	1	1	1	0	0	4	1	10	62.5%
0	0	1	1	1	0	3	1	11	68.8%
0	1	1	0	1	0	3	1	12	75.0%
1	0	1	0	1	0	3	1	13	81.3%
1	1	1	0	0	0	3	1	14	87.5%
1	0	0	0	0	1	2	1	15	93.8%
1	1	0	0	0	0	2	1	16	100.0%
14	13	14	7	11	4		16		

Pribilof Red King Crab Qualified Catcher Vessels

1993	1994	1995	1996	1997	1998	Years	Unique Vessels	Cumulative Vessels	Cumulative Percent
14	14	14	14	14	14	6	14	14	11.7%
3	3	3	3	3	0	5	3	17	14.2%
0	1	1	1	1	1	5	1	18	15.0%
1	1	1	0	1	1	5	1	19	15.8%
5	0	5	5	5	5	5	5	24	20.0%
5	5	0	5	5	5	5	5	29	24.2%
7	7	7	7	0	7	5	7	36	30.0%
3	3	3	3	0	0	4	3	39	32.5%
1	1	1	0	1	0	4	1	40	33.3%
1	0	1	1	0	1	4	1	41	34.2%
1	0	1	0	1	1	4	1	42	35.0%
0	2	2	2	0	2	4	2	44	36.7%
2	2	2	0	0	2	4	2	46	38.3%
0	2	2	2	0	0	3	2	48	40.0%
1	0	1	1	0	0	3	1	49	40.8%
1	1	0	1	0	0	3	1	50	41.7%
10	10	10	0	0	0	3	10	60	50.0%
1	0	1	0	1	0	3	1	61	50.8%
1	1	0	0	1	0	3	1	62	51.7%
0	2	2	0	2	0	3	2	64	53.3%
0	1	1	0	0	1	3	1	65	54.2%
0	11	11	0	0	0	2	11	76	63.3%
6	0	6	0	0	0	2	6	82	68.3%
12	12	0	0	0	0	2	12	94	78.3%
1	0	0	0	0	1	2	1	95	79.2%
0	14	0	0	0	0	1	14	109	90.8%
11	0	0	0	0	0	1	11	120	100.0%
87	93	75	45	35	41		120		

Pribilof Blue King Crab Qualified Catcher Vessels

1993	1994	1995	1996	1997	1998	Years	Unique Vessels	Cum Vessels	Cum Percent
0	0	20	20	20	20	4	20	20	24.1%
0	0	9	9	0	9	3	9	29	34.9%
0	0	0	4	4	4	3	4	33	39.8%
0	0	2	0	2	2	3	2	35	42.2%
0	0	4	4	4	0	3	4	39	47.0%
0	0	3	0	0	3	2	3	42	50.6%
0	0	0	1	0	1	2	1	43	51.8%
0	0	6	6	0	0	2	6	49	59.0%
0	0	4	0	4	0	2	4	53	63.9%
0	0	0	0	0	1	1	1	54	65.1%
0	0	0	1	0	0	1	1	55	66.3%
0	0	27	0	0	0	1	27	82	98.8%
0	0	0	0	1	0	1	1	83	100.0%
0	0	75	45	35	40		83		

Pribilof Red King Crab Qualified Catcher/Processors

1993	1994	1995	1996	1997	1998	Years	Unique Vessels	Cumulative Vessels	Cumulative Percent
2	0	0	0	0	0	1	2	2	100.0%

Pribilof Blue King Crab Qualified Catcher/Processors

1993	1994	1995	1996	1997	1998	1999	2000	Years	Unique Vessels	Cumulative Vessels	Cumulative Percent
0	0	1	0	0	0	0	0	1	1	1	100.0%

Saint Matthews Blue King Crab Qualified Catcher Vessels

1993	1994	1995	1996	1997	1998	Years	Unique Vessels	Cum Vessels	Cum Percent
31	31	31	31	31	31	6	31	31	22.46%
9	0	9	9	9	9	5	9	40	28.99%
0	5	5	5	5	5	5	5	45	32.61%
4	4	0	4	4	4	5	4	49	35.51%
3	3	3	3	0	3	5	3	52	37.68%
1	1	1	1	1	0	5	1	53	38.41%
0	0	7	7	7	7	4	7	60	43.48%
6	0	0	6	6	6	4	6	66	47.83%
0	3	0	3	3	3	4	3	69	50.00%
3	3	0	0	3	3	4	3	72	52.17%
0	1	1	0	1	1	4	1	73	52.90%
0	1	1	1	0	1	4	1	74	53.62%
1	1	0	1	0	1	4	1	75	54.35%
0	1	1	1	1	0	4	1	76	55.07%
1	1	1	0	1	0	4	1	77	55.80%
1	1	1	1	0	0	4	1	78	56.52%
0	0	0	7	7	7	3	7	85	61.59%
1	0	0	0	1	1	3	1	86	62.32%
0	0	1	1	0	1	3	1	87	63.04%
0	1	0	1	0	1	3	1	88	63.77%
1	0	0	1	0	1	3	1	89	64.49%
0	1	1	0	0	1	3	1	90	65.22%
1	0	1	0	0	1	3	1	91	65.94%
0	0	1	1	1	0	3	1	92	66.67%
1	1	0	0	1	0	3	1	93	67.39%
0	3	3	3	0	0	3	3	96	69.57%
2	0	2	2	0	0	3	2	98	71.01%
3	3	3	0	0	0	3	3	101	73.19%
0	0	0	0	5	5	2	5	106	76.81%
0	0	0	3	0	3	2	3	109	78.99%
1	0	0	0	0	1	2	1	110	79.71%
0	0	0	3	3	0	2	3	113	81.88%
0	2	0	0	2	0	2	2	115	83.33%
0	5	5	0	0	0	2	5	120	86.96%
5	5	0	0	0	0	2	5	125	90.58%
0	0	0	0	0	4	1	4	129	93.48%
0	0	0	0	2	0	1	2	131	94.93%
0	0	1	0	0	0	1	1	132	95.65%
0	1	0	0	0	0	1	1	133	96.38%
5	0	0	0	0	0	1	5	138	100.00%
80	78	79	95	94	100		138		

Saint Matthews Blue King Crab Qualified Catcher/Processors

1993	1994	1995	1996	1997	1998	Years	Unique Vessels	Cum Vessels	Cum Percent
0	0	0	1	1	1	3	1	1	16.7%
1	1	1	0	0	0	3	1	2	33.3%
1	0	0	1	0	0	2	1	3	50.0%
1	1	0	0	0	0	2	1	4	66.7%
0	2	0	0	0	0	1	2	6	100.0%
3	4	1	2	1	1		6		

Eastern Aleutians Islands (Dutch Harbor) Golden King Crab Catcher/Vessels

1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	Years	Unique Vessels	Cum Vessels	Cum Percent
0	0	2	0	0	0	0	0	0	1	2	2	11.8%
0	0	1	0	1	0	0	0	0	2	1	3	17.6%
0	0	1	1	0	0	0	0	0	2	1	4	23.5%
0	1	1	0	0	0	0	0	0	2	1	5	29.4%
1	1	0	0	0	0	0	0	0	2	1	6	35.3%
0	0	0	0	0	0	1	1	1	3	1	7	41.2%
0	0	0	0	0	1	1	1	1	4	1	8	47.1%
1	1	1	1	0	0	0	0	0	4	1	9	52.9%
1	1	0	0	1	0	0	1	1	5	1	10	58.8%
0	0	1	1	1	1	1	1	1	7	1	11	64.7%
0	3	3	3	3	3	3	3	3	8	3	14	82.4%
1	0	1	1	1	1	1	1	1	8	1	15	88.2%
2	2	2	2	2	2	2	2	2	9	2	17	100.0%
6	9	13	9	9	8	9	10	10		17		

Western Aleutian Islands (Adak) Red King Crab Qualified Catcher Vessels

1992-1993	1993-1994	1994-1995	1995-1996	Years	Vessels	Cum Vessels	Cum Percent
0	1	1	1	3	1	1	3.7%
3	3	3	0	3	3	4	14.8%
0	2	0	2	2	2	6	22.2%
0	1	1	0	2	1	7	25.9%
1	0	1	0	2	1	8	29.6%
1	1	0	0	2	1	9	33.3%
0	0	11	0	1	11	20	74.1%
0	3	0	0	1	3	23	85.2%
4	0	0	0	1	4	27	100.0%
9	11	17	3		27		

Eastern Aleutian Islands (Dutch Harbor) golden king crab qualified catcher/processors												
1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	Years	Vessels	Cum Vessels	Cum Percent
0	0	0	0	0	0	0	1	0	1	1	1	33.3%
2	0	0	0	0	0	0	0	0	1	2	3	100.0%
2	0	0	0	0	0	0	1	0		3		

Western Aleutian Islands (Adak) red king crab qualified catcher vessels							
1992-1993	1993-1994	1994-1995	1995-1996	Years	Vessels	Cum Vessels	Cum Percent
1	1	1	1	4	1	1	50.0%
0	0	1	0	1	1	2	100.0%
1	1	2	1		2		

Western Aleutian Islands (Adak) golden king crab qualified catcher vessels												
1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	Years	Unique Vessels	Cum Vessels	Cum Percent
0	1	1	1	1	1	0	1	1	7	1	1	5.0%
0	0	1	1	1	1	0	1	1	6	1	2	10.0%
1	1	1	0	1	1	0	1	1	6	1	3	15.0%
0	1	1	0	1	0	0	1	1	5	1	4	20.0%
0	1	1	1	0	0	0	1	1	5	1	5	25.0%
0	0	1	1	1	1	0	0	1	5	1	6	30.0%
1	1	1	1	0	1	0	1	0	5	1	7	35.0%
1	0	1	0	1	0	0	1	1	4	1	8	40.0%
0	1	0	1	1	0	0	1	0	4	1	9	45.0%
0	0	0	0	1	0	0	1	1	3	1	10	50.0%
0	2	2	2	0	0	0	0	0	3	2	12	60.0%
1	1	1	1	0	0	0	0	0	3	1	13	65.0%
0	1	0	1	0	0	0	0	0	2	1	14	70.0%
0	2	2	0	0	0	0	0	0	2	2	16	80.0%
2	2	2	0	0	0	0	0	0	2	2	18	90.0%
0	2	0	0	0	0	0	0	0	1	2	20	100.0%
6	16	15	10	8	5	0	9	8		20		

Western Aleutian Islands (Adak) golden king crab qualified catcher processors												
1992-1993	1993-1994	1994-1995	1995-1996	1996-1997	1997-1998	1998-1999	1999-2000	2000-2001	Years	Vessels	Cum Vessels	Cum Percent
2	0	0	0	0	0	0	0	0	1	2	2	66.7%
1	1	1	1	1	1	1	1	1	9	1	3	100.0%
3	1	1	1	1	1	1	1	1		3		

Appendix 2-2

Harvest and Ex-vessel Revenues

for BSAI Fisheries

Figure 2-2-1. Total pounds, exvessel gross revenue, and number of vessels for qualified and non-qualified vessels by type and season for Bering Sea *C. opilio* fishery.

Season	Vessel Type	Qualified			Non-Qualified			Total		
		Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991	ALL	277,038,196	\$140,106,737	186	48,145,037	\$24,361,389	34	325,183,233	\$164,468,126	220
1992	ALL	263,316,684	\$134,738,987	211	49,522,720	\$25,355,633	39	312,839,404	\$160,094,620	250
1993	ALL	192,794,833	\$145,560,104	219	36,378,975	\$27,466,127	35	229,173,808	\$173,026,231	254
1994	ALL	126,131,616	\$166,974,142	231	21,861,339	\$28,692,576	42	147,992,955	\$195,666,718	273
1995	ALL	68,241,554	\$158,792,881	226	5,763,805	\$13,374,605	27	74,005,359	\$172,167,486	253
1996	ALL	62,298,495	\$85,311,579	221	2,064,663	\$2,828,588	13	64,363,158	\$88,140,168	234
1997	ALL	110,175,845	\$86,818,566	211	7,003,838	\$5,519,024	15	117,179,683	\$92,337,590	226
1998	ALL	221,759,908	\$125,296,748	209	18,673,742	\$10,550,665	20	240,433,650	\$135,847,412	229
1999	ALL	165,749,984	\$162,932,235	214	16,928,523	\$16,640,738	27	182,678,507	\$179,572,974	241
2000	ALL	27,356,045	\$50,471,904	205	2,902,125	\$5,354,421	23	30,258,170	\$55,826,325	228
1991	C/P	46,247,487	\$23,400,401	17	20,713,480	\$10,481,021	9	66,960,967	\$33,881,421	26
1992	C/P	29,497,134	\$15,102,533	15	24,796,443	\$12,695,779	15	54,293,577	\$27,798,312	30
1993	C/P	25,224,431	\$19,044,446	15	16,452,662	\$12,421,760	12	41,677,093	\$31,466,207	27
1994	C/P	15,259,838	\$20,356,533	17	8,564,205	\$11,313,773	7	23,824,043	\$31,670,305	24
1995	C/P	6,415,864	\$14,725,914	15	1,909,708	\$4,508,821	4	8,325,572	\$19,234,735	19
1996	C/P	10,622,330	\$14,552,592	15	0	\$0	0	10,622,330	\$14,552,592	15
1997	C/P	*	*	11	*	*	1	12,395,552	\$9,767,695	12
1998	C/P	*	*	10	*	*	2	16,301,645	\$9,210,430	12
1999	C/P	*	*	9	*	*	1	9,934,426	\$9,765,541	10
2000	C/P	*	*	8	*	*	1	1,350,744	\$2,492,123	9
1991	C/V	230,790,709	\$116,706,337	174	27,431,557	\$13,880,368	27	258,222,266	\$130,586,704	201
1992	C/V	233,819,550	\$119,636,454	198	24,726,277	\$12,659,854	24	258,545,827	\$132,296,308	222
1993	C/V	167,570,402	\$126,515,658	204	19,926,313	\$15,044,367	23	187,496,715	\$141,560,025	227
1994	C/V	110,871,778	\$146,617,609	215	13,297,134	\$17,378,804	35	124,168,912	\$163,996,413	250
1995	C/V	61,825,690	\$144,066,967	211	3,854,097	\$8,865,784	23	65,679,787	\$152,932,751	234
1996	C/V	51,676,165	\$70,758,987	208	2,064,663	\$2,828,588	13	53,740,828	\$73,587,576	221
1997	C/V	98,738,242	\$77,805,735	200	6,045,889	\$4,764,161	14	104,784,131	\$82,569,895	214
1998	C/V	208,147,517	\$117,605,746	200	15,984,488	\$9,031,236	18	224,132,005	\$126,636,982	218
1999	C/V	156,454,954	\$153,795,221	206	16,289,127	\$16,012,212	26	172,744,081	\$169,807,433	232
2000	C/V	26,139,185	\$48,226,797	197	2,768,241	\$5,107,405	22	28,907,426	\$53,334,202	219

Figure 2-2-2. Total pounds, exvessel gross revenue and number of vessels for qualified and non-qualified vessels by type and season for Bristol Bay red king crab fishery.

Season	Vessel Type	Qualified			Non-Qualified			Total		
		Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991	ALL	14,203,706	\$46,403,508	244	2,645,856	\$8,644,012	54	16,849,562	\$55,047,519	298
1992	ALL	6,936,546	\$36,402,993	234	1,053,494	\$5,528,737	45	7,990,040	\$41,931,730	279
1993	ALL	12,575,720	\$50,051,366	247	1,767,318	\$7,033,926	43	14,343,038	\$57,085,291	290
1996	ALL	7,842,994	\$31,591,580	179	476,617	\$1,919,813	15	8,319,611	\$33,511,393	194
1997	ALL	8,109,415	\$26,477,241	233	610,988	\$1,994,876	23	8,720,403	\$28,472,117	256
1998	ALL	12,700,690	\$33,428,216	241	1,419,797	\$3,736,906	33	14,120,487	\$37,165,122	274
1999	ALL	9,763,590	\$61,178,655	224	1,186,266	\$7,433,143	32	10,949,856	\$68,611,798	256
2000	ALL	6,709,374	\$32,332,474	213	758,866	\$3,656,975	31	7,468,240	\$35,989,449	244
1991	C/P	1,231,006	\$4,021,697	12	1,096,244	\$3,581,429	13	2,327,250	\$7,603,126	25
1992	C/P	385,502	\$2,023,115	9	240,428	\$1,261,766	6	625,930	\$3,284,881	15
1993	C/P	*	*	14	*	*	2	1,194,577	\$4,754,416	16
1996	C/P	236,566	\$952,888	4	0	\$0	0	236,566	\$952,888	4
1997	C/P	305,426	\$997,216	8	0	\$0	0	305,426	\$997,216	8
1998	C/P	*	*	9	*	*	2	780,643	\$2,054,652	11
1999	C/P	*	*	7	*	*	1	600,103	\$3,760,245	8
2000	C/P	209,181	\$1,008,043	6	0	\$0	0	209,181	\$1,008,043	6
1991	C/V	12,972,700	\$42,381,811	232	1,549,612	\$5,062,582	41	14,522,312	\$47,444,393	273
1992	C/V	6,551,044	\$34,379,879	225	813,066	\$4,266,970	39	7,364,110	\$38,646,849	264
1993	C/V	11,589,976	\$46,128,104	235	1,558,485	\$6,202,770	41	13,148,461	\$52,330,875	276
1996	C/V	7,606,428	\$30,638,692	175	476,617	\$1,919,813	15	8,083,045	\$32,558,505	190
1997	C/V	7,803,989	\$25,480,025	225	610,988	\$1,994,876	23	8,414,977	\$27,474,901	248
1998	C/V	12,020,973	\$31,639,201	232	1,318,871	\$3,471,268	31	13,339,844	\$35,110,469	263
1999	C/V	9,194,954	\$57,615,582	217	1,154,799	\$7,235,971	31	10,349,753	\$64,851,552	248
2000	C/V	6,500,193	\$31,324,430	207	758,866	\$3,656,975	31	7,259,059	\$34,981,406	238

Figure 2-2-3. Total pounds, exvessel gross revenue, and number of vessels for qualified and non-qualified vessels by type and season for Bering Sea *C. bairdi* fishery.

Season	Vessel Type	Qualified			Non-Qualified			Total		
		Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991-1992	ALL	25,827,541	\$39,010,333	234	5,686,804	\$8,538,118	51	31,514,345	\$47,548,451	285
1992-1993	ALL	30,360,268	\$50,041,533	249	4,426,643	\$7,255,484	45	34,786,911	\$57,297,017	294
1993-1994	ALL	14,704,102	\$26,136,024	247	1,915,877	\$3,416,009	49	16,619,979	\$29,552,033	296
1994	ALL	7,355,745	\$34,166,641	171	278,361	\$1,199,417	12	7,634,106	\$35,366,058	183
1995	ALL	4,063,363	\$11,573,901	186	120,648	\$349,759	10	4,184,011	\$11,923,660	196
1996	ALL	1,675,352	\$4,305,655	181	112,750	\$289,750	15	1,788,102	\$4,595,405	196
1991-1992	C/P	3,415,988	\$5,138,908	14	3,026,720	\$4,547,074	15	6,442,708	\$9,685,982	29
1992-1993	C/P	2,754,082	\$4,502,530	13	1,492,001	\$2,426,907	9	4,246,083	\$6,929,437	22
1993-1994	C/P	*	*	14	*	*	3	2,072,386	\$3,695,064	17
1994	C/P	*	*	7	*	*	2	630,984	\$2,830,811	9
1995	C/P	370,209	\$1,073,236	11	0	\$0	0	370,209	\$1,073,236	11
1996	C/P	15,316	\$39,362	4	0	\$0	0	15,316	\$39,362	4
1991-1992	CV	22,411,553	\$33,871,425	222	2,660,084	\$3,991,044	37	25,071,637	\$37,862,469	259
1992-1993	CV	27,606,186	\$45,539,003	237	2,934,642	\$4,828,577	38	30,540,828	\$50,367,580	275
1993-1994	CV	13,043,857	\$23,175,807	233	1,503,736	\$2,681,161	46	14,547,593	\$25,856,968	279
1994	CV	6,862,800	\$31,878,681	164	140,322	\$656,567	10	7,003,122	\$32,535,247	174
1995	CV	3,693,154	\$10,500,665	175	120,648	\$349,759	10	3,813,802	\$10,850,424	185
1996	CV	1,660,036	\$4,266,293	177	112,750	\$289,750	15	1,772,786	\$4,556,043	192

Figure 2-2-6. Total pounds, exvessel gross revenue, and number of vessels for qualified and non-qualified vessels by type and season for St. Matthew blue king crab fishery.

Season	Vessel Type	Qualified			Non-Qualified			Total		
		Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991	ALL	2,339,768	\$5,928,972	51	815,839	\$2,067,336	17	3,155,607	\$7,996,308	68
1992	ALL	2,205,585	\$6,896,864	154	268,495	\$839,584	20	2,474,080	\$7,736,448	174
1993	ALL	2,686,189	\$7,720,107	82	313,732	\$901,666	10	2,999,921	\$8,621,773	92
1994	ALL	3,432,831	\$13,861,627	82	284,732	\$725,895	5	3,717,563	\$14,587,522	87
1995	ALL	2,772,016	\$6,790,651	80	303,886	\$756,676	10	3,075,902	\$7,547,327	90
1996	ALL	2,443,818	\$6,375,921	97	596,948	\$1,557,437	25	3,040,766	\$7,933,359	122
1997	ALL	3,641,843	\$8,875,172	95	796,552	\$1,941,197	22	4,438,395	\$10,816,369	117
1998	ALL	2,197,756	\$4,213,098	101	651,818	\$1,249,535	30	2,849,574	\$5,462,634	131
1991	C/P	*	*	5	*	*	4	*	*	9
1992	C/P	*	*	4	*	*	3	*	*	7
1993	C/P	*	*	3	*	*	0	*	*	3
1994	C/P	*	*	4	*	*	2	*	*	6
1995	C/P	*	*	1	*	*	0	*	*	1
1996	C/P	*	*	2	*	*	1	*	*	3
1997	C/P	*	*	1	*	*	0	*	*	1
1998	C/P	*	*	1	*	*	1	*	*	2
1991	CV	*	*	46	*	*	13	*	*	59
1992	CV	*	*	150	*	*	17	*	*	167
1993	CV	*	*	80	*	*	10	*	*	90
1994	CV	*	*	78	*	*	3	*	*	81
1995	CV	*	*	79	*	*	10	*	*	89
1996	CV	*	*	95	*	*	24	*	*	119
1997	CV	*	*	94	*	*	22	*	*	116
1998	CV	*	*	100	*	*	29	*	*	129

Figure 2-2-7. Total pounds, exvessel gross revenue, and number of vessels for qualified and non-qualified vessels by type and season for Eastern Aleutian Islands (Dutch Harbor) golden king crab fishery.

Season	Vessel Type	Qualified			Non-Qualified			Total		
		Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991-1992	ALL	1,974,126	\$4,528,732	8	2,416,727	\$5,462,367	7	4,390,853	\$9,991,098	15
1992-1993	ALL	2,043,019	\$4,159,592	8	2,386,525	\$4,868,158	5	4,429,544	\$9,027,751	13
1993-1994	ALL	*	*	9	*	*	1	3,259,394	\$10,811,642	10
1994-1995	ALL	3,303,883	\$11,363,276	13	1,275,940	\$4,527,827	6	4,579,823	\$15,891,104	19
1995-1996	ALL	3,483,070	\$8,686,647	9	996,393	\$2,804,567	9	4,479,463	\$11,491,213	18
1996-1997	ALL	2,268,056	\$5,020,547	9	837,603	\$1,858,443	5	3,105,659	\$6,878,990	14
1997-1998	ALL	2,253,734	\$5,054,463	8	1,104,133	\$2,482,160	5	3,357,867	\$7,536,623	13
1998-1999	ALL	2,209,045	\$4,183,032	9	955,975	\$1,830,274	5	3,165,020	\$6,013,306	14
1999-2000	ALL	2,257,904	\$7,006,276	11	741,986	\$2,302,383	4	2,999,890	\$9,308,659	15
2000-2001	ALL	2,088,183	\$6,991,796	10	998,707	\$3,344,395	5	3,086,890	\$10,336,191	15
1991-1992	C/P	*	*	2	*	*	4	*	*	6
1992-1993	C/P	*	*	2	*	*	3	*	*	5
1995-1996	C/P	*	*	0	*	*	1	*	*	1
1996-1997	C/P	*	*	0	*	*	2	*	*	2
1997-1998	C/P	*	*	0	*	*	1	*	*	1
1998-1999	C/P	*	*	1	*	*	0	*	*	1
1991-1992	C/V	*	*	6	*	*	3	*	*	9
1992-1993	C/V	*	*	6	*	*	2	*	*	8
1993-1994	C/V	*	*	9	*	*	1	*	*	10
1994-1995	C/V	*	*	13	*	*	6	*	*	19
1995-1996	C/V	*	*	9	*	*	8	*	*	17
1996-1997	C/V	*	*	9	*	*	5	*	*	14
1997-1998	C/V	*	*	8	*	*	3	*	*	11
1998-1999	C/V	*	*	9	*	*	4	*	*	13
1999-2000	C/V	*	*	10	*	*	4	*	*	14
2000-2001	C/V	*	*	10	*	*	5	*	*	15

Figure 2-2-8. Total pounds, exvessel gross revenue, and number of vessels for qualified and non-qualified vessels by type and season for the Western Aleutian Islands (Adak) golden king crab fishery.

Season	Vessel Type	Qualified			Non-Qualified			Total		
		Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991-1992	ALL	*	*	8	*	*	3	3,143,391	\$6,719,363	11
1992-1993	ALL	1,546,165	\$3,053,918	9	130,745	\$258,469	5	1,676,910	\$3,312,387	14
1993-1994	ALL	*	*	16	*	*	2	2,119,067	\$8,403,487	18
1994-1995	ALL	2,460,486	\$7,631,290	15	794,630	\$2,449,951	13	3,255,116	\$10,081,240	28
1995-1996	ALL	1,293,107	\$2,950,817	10	872,834	\$1,995,799	8	2,165,941	\$4,946,616	18
1996-1997	ALL	1,845,823	\$4,076,466	9	557,898	\$1,217,520	4	2,403,721	\$5,293,986	13
1997-1998	ALL	*	*	6	*	*	3	2,405,622	\$4,765,475	9
1998-1999	ALL	*	*	1	*	*	2	*	*	3
1999-2000	ALL	2,226,614	\$7,100,926	10	436,667	\$1,393,585	5	2,663,281	\$8,494,511	15
2000-2001	ALL	*	*	9	*	*	3	2,902,518	\$4,090,565	12
1991-1992	C/P	*	*	4	*	*	3	*	*	7
1992-1993	C/P	*	*	3	*	*	1	*	*	4
1993-1994	C/P	*	*	1	*	*	0	*	*	1
1994-1995	C/P	*	*	1	*	*	1	*	*	2
1995-1996	C/P	*	*	1	*	*	0	*	*	1
1996-1997	C/P	*	*	1	*	*	1	*	*	2
1997-1998	C/P	*	*	1	*	*	1	*	*	2
1998-1999	C/P	*	*	1	*	*	0	*	*	1
1999-2000	C/P	*	*	1	*	*	0	*	*	1
2000-2001	C/P	*	*	1	*	*	0	*	*	1
1991-1992	C/V	*	*	4	*	*	0	*	*	4
1992-1993	C/V	*	*	6	*	*	4	*	*	10
1993-1994	C/V	*	*	16	*	*	2	*	*	18
1994-1995	C/V	*	*	15	*	*	12	*	*	27
1995-1996	C/V	*	*	10	*	*	8	*	*	18
1996-1997	C/V	*	*	8	*	*	3	*	*	11
1997-1998	C/V	*	*	5	*	*	2	*	*	7
1998-1999	C/V	*	*	0	*	*	2	*	*	2
1999-2000	C/V	*	*	9	*	*	5	*	*	14
2000-2001	C/V	*	*	8	*	*	3	*	*	11

Figure 2-2-9. Total pounds, exvessel gross revenue, and number of vessels for qualified and non-qualified vessels by type and season for Western Aleutian Islands (Adak) red king crab fishery.

Season	Vessel Type	Qualified			Non-Qualified			Total		
		Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels	Pounds	Exvessel Gross Revenue	Vessels
1991-1992	ALL	*	*	7	*	*	3	951,278	\$3,351,570	10
1992-1993	ALL	*	*	10	*	*	2	1,281,424	\$5,817,731	12
1993-1994	ALL	*	*	11	*	*	1	690,675	\$2,570,610	12
1994-1995	ALL	*	*	19	*	*	1	195,537	\$1,076,824	20
1995-1996	ALL	*	*	3	*	*	1	38,706	\$103,670	4
1991-1992	C/P	*	*	2	*	*	1	*	*	3
1992-1993	C/P	*	*	1	*	*	1	*	*	2
1993-1994	C/P	*	*	1	*	*	0	*	*	1
1994-1995	C/P	*	*	2	*	*	0	*	*	2
1995-1996	C/P	*	*	1	*	*	0	*	*	1
1991-1992	C/V	*	*	5	*	*	3	*	*	8
1992-1993	C/V	*	*	9	*	*	1	*	*	10
1993-1994	C/V	*	*	11	*	*	1	*	*	12
1994-1995	C/V	*	*	17	*	*	1	*	*	18
1995-1996	C/V	*	*	3	*	*	1	*	*	4

Appendix 2-3

First Wholesale Prices

The price that the first processor of crab receives for their product is known as the first wholesale price. In the crab fisheries, the best source of first wholesale price information is the Commercial Operator's Annual Report (COAR). Processors are required to file the COAR with the State of Alaska each year they submit an Intent to Operate application. The Intent to Operate application must be completed for a processor to operate in the State of Alaska.

Information in the COAR include the species that was processed, the product form that was produced, the price received for the product, and the quantity of the product produced on an annual basis. Weighted first wholesale prices can then be calculated by dividing the value of the product by the quantity all processors produced. Table 1 reports a summary of the weighted first wholesale prices by species and product. As can be seen from Table 2, shellfish sections accounted for the majority of the crab products produced in all species.

Other product forms were listed as being processed in the COAR data. Those product listed in the data are provided in Table 3. All of the products were excluded from the calculations presented in previous tables except for shellfish meat, shellfish sections, and whole crabs. Excluding those unusual data types helped to clean the prices that are reported, as they contained either very high or low prices in many cases. A hand check of the data was then used to check for other outliers. There was only two other cases where additional data were deleted from the analysis. Both were in the *C. bairdi* fishery where are price of more than \$44 per pound was reported. The total number of pounds deleted from the calculation was less than 58,000. The maximum and minimum prices of the products that were retained are reported in Table 4.

In general there has been a fairly substantial amount of price fluctuation over the 1991 to 2000 time period. First wholesale prices tended to peak in 1994 and 1995. Prices then declined from 1996 through 1998. However, in 1999 and 2000 prices increase to levels closer to those seen in 1994 and 1995.

Table 1. First wholesale crab prices by species and product form, 1991-2000 (prices have not been adjusted for inflation)

Species	Product	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Red King Crab	Shellfish Sections	\$ 6.57	\$ 8.24	\$ 7.43	\$ 11.90	\$ 10.01	\$ 8.53	\$ 6.15	\$ 5.52	\$ 11.25	\$ 9.11
	Whole	\$ 6.47	\$ 9.35	\$ 6.64	\$ 5.75	\$ 5.73	\$ 4.59	\$ 6.42	\$ 3.83	\$ 10.69	\$ 7.74
Blue King Crab	Shellfish Sections	\$ 5.80	\$ 5.85	\$ 4.54	\$ 10.08	\$ 5.86	\$ 5.91	\$ 5.02	\$ 4.80	Conf.	Conf.
Golden King Crab	Shellfish Sections	\$ 5.89	\$ 4.83	\$ 4.59	\$ 6.15	\$ 5.79	\$ 5.18	\$ 4.75	\$ 4.24	\$ 6.90	\$ 7.22
	Whole	\$ 4.28	\$ 5.03	\$ 4.84	\$ 6.97	Conf.	Conf.	Conf.	\$ 4.90	\$ 3.79	\$ 4.60
C. bairdi (Tanner) Crab	Shellfish Sections	\$ 3.56	\$ 3.44	\$ 3.61	\$ 6.01	\$ 7.04	\$ 5.33	\$ 5.27	\$ 4.81	\$ 4.23	\$ 5.83
	Whole	\$ 3.72	\$ 3.98	\$ 3.88	\$ 5.42	\$ 6.06	\$ 3.56	\$ 2.95	\$ 2.95	\$ 3.71	\$ 3.33
C. opilio (snow) Crab	Shellfish Sections	\$ 1.80	\$ 1.88	\$ 2.43	\$ 3.57	\$ 5.28	\$ 3.25	\$ 2.13	\$ 2.03	\$ 2.92	\$ 4.16
	Whole	\$ 1.88	\$ 1.79	\$ 1.84	\$ 3.23	\$ 5.38	\$ 1.67	\$ 1.36	\$ 2.05	\$ 1.06	

Source: Commercial Operator's Annual Reports (1991-2000)

Note: The average price for each species included three product forms (shellfish meat, shellfish sections, and whole crabs). Those products were not always broken out separately in the table because of confidentiality issues.

Table 2. Pounds of product produced (in 1,000's) by species and product form, 1991-2000

Species	Product	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Red King Crab	Shellfish Sections	10,604	6,358	11,274	1,716	1,006	6,009	5,442	9,118	6,875	5,012
	Whole	636	335	107	124	152	81	51	114	135	63
Red King Crab (total)		11,240	6,694	11,381	1,841	1,158	6,091	5,493	9,232	7,010	5,075
Blue King Crab	Shellfish Sections	1,599	1,456	1,715	1,615	2,633	1,632	3,305	2,068	Conf.	Conf.
	Whole	1,616	1,480	1,797	1,743	2,643	1,658	3,311	2,081	Conf.	Conf.
Blue King Crab Total		1,616	1,480	1,797	1,743	2,643	1,658	3,311	2,081	Conf.	Conf.
Golden King Crab	Shellfish Sections	3,216	2,804	3,308	4,305	4,647	4,712	2,697	2,812	3,000	3,649
	Whole	12	3	12	6	Conf.	Conf.	Conf.	106	322	95
Golden King Crab (total)		3,228	2,807	3,320	4,311	Conf.	Conf.	Conf.	2,918	3,322	3,744
C. bairdi (Tanner) crab	Shellfish Sections	23,829	23,516	16,359	11,744	4,479	2,297	1,071	1,335	1,078	817
	Whole	1,277	2,222	1,006	624	190	142	114	314	40	29
C. bairdi (Tanner) crab (total)		25,107	25,738	17,365	12,368	4,669	2,439	1,185	1,649	1,118	847
C. opilio (Snow) crab	Shellfish Sections	168,399	179,713	136,910	83,164	40,428	39,576	184,993	156,562	114,186	18,980
	Whole	9,969	6,049	318	2,096	2,127	347	133	373	1,287	-
C. opilio (Snow) crab (total)		178,368	185,762	137,229	85,260	42,555	39,923	185,127	156,935	115,473	18,980

Source: Commercial Operator's Annual Reports (1991-2000)

Note: "Conf." means there were not enough observations to report the information.

Table 3. Product forms reported in the 1991-2000 COAR data, by count and total weight

Product	Data	Total
Bait	# of Times Product was Reported	1
	Pounds of Product Reported	100
Bones	# of Times Product was Reported	3
	Pounds of Product Reported	6,091,338
H & G	# of Times Product was Reported	1
	Pounds of Product Reported	81,238
H & G, Eastern Cut	# of Times Product was Reported	1
	Pounds of Product Reported	241,980
H & G, Western Cut	# of Times Product was Reported	4
	Pounds of Product Reported	3,053
Other	# of Times Product was Reported	50
	Pounds of Product Reported	2,330,476
Roe	# of Times Product was Reported	1
	Pounds of Product Reported	31,113
Shellfish Meat	# of Times Product was Reported	42
	Pounds of Product Reported	1,657,482
Shellfish Sections	# of Times Product was Reported	1,498
	Pounds of Product Reported	1,327,137,265
Shrimp Tails	# of Times Product was Reported	17
	Pounds of Product Reported	351,898
Stomachs	# of Times Product was Reported	5
	Pounds of Product Reported	68,186
Whole	# of Times Product was Reported	424
	Pounds of Product Reported	31,499,249
Not Reported	# of Times Product was Reported	30
	Pounds of Product Reported	3,256,683

Table 4. Maximum and minimum prices reported in the retained data (prices have not been adjusted for inflation).

Species	Product	Data	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Red King Crab	Shellfish Sections	Max Price	\$ 9.50	\$ 21.50	\$ 9.50	\$ 18.33	\$ 14.00	\$ 10.95	\$ 8.82	\$ 9.75	\$ 13.06	\$ 12.44
		Min Price	\$ 0.70	\$ 4.60	\$ 3.80	\$ 1.50	\$ 5.00	\$ 2.25	\$ 4.09	\$ 2.41	\$ 5.45	\$ 7.00
	Whole	Max Price	\$ 7.88	\$ 10.26	\$ 7.50	\$ 13.96	\$ 12.83	\$ 8.49	\$ 8.36	\$ 7.86	\$ 15.03	\$ 12.00
		Min Price	\$ 3.60	\$ 4.76	\$ 3.27	\$ 3.00	\$ 4.08	\$ 0.34	\$ 3.50	\$ 1.29	\$ 5.40	\$ 6.47
Blue King Crab	Shellfish Sections	Max Price	\$ 9.00	\$ 7.63	\$ 7.82	\$ 14.35	\$ 11.04	\$ 8.00	\$ 8.03	\$ 6.00	Conf.	Conf.
		Min Price	\$ 2.90	\$ 3.25	\$ 2.85	\$ 5.00	\$ 5.20	\$ 4.70	\$ 4.30	\$ 2.86	Conf.	Conf.
	Whole	Max Price	\$ 6.40	\$ 7.10	\$ 7.50	\$ 10.30	\$ 6.63	\$ 5.00	\$ 7.00	\$ 4.85	Conf.	Conf.
		Min Price	\$ 4.16	\$ 4.00	\$ 3.25	\$ 7.60	\$ 5.97	\$ 2.00	\$ 6.00	\$ 3.50	Conf.	Conf.
Golden King Crab	Shellfish Sections	Max Price	\$ 8.75	\$ 10.50	\$ 10.50	\$ 10.00	\$ 9.62	\$ 8.46	\$ 7.50	\$ 7.19	\$ 13.00	\$ 10.20
		Min Price	\$ 3.50	\$ 4.39	\$ 3.20	\$ 4.23	\$ 4.71	\$ 3.81	\$ 4.22	\$ 3.96	\$ 3.45	\$ 5.19
	Whole	Max Price	\$ 5.94	\$ 6.41	\$ 5.50	\$ 7.95	Conf.	Conf.	Conf.	\$ 9.01	\$ 6.60	\$ 9.31
		Min Price	\$ 3.00	\$ 3.00	\$ 4.25	\$ 3.00	Conf.	Conf.	Conf.	\$ 4.52	\$ 3.08	\$ 4.25
C. bairdi	Shellfish Sections	Max Price	\$ 5.80	\$ 6.39	\$ 5.05	\$ 10.05	\$ 9.94	\$ 7.50	\$ 6.26	\$ 5.50	\$ 5.78	\$ 6.55
		Min Price	\$ 0.46	\$ 0.12	\$ 1.61	\$ 3.54	\$ 5.56	\$ 2.60	\$ 3.25	\$ 1.79	\$ 1.74	\$ 2.76
	Whole	Max Price	\$ 5.47	\$ 6.18	\$ 5.50	\$ 9.55	\$ 7.01	\$ 6.24	\$ 6.00	\$ 4.86	\$ 4.43	\$ 5.50
		Min Price	\$ 1.65	\$ 0.88	\$ 1.95	\$ 0.65	\$ 0.99	\$ 2.00	\$ 2.00	\$ 2.50	\$ 3.06	\$ 3.19
C. opilio	Shellfish Sections	Max Price	\$ 2.25	\$ 2.55	\$ 4.04	\$ 4.95	\$ 6.50	\$ 5.90	\$ 3.03	\$ 3.17	\$ 4.09	\$ 4.65
		Min Price	\$ 0.14	\$ 1.20	\$ 0.72	\$ 1.17	\$ 1.00	\$ 0.51	\$ 1.56	\$ 1.20	\$ 2.30	\$ 0.69
	Whole	Max Price	\$ 3.22	\$ 3.33	\$ 2.98	\$ 3.85	\$ 5.46	\$ 3.00	\$ 2.43	\$ 3.60	\$ 1.87	
		Min Price	\$ 0.70	\$ 1.55	\$ 0.70	\$ 1.36	\$ 3.48	\$ 1.25	\$ 1.00	\$ 0.66	\$ 0.98	

Source: Commercial Operator's Annual Reports (1991-2000)

Note: "Conf." means there were not enough observations to report the information.

Appendix 2-4

Vessel Ownership Information

Appendix 2-4 Vessel Ownership Information – Vertical Integration Vessels with processor or processor affiliate ownership greater than 10 percent

<u>Company</u>	<u>Vessel</u>
Trident Seafoods	Dominator
	Gladiator
	Golden Dawn
	Viking Explorer
	Arcturus
	Aldebaran
	Majesty
	Royal Viking
	Farwest Leader
	Barbara J
	Billikin
	Bountiful
	NORTHERN ENTERPRISE
	WESTERN ENTERPRISE
	GLACIER ENTERPRISE
ROYAL ENTERPRISE	

Note: Vessels in CAPS are catcher/processors

Icicle Seafoods	Viking Queen
	Adventure
	Commodore
	Storm Petrel
	Anita J
	Half Moon Bay
	Sunset Bay

Alyeska Seafoods	Tuxedni
	Bulldog
	Husky
	Labrador
	Retriever
	Alaska Challenger
	Kevleen K
	Sea Wolf
	Note: These vessels are owned by shareholders or affiliates of Alyeska Seafoods, not by the company Alyeska Seafoods

NorQuest Seafoods	Beverly B
	Cape Caution
	Southern Wind

Yardarm Knot	WESTERWARD WIND
	Note: Vessel is a catcher/processor

Royal Aleutian Seafoods	Arctic Sea North Sea Bering Sea Erla N Alaska Sea Note: These vessels are owned by shareholders in Royal Aleutian, not by the company Royal Aleutian
Snopak Products	No crab eligible vessels
Peter Pan Seafoods	No crab eligible vessels
Westward Seafoods	No crab eligible vessels

Appendix 2-5

Ex-vessel Prices by Processor, Fishery, Season, and Species

Procedures: The following procedures were used to determine the ex-vessel prices for the BSAI crab fisheries. Ex-vessel value information from ADF&G fish ticket data were first reviewed and then summarized by processor code, fishery, and season. Landed pounds and value of crab were used to calculate a weighted ex-vessel price for each processor. Summary records include the ex-vessel value of priced fish ticket data and the pounds of both the priced and unpriced deliveries. Since the data were summarized by State of Alaska processor code (i.e., at the plant level), there are multiple records for companies owning more than one processing facility.

Preliminary Preparation of Selected¹ Data: An overview of the fish ticket data revealed fish tickets where the landed weights were distributed among several statistical areas but the ex-vessel values were not. For example, the 1994 ADF&G fish ticket for, BS *C. opilio*, below has a single landed value reported for harvests made in four statistical areas.

Ticket #	Item #	Pounds	Value	Price	Stat Area
nnnnn	001	48,422	0	0	Stat Area 1
	002	48,422	0	0	Stat Area 2
	003	48,422	0	0	Stat Area 3
	004	48,422	\$236,492	\$3.20	Stat Area 4

This ticket shows the equal apportionment of 193,688 pounds among the four statistical areas with only one of the records reporting a value of \$236,492 (equates to a price of \$3.20 per pound for that record). However, if the total value were divided by the total landed weights on all the items on that fish ticket (193,688) then the price for the BS *C. opilio* would be \$1.22, a value compatible with Commercial Fisheries Entry Commission average annual ex-vessel price estimates and with data from the Commercial Operator's Annual Reports. Therefore, when fish tickets had the above pattern, the values were applied to all pounds reported on the fish ticket.

The methodology used to combine the values and the landed weights on individual tickets was to count the number of times a monetary value occurred on a fish ticket and to also count the number of times a weight value was reported. When a ticket had only one dollar value and more than one weight value the weights were aggregated² and the number of observations with apparently invalid prices decreased.³ The restructuring procedure was not without fault, however, as a review of the subsequently identified outliers contained some restructured tickets. However, the procedure was thought to correct a systematic problem encountered when estimating prices which is related to a legitimate method of reporting pounds and values on fish tickets.

Step1:

After the above restructuring was completed, means, minimums, maximums and standard deviations of the price variable were calculated by fishery and season. The results are shown in Table 1. The landed weights were used to weight the prices, this was done because deadloss and discards would not be purchased by the plant and including those weights would skew the estimated prices. After the prices were calculated, a

¹ Fish ticket records associated with test fishing, confiscated catch, cost recovery harvests, CDQ harvests, and out of season harvests were excluded.

² This situation occurred in the 1992-1995 period. There were 1,641 tickets containing 3,826 items.

³There were 268 records with prices ranging from a lows of \$.002 and a high of \$1,285.050 before the restructuring and 83 records afterwards. See Table 2 for more detail.

review of the resulting data revealed some prices of well over \$100 per pound and other prices which were well under \$0.01 per pound.

While these values were not terribly prevalent, they at times skewed a processor's data so greatly that the entire group of data for that processor was effectively unuseable. For this reason an arbitrary edit was done: All records with prices over \$10 were deleted along with all records with prices under \$0.75, with the exception of *BS C. opilio*, for which a minimum price of \$0.01 was used. (so that the lower valued old shell crab would be included). These limits were chosen after reviewing Table 1 and Commercial Fisheries Entry Commission weighted average annual ex-vessel price estimates. This edit removed 83 records across all fisheries in the time periods that were considered. Table 2 provides the range and number of prices deleted. Table 3 shows similar information for the prices that were retained.

Step2:

A weighted mean, minimum, maximum, and standard deviation was then computed on the retained records by fishery, season, species for each processor code. Again, landed weights were used as the weighting factor. A second price edit examined tickets whose price varied from the mean by a factor of ten. For example, if the mean price was \$3.00, then prices of under \$0.30 and over \$30 would be deemed likely data entry problems. *BS C. opilio* prices between \$0.01 and the mean were excepted by this edit because they appeared to reflect valid low prices for hard shell crab. Two records with prices over \$5.00 in the *BS C. opilio* fishery were excluded.

Step3:

A second weighted mean, minimum, maximum, standard deviation, and median were computed from the remaining data. These statistics were then merged back to records containing the total pounds delivered to each processor, the total priced pounds, the total numbers of vessels delivering to the processor, and the total number of vessels which had priced records. Assembling these data allowed the computation of the percent of pounds and records priced for each processor.

A summary of the pricing information by fishery and season is displayed in Table 4 (for all processors). Table 5 provides similar information but excludes catcher/processors and catcher/sellers because these types of operations do not generate typical ex-vessel prices.

Table 1 Observed mean, minimum, maximum and record count of unedited and edited prices, weighted by landed weights by fishery and season

Fishery	Season	Unedited Mean	Edited Mean	Unedited Minimum	Edited Minimum	Unedited Maximum	Edited Maximum	Unedited Record Count	Edited Record Count	Rejected Record Count
ADK-BRN	1991-1992	\$1.861	\$1.925	\$0.501	\$1.154	\$2.150	\$2.150	45	44	1
	1992-1993	\$1.919	\$1.919	\$0.920	\$0.920	\$2.250	\$2.250	42	42	0
	1993-1994	\$2.896	\$2.740	\$2.107	\$2.107	\$259.701	\$4.900	86	82	4
	1994-1995	\$3.288	\$3.288	\$1.534	\$1.534	\$4.400	\$4.400	417	417	0
	1995-1996	\$2.091	\$2.087	\$1.700	\$1.700	\$23.000	\$2.322	479	478	1
	1996-1997	\$2.201	\$2.195	\$0.982	\$0.982	\$165.981	\$2.702	251	250	1
	1997-1998	\$2.138	\$2.138	\$1.800	\$1.800	\$3.000	\$3.000	275	275	0
	1998-1999	\$2.040	\$2.040	\$1.800	\$1.800	\$2.250	\$2.250	70	70	0
	1999-2000	\$3.129	\$3.129	\$2.747	\$2.747	\$3.600	\$3.600	415	415	0
	2000-2001	\$3.097	\$3.097	\$2.745	\$2.745	\$3.550	\$3.550	499	499	0

7										
ADK-RED	1991-1992	\$3.097	\$3.097	\$2.500	\$2.500	\$3.500	\$3.500	9	9	0
	1992-1993	\$4.746	\$4.746	\$4.250	\$4.250	\$5.500	\$5.500	12	12	0
	1993-1994	\$3.519	\$3.519	\$2.597	\$2.597	\$3.880	\$3.880	14	14	0
	1994-1995	\$5.491	\$5.491	\$4.501	\$4.501	\$5.519	\$5.519	27	27	0
	1995-1996	\$2.640	\$2.640	\$2.500	\$2.500	\$2.940	\$2.940	5	5	0

0										
BB-RED	1992-1992	\$4.937	\$4.965	\$0.711	\$1.000	\$5.500	\$5.500	126	125	1
	1993-1993	\$3.744	\$3.827	\$0.380	\$3.800	\$4.350	\$4.350	45	44	1
	1996-1996	\$4.013	\$4.013	\$4.000	\$4.000	\$4.500	\$4.500	219	219	0
	1997-1997	\$3.258	\$3.258	\$3.246	\$3.246	\$4.000	\$4.000	324	324	0
	1998-1998	\$2.644	\$2.611	\$2.000	\$2.000	\$26.000	\$3.000	381	380	1
	1999-1999	\$6.262	\$6.262	\$6.247	\$6.247	\$7.000	\$7.000	394	394	0
	2000-2000	\$4.807	\$4.807	\$4.797	\$4.797	\$5.000	\$5.000	365	365	0

3										
BS-OPIE	1992-1992	\$0.501	\$0.500	\$0.005	\$0.015	\$5.634	\$1.600	1999	1996	3
	1993-1993	\$0.648	\$0.649	\$0.009	\$0.012	\$1.752	\$1.752	1349	1347	2
	1994-1994	\$1.256	\$1.252	\$0.133	\$0.133	\$11.700	\$2.058	995	994	1
	1995-1995	\$2.429	\$2.429	\$0.019	\$0.019	\$3.300	\$3.300	988	988	0
	1996-1996	\$1.326	\$1.326	\$0.500	\$0.500	\$2.000	\$2.000	1006	1006	0
	1997-1997	\$0.785	\$0.785	\$0.007	\$0.010	\$1.400	\$1.400	1698	1677	21
	1998-1998	\$0.561	\$0.561	\$0.007	\$0.010	\$0.955	\$0.955	2234	2226	8
	1999-1999	\$0.881	\$0.881	\$0.002	\$0.010	\$1.400	\$1.400	2251	2249	2
	2000-2000	\$1.846	\$1.846	\$0.850	\$0.850	\$2.050	\$2.050	459	459	0

37										

Table 1(Cont.) Observed mean, minimum, maximum and record count of unedited and edited prices, weighted by landed weights by fishery and season

Fishery	Season	Unedited Mean	Edited Mean	Unedited Minimum	Edited Minimum	Unedited Maximum	Edited Maximum	Unedited Record Count	Edited Record Count	Rejected Record Count
BS-TANN	1991-1992	\$1.774	\$1.676	\$0.002	\$0.952	\$788.984	\$2.850	1375	1369	6
	1992-1993	\$1.505	\$1.523	\$0.002	\$0.800	\$171.530	\$2.500	1627	1609	18
	1993-1994	\$1.778	\$1.794	\$0.020	\$0.764	\$19.500	\$2.450	559	554	5
	1994-1994	\$3.672	\$3.682	\$0.355	\$2.939	\$36.748	\$9.807	282	280	2
	1995-1995	\$2.949	\$2.774	\$2.713	\$2.713	\$29.098	\$3.476	185	183	2
	1996-1996	\$2.497	\$2.497	\$2.249	\$2.249	\$3.000	\$3.000	370	370	0
										33
DUT-BRN	1992-1992	\$2.232	\$2.232	\$2.150	\$2.150	\$2.250	\$2.250	12	12	0
	1993-1994	\$2.124	\$2.124	\$2.100	\$2.100	\$2.200	\$2.200	14	14	0
	1994-1995	\$3.885	\$3.885	\$3.000	\$3.000	\$8.000	\$8.000	87	87	0
	1995-1995	\$2.709	\$2.561	\$2.450	\$2.450	\$25.140	\$2.654	33	32	1
	1996-1996	\$2.234	\$2.234	\$1.100	\$1.100	\$2.340	\$2.340	238	238	0
	1997-1998	\$2.250	\$2.250	\$2.249	\$2.249	\$2.253	\$2.253	221	221	0
	1998-1999	\$1.868	\$1.868	\$1.799	\$1.799	\$2.801	\$2.801	155	155	0
	1999-2000	\$3.222	\$3.222	\$2.700	\$2.700	\$3.600	\$3.600	170	170	0
	2000-2001	\$3.503	\$3.503	\$3.298	\$3.298	\$3.550	\$3.550	165	165	0
										1
PRB-BLU	1995-1995	\$2.923	\$2.923	\$2.400	\$2.400	\$3.000	\$3.000	168	168	0
	1996-1996	\$2.652	\$2.652	\$2.000	\$2.000	\$2.864	\$2.864	112	112	0
	1997-1997	\$2.817	\$2.817	\$2.749	\$2.749	\$4.000	\$4.000	116	116	0
	1998-1998	\$2.343	\$2.343	\$2.000	\$2.000	\$3.000	\$3.000	105	105	0
										0
PRB-RED	1993-1993	\$4.516	\$4.503	\$0.524	\$4.441	\$20.885	\$4.750	88	86	2
	1994-1994	\$6.446	\$6.446	\$6.000	\$6.000	\$7.500	\$7.500	138	138	0
	1995-1995	\$3.366	\$3.366	\$2.400	\$2.400	\$4.000	\$4.000	174	174	0
	1996-1996	\$2.759	\$2.759	\$2.000	\$2.000	\$3.253	\$3.253	108	108	0
	1997-1997	\$3.087	\$3.087	\$3.000	\$3.000	\$4.000	\$4.000	119	119	0
	1998-1998	\$2.391	\$2.391	\$2.150	\$2.150	\$3.400	\$3.400	113	113	0
										2
STM-BLU	1992-1992	\$2.756	\$2.791	\$0.192	\$2.000	\$3.250	\$3.250	72	71	1
	1993-1993	\$2.657	\$2.657	\$2.500	\$2.500	\$2.900	\$2.900	72	72	0
	1994-1994	\$4.150	\$4.150	\$3.750	\$3.750	\$4.500	\$4.500	126	126	0
	1995-1995	\$2.316	\$2.320	\$0.225	\$2.151	\$2.550	\$2.550	122	121	1
	1996-1996	\$2.200	\$2.200	\$1.781	\$1.781	\$2.900	\$2.900	190	190	0
	1997-1997	\$2.213	\$2.213	\$2.150	\$2.150	\$2.400	\$2.400	199	199	0
	1998-1998	\$1.867	\$1.867	\$1.600	\$1.600	\$2.251	\$2.251	300	300	0
										2
										=====
										85

Table 2 Ranges And counts of excluded prices by fishery and season

Fishery	Season	Minimum Low	Maximum Low	Record Count	Minimum High	Maximum High	Record Count
ADK-BRN	1991-1992	\$0.501	\$0.501	1	.	.	0
	1993-1994	.	.	0	\$10.388	\$259.701	4
	1995-1996	.	.	0	\$23.000	\$23.000	1
	1996-1997	.	.	0	\$165.981	\$165.981	1
BB-RED	1992-1992	\$0.711	\$0.711	1	.	.	0
	1993-1993	\$0.380	\$0.380	1	.	.	0
	1998-1998	.	.	0	\$26.000	\$26.000	1
BS-OPIE	1992-1992	\$0.005	\$0.005	1	.	.	0
	1993-1993	\$0.009	\$0.009	2	.	.	0
	1994-1994	.	.	0	\$11.700	\$11.700	1
	1997-1997	\$0.007	\$0.009	21	.	.	0
	1998-1998	\$0.007	\$0.009	8	.	.	0
BS-TANN	1999-1999	\$0.002	\$0.009	2	.	.	0
	1991-1992	\$0.002	\$0.456	5	\$788.984	\$788.984	1
DUT-BRN	1992-1993	\$0.002	\$0.727	13	\$10.658	\$171.530	5
	1993-1994	\$0.020	\$0.624	4	\$19.500	\$19.500	1
	1994-1994	\$0.355	\$0.355	1	\$36.748	\$36.748	1
	1995-1995	.	.	0	\$27.139	\$29.098	2
	1995-1995	.	.	0	\$25.140	\$25.140	1
PRB-RED	1993-1993	\$0.524	\$0.524	1	\$20.885	\$20.885	1
STM-BLU	1992-1992	\$0.192	\$0.192	1	.	.	0
	1995-1995	\$0.225	\$0.225	1	.	.	0
		----- \$0.002	----- \$0.727	63	----- \$10.388	----- \$788.984	20

Table 3 Ranges And counts of retained prices by fishery and season

Fishery	Season	Minimum Price	Maximum Price	Record Count
ADK-BRN	1991-1992	\$1.154	\$2.150	44
	1992-1993	\$0.920	\$2.250	42
	1993-1994	\$2.107	\$4.900	82
	1994-1995	\$1.534	\$4.400	417
	1995-1996	\$1.700	\$2.322	478
	1996-1997	\$0.982	\$2.702	250
	1997-1998	\$1.800	\$3.000	275
	1998-1999	\$1.800	\$2.250	70
	1999-2000	\$2.747	\$3.600	415
	2000-2001	\$2.745	\$3.550	499
ADK-RED	1991-1992	\$2.500	\$3.500	9
	1992-1993	\$4.250	\$5.500	12
	1993-1994	\$2.597	\$3.880	14
	1994-1995	\$4.501	\$5.519	27
	1995-1996	\$2.500	\$2.940	5
BB-RED	1992-1992	\$1.000	\$5.500	125
	1993-1993	\$3.800	\$4.350	44
	1996-1996	\$4.000	\$4.500	219
	1997-1997	\$3.246	\$4.000	324
	1998-1998	\$2.000	\$3.000	380
	1999-1999	\$6.247	\$7.000	394
	2000-2000	\$4.797	\$5.000	365
BS-OPIE	1992-1992	\$0.015	\$1.600	1,996
	1993-1993	\$0.012	\$1.752	1,347
	1994-1994	\$0.133	\$2.058	994
	1995-1995	\$0.019	\$3.300	988
	1996-1996	\$0.500	\$2.000	1,006
	1997-1997	\$0.010	\$1.400	1,677
	1998-1998	\$0.010	\$0.955	2,226
	1999-1999	\$0.010	\$1.400	2,249
	2000-2000	\$0.850	\$2.050	459
BS-TANN	1991-1992	\$0.952	\$2.850	1,369
	1992-1993	\$0.800	\$2.500	1,609
	1993-1994	\$0.764	\$2.450	554
	1994-1994	\$2.939	\$9.807	280
	1995-1995	\$2.713	\$3.476	183
	1996-1996	\$2.249	\$3.000	370
DUT-BRN	1992-1992	\$2.150	\$2.250	12
	1993-1994	\$2.100	\$2.200	14
	1994-1995	\$3.000	\$8.000	87
	1995-1995	\$2.450	\$2.654	32
	1996-1996	\$1.100	\$2.340	238
	1997-1998	\$2.249	\$2.253	221
	1998-1999	\$1.799	\$2.801	155
	1999-2000	\$2.700	\$3.600	170
	2000-2001	\$3.298	\$3.550	165
	PRB-BLU	1995-1995	\$2.400	\$3.000
1996-1996		\$2.000	\$2.864	112
1997-1997		\$2.749	\$4.000	116
1998-1998		\$2.000	\$3.000	105

Table 3(Cont.) Ranges And counts of retained prices by fishery and season

PRB-RED	1993-1993	\$4.441	\$4.750	86
	1994-1994	\$6.000	\$7.500	138
	1995-1995	\$2.400	\$4.000	174
	1996-1996	\$2.000	\$3.253	108
	1997-1997	\$3.000	\$4.000	119
	1998-1998	\$2.150	\$3.400	113
STM-BLU	1992-1992	\$2.000	\$3.250	71
	1993-1993	\$2.500	\$2.900	72
	1994-1994	\$3.750	\$4.500	126
	1995-1995	\$2.151	\$2.550	121
	1996-1996	\$1.781	\$2.900	190
	1997-1997	\$2.150	\$2.400	199
	1998-1998	\$1.600	\$2.251	300

	\$0.010	\$9.807	25,209	

Table 4 Overview of weighted fish ticket prices by fishery and season all processor types

Fishery	Season	Total Landed Pounds	Total Priced Pounds	Percent Pounds Priced	Total Value	Wtd Average Price	Processors With Priced Data	All Processors
ADK-BRN	1990-1991	4,219,857	.	.	\$0	.	0	10
	1991-1992	6,088,514	2,045,692	33.60	\$3,938,522	\$1.925	6	12
	1992-1993	4,782,530	2,565,525	53.64	\$4,923,081	\$1.919	6	11
	1993-1994	4,470,325	2,532,677	56.66	\$6,940,551	\$2.740	7	8
	1994-1995	6,114,580	5,138,526	84.04	\$16,894,522	\$3.288	9	11
	1995-1996	4,718,451	4,461,689	94.56	\$9,311,200	\$2.087	6	6
	1996-1997	2,403,721	1,358,630	56.52	\$2,982,290	\$2.195	6	7
	1997-1998	2,405,622	1,245,994	51.80	\$2,663,475	\$2.138	6	8
	1998-1999	1,670,167	577,648	34.59	\$1,178,628	\$2.040	2	3
	1999-2000	2,663,281	1,733,913	65.10	\$5,425,704	\$3.129	6	6
2000-2001	2,902,518	2,271,421	78.26	\$7,035,571	\$3.097	8	8	
ADK-RED	1990-1991	169,102	.	.	\$0	.	0	3
	1991-1992	951,278	262,384	27.58	\$812,632	\$3.097	6	11
	1992-1993	1,281,424	277,956	21.69	\$1,319,074	\$4.746	6	9
	1993-1994	690,675	451,830	65.42	\$1,590,137	\$3.519	8	10
	1994-1995	195,537	119,584	61.16	\$656,608	\$5.491	7	10
	1995-1996	38,706	21,531	55.63	\$56,834	\$2.640	3	4
BB-RED	1991-1991	16,849,562	.	.	\$0	.	0	56
	1992-1992	7,990,040	3,480,048	43.55	\$17,279,406	\$4.965	15	41
	1993-1993	14,343,038	1,430,810	9.98	\$5,475,256	\$3.827	6	39
	1996-1996	8,319,611	7,702,893	92.59	\$30,908,556	\$4.013	12	17
	1997-1997	8,720,403	8,232,026	94.40	\$26,821,854	\$3.258	16	25
	1998-1998	14,120,487	12,974,819	91.89	\$33,881,052	\$2.611	17	27
	1999-1999	10,949,856	10,059,005	91.86	\$62,988,135	\$6.262	16	23
	2000-2000	7,468,240	6,558,477	87.82	\$31,525,323	\$4.807	15	23
	2000-2000	7,468,240	6,558,477	87.82	\$31,525,323	\$4.807	15	23
BS-OPIE	1991-1991	325,183,233	.	.	\$0	.	0	69
	1992-1992	312,839,404	218,982,153	70.00	\$109,410,709	\$0.500	31	64
	1993-1993	229,173,808	160,562,569	70.06	\$104,157,710	\$0.649	34	68
	1994-1994	147,992,955	110,311,435	74.54	\$138,159,392	\$1.252	32	59
	1995-1995	74,005,359	58,564,396	79.14	\$142,271,956	\$2.429	29	52
	1996-1996	64,363,158	49,997,836	77.68	\$66,295,848	\$1.326	28	44
	1997-1997	117,179,683	102,965,597	87.87	\$80,851,245	\$0.785	26	42
	1998-1998	240,433,650	218,439,523	90.85	\$122,587,985	\$0.561	29	44
	1999-1999	182,678,507	173,675,517	95.07	\$153,041,662	\$0.881	26	36
	2000-2000	30,258,170	27,969,602	92.44	\$51,638,940	\$1.846	22	28
BS-TANN	1990-1991	15,630,566	.	.	\$0	.	0	62
	1991-1992	31,514,345	7,151,670	22.69	\$11,984,597	\$1.676	34	69
	1992-1993	34,786,911	23,116,968	66.45	\$35,210,839	\$1.523	38	71
	1993-1994	16,619,979	10,826,581	65.14	\$19,418,231	\$1.794	28	51
	1994-1994	7,634,106	6,195,418	81.15	\$22,811,242	\$3.682	14	28
	1995-1995	4,184,011	2,869,483	68.58	\$7,958,508	\$2.773	14	27
	1996-1996	1,788,102	1,531,372	85.64	\$3,823,354	\$2.497	13	19

Table 4(Cont.) Overview of weighted fish ticket prices by fishery and season all processor types

Fishery	Season	Total Landed Pounds	Total Priced Pounds	Percent Pounds Priced	Total Value	Wtd Average Price	Processors With Priced Data	All Processors
DUT-BRN	1991-1991	1,445,730	.	.	\$0	.	0	8
	1992-1992	1,323,924	540,208	40.80	\$1,205,709	\$2.232	3	8
	1993-1994	908,136	908,136	100.00	\$1,928,674	\$2.124	5	5
	1994-1995	1,720,359	1,650,819	95.96	\$6,412,973	\$3.885	6	6
	1995-1995	1,926,953	1,578,323	81.91	\$4,041,812	\$2.561	4	5
	1996-1996	3,105,659	3,105,659	100.00	\$6,938,551	\$2.234	5	5
	1997-1998	3,357,867	2,981,457	88.79	\$6,708,306	\$2.250	4	6
	1998-1999	3,165,020	2,925,915	92.45	\$5,466,986	\$1.868	6	7
	1999-2000	2,999,890	2,864,096	95.47	\$9,227,924	\$3.222	6	7
	2000-2001	3,086,890	3,086,890	100.00	\$10,812,630	\$3.503	4	4
PRB-BLU	1995-1995	1,195,861	1,067,353	89.25	\$3,120,211	\$2.923	8	12
	1996-1996	916,474	847,326	92.45	\$2,246,802	\$2.652	10	11
	1997-1997	491,434	474,799	96.62	\$1,337,639	\$2.817	12	12
	1998-1998	494,424	474,338	95.94	\$1,111,172	\$2.343	13	15
PRB-RED	1993-1993	2,585,966	1,757,623	67.97	\$7,915,389	\$4.503	13	17
	1994-1994	1,336,024	1,181,948	88.47	\$7,618,788	\$6.446	15	16
	1995-1995	855,063	728,576	85.21	\$2,452,168	\$3.366	9	12
	1996-1996	199,718	193,003	96.64	\$532,459	\$2.759	9	10
	1997-1997	735,109	720,799	98.05	\$2,224,857	\$3.087	12	12
	1998-1998	501,042	498,845	99.56	\$1,192,881	\$2.391	13	14
STM-BLU	1991-1991	3,155,607	.	.	\$0	.	0	15
	1992-1992	2,474,080	1,005,578	40.64	\$2,806,627	\$2.791	9	19
	1993-1993	2,999,921	1,652,041	55.07	\$4,389,127	\$2.657	11	16
	1994-1994	3,717,563	3,118,422	83.88	\$12,941,504	\$4.150	16	22
	1995-1995	3,075,902	2,894,251	94.09	\$6,715,195	\$2.320	10	11
	1996-1996	3,040,766	2,242,369	73.74	\$4,933,888	\$2.200	11	15
	1997-1997	4,438,395	4,426,626	99.73	\$9,796,323	\$2.213	12	13
	1998-1998	2,849,574	2,544,794	89.30	\$4,752,367	\$1.867	12	14

Table 5 Overview of weighted fish ticket prices by fishery and season (catcher/processors and catcher/sellers excluded)

Fishery	Season	Total Landed Pounds	Total Priced Pounds	Percent Pounds Priced	Total Value	Weighted Average Price	Processors With Priced Data	All Processors
ADK-BRN	1990-1991	1,796,371	.	.	\$0	.	0	4
	1991-1992	2,431,180	1,661,596	68.35	\$3,297,409	\$1.984	4	4
	1992-1993	3,632,021	2,322,078	63.93	\$4,497,049	\$1.937	5	8
	1993-1994	3,905,984	2,532,677	64.84	\$6,940,551	\$2.740	7	7
	1994-1995	5,190,845	5,122,144	98.68	\$16,832,515	\$3.286	8	9
	1995-1996	4,392,003	4,390,761	99.97	\$9,190,622	\$2.093	5	5
	1996-1997	1,327,012	1,326,944	99.99	\$2,951,160	\$2.224	5	5
	1997-1998	1,249,377	1,245,994	99.73	\$2,663,475	\$2.138	6	6
	1998-1999	577,648	577,648	100.00	\$1,178,628	\$2.040	2	2
	1999-2000	1,697,941	1,697,764	99.99	\$5,326,299	\$3.137	5	5
2000-2001	1,993,874	1,993,874	100.00	\$6,272,350	\$3.146	7	7	
ADK-RED	1991-1992	266,383	187,170	70.26	\$624,597	\$3.337	5	8
	1992-1993	806,524	250,950	31.12	\$1,197,547	\$4.772	5	7
	1993-1994	465,651	451,830	97.03	\$1,590,137	\$3.519	8	9
	1994-1995	98,102	82,612	84.21	\$453,539	\$5.490	6	8
	1995-1996	22,272	21,531	96.67	\$56,834	\$2.640	3	3
BB-RED	1991-1991	14,360,990	.	.	\$0	.	0	32
	1992-1992	7,186,419	3,480,048	48.43	\$17,279,406	\$4.965	15	24
	1993-1993	13,053,109	1,369,365	10.49	\$5,241,765	\$3.828	5	24
	1996-1996	7,897,131	7,702,893	97.54	\$30,908,556	\$4.013	12	13
	1997-1997	8,493,704	8,232,026	96.92	\$26,821,854	\$3.258	16	18
	1998-1998	12,634,107	12,324,131	97.55	\$32,184,792	\$2.612	14	16
	1999-1999	10,018,299	9,638,028	96.20	\$60,357,026	\$6.262	14	15
	2000-2000	7,172,614	6,505,761	90.70	\$31,271,920	\$4.807	13	15
BS-OPIE	1991-1991	257,523,354	.	.	\$0	.	0	38
	1992-1992	259,777,128	218,311,053	84.04	\$109,075,160	\$0.500	30	34
	1993-1993	187,346,715	160,562,569	85.70	\$104,157,710	\$0.649	34	38
	1994-1994	126,126,831	110,241,449	87.41	\$138,077,985	\$1.253	31	36
	1995-1995	66,087,115	58,564,396	88.62	\$142,271,956	\$2.429	29	34
	1996-1996	54,738,161	49,997,836	91.34	\$66,295,848	\$1.326	28	30
	1997-1997	106,126,849	102,965,597	97.02	\$80,851,245	\$0.785	26	29
	1998-1998	224,132,005	217,433,414	97.01	\$122,044,686	\$0.561	28	29
	1999-1999	172,639,663	172,270,184	99.79	\$151,841,907	\$0.881	24	25
	2000-2000	28,318,872	27,485,530	97.06	\$50,748,270	\$1.846	18	19
BS-TANN	1990-1991	13,633,166	.	.	\$0	.	0	36
	1991-1992	25,177,190	7,142,652	28.37	\$11,968,818	\$1.676	33	39
	1992-1993	30,354,794	23,115,953	76.15	\$35,208,809	\$1.523	37	43
	1993-1994	14,524,022	10,800,149	74.36	\$19,370,649	\$1.794	27	34
	1994-1994	7,003,122	6,195,418	88.47	\$22,811,242	\$3.682	14	19
	1995-1995	3,831,529	2,869,483	74.89	\$7,958,508	\$2.773	14	17
	1996-1996	1,754,467	1,531,372	87.28	\$3,823,354	\$2.497	13	15

Table 5(Cont.) Overview of weighted fish ticket prices by fishery and season (catcher/processors and catcher/sellers excluded)

Fishery	Season	Total Landed Pounds	Total Priced Pounds	Percent Pounds Priced	Total Value	Weighted Average Price	Processors With Priced Data	All Processors
DUT-BRN	1991-1991	838,620	.	.	\$0	.	0	4
	1992-1992	546,984	540,208	98.76	\$1,205,709	\$2.232	3	3
	1993-1994	908,136	908,136	100.00	\$1,928,674	\$2.124	5	5
	1994-1995	1,720,359	1,650,819	95.96	\$6,412,973	\$3.885	6	6
	1995-1995	1,649,978	1,578,323	95.66	\$4,041,812	\$2.561	4	4
	1996-1996	3,105,659	3,105,659	100.00	\$6,938,551	\$2.234	5	5
	1997-1998	2,981,457	2,981,457	100.00	\$6,708,306	\$2.250	4	4
	1998-1999	2,925,915	2,925,915	100.00	\$5,466,986	\$1.868	6	6
	1999-2000	2,755,684	2,755,684	100.00	\$8,883,247	\$3.224	5	5
	2000-2001	3,086,890	3,086,890	100.00	\$10,812,630	\$3.503	4	4
PRB-BLU	1995-1995	1,154,386	1,067,353	92.46	\$3,120,211	\$2.923	8	10
	1996-1996	909,713	840,565	92.40	\$2,233,280	\$2.657	9	10
	1997-1997	491,434	474,799	96.62	\$1,337,639	\$2.817	12	12
	1998-1998	494,424	474,338	95.94	\$1,111,172	\$2.343	13	15
PRB-RED	1993-1993	2,542,592	1,757,623	69.13	\$7,915,389	\$4.503	13	15
	1994-1994	1,336,024	1,181,948	88.47	\$7,618,788	\$6.446	15	16
	1995-1995	796,543	728,576	91.47	\$2,452,168	\$3.366	9	11
	1996-1996	199,718	193,003	96.64	\$532,459	\$2.759	9	10
	1997-1997	735,109	720,799	98.05	\$2,224,857	\$3.087	12	12
	1998-1998	501,042	498,845	99.56	\$1,192,881	\$2.391	13	14
STM-BLU	1991-1991	2,166,613	.	.	\$0	.	0	6
	1992-1992	2,087,645	980,865	46.98	\$2,752,901	\$2.807	8	11
	1993-1993	2,834,296	1,652,041	58.29	\$4,389,127	\$2.657	11	13
	1994-1994	3,366,915	3,072,690	91.26	\$12,749,429	\$4.149	15	16
	1995-1995	3,022,097	2,894,251	95.77	\$6,715,195	\$2.320	10	10
	1996-1996	2,866,705	2,119,826	73.95	\$4,664,292	\$2.200	10	12
	1997-1997	4,426,626	4,426,626	100.00	\$9,796,323	\$2.213	12	12
	1998-1998	2,645,489	2,544,794	96.19	\$4,752,367	\$1.867	12	12

Appendix 2-6

Review of Rationalization Programs

The Icelandic Individual Transferable Quota program

Most of Iceland's fishing activity is regulated by a system of individual quotas. The first Icelandic individual quota system was developed in its herring fishery. In the late 1960s, the fishery was first threatened. After a few unsuccessful efforts to restrict harvests, declining stocks led managers to close the fishery. When the fishery was reopened in 1976, an individual quota program was implemented. Under the original program quotas were not transferable. Quotas were low (because of the poor stock levels) and often could not be fished economically. To address this shortcoming, quotas were made transferrable in 1979. A similar program was established for capelin in 1980. The shares in that fishery were made transferrable in 1986 (OECD, 2000a).

Prior to 1970, Iceland's cod fishery was dominated by foreign vessels. With the extension of the EEZ in 1975, Iceland sought to capitalize on its expanded fishing grounds by development of its fleets. The fleet grew rapidly, threatening stocks by the end of the 1970s. By the late 1970s, efforts were underway to constrain growth of the fleet. In 1984, an Individual Transferrable Quota (ITQ) program was implemented in all major groundfish fisheries, including the cod fishery. The program also restricted entry into the fishery permitting a new vessel to enter the fishery only when a larger or equal sized vessel was retired (OECD, 2000a). A 1999 ruling of the Supreme Court of Iceland eliminated the prohibition on entry finding that it was a violation of the constitutional right of equal access to employment. Under the ruling any registered vessel is permitted to obtain a license to enter the fishery. Vessels, however, require a valid quota to make any harvests (OECD, 2000b).

In the groundfish fishery, quota shares were issued based on fishing history in the three years preceding implementation of the program. Crews have been dissatisfied with the program, since only vessel owners received an initial allocation of quota shares (NRC, 1999). At the outset, annual quotas could be sold but the underlying quota shares (which create the entitlement to the annual quota) were not transferrable, except with transfer of the vessel or between vessels commonly owned. In the first few years of the program vessels could opt out of the program, instead adopting restrictions on effort. Those choosing to operate under the effort restrictions could reenter the catch quota system with a new harvest record established under the effort restrictions. Up to two-thirds of harvests were made under the effort restrictions in the years that the option was available. Vessels under 10 gross registered tons were initially exempt from the ITQ program and the entry moratorium. By 1988, the program was extended to cover all vessels over 6 gross registered tons (OECD, 2000a).

In 1990, a new fishing law was adopted that brought most of the remaining fisheries under ITQ management and extended the program indefinitely. The program instituted several changes to ITQ management. Vessels under 6 GRT were brought into the program for the first time. Quota shares were permitted to be sold outright—transfers were formerly limited to leasing of shares. A requirement that at least one half of a vessel's allocation must be fished every other year to retain the interest in those shares was created. To protect small communities, the law requires the Ministry of Fisheries to consult municipal governments and the local fishermen's unions before approving transfers of shares from a vessel located in one area to a vessel located in another area. Most transfers, however, have been permitted and trading is quite common under the program. For example, in 1993-94 season approximately 45 percent of the cod quota was traded and approximately 96 percent of the saithe quota was traded (NRC, 1999).

While the 1990 law was intended to make the program comprehensive by bringing vessels under 6 GRT into the ITQ program, those vessels can elect to fish in certain fisheries under options that restrict effort instead of under the ITQ program. Four different options exist, including one that is based solely on effort restrictions (Icelandic Ministry of Fisheries, 2001). Current legislation will remove the effort restriction option for these vessels and incorporate them fully into the ITQ program (FNI, 2001).

ITQ management has had mixed results in protecting stocks in Iceland's fisheries. Herring harvests rose seven fold between 1975 and 1995. Cod harvests, however, were at historic lows in the early 1990s (NRC, 1999). The decline of the cod stock is likely attributable to two causes—the method of setting the TAC and the exemption of some catch from the TAC. Historically, the TAC was set by managers based on the biological recommendations of Marine Research Institute (MRI). Every year, managers have set the TAC higher than the MRI recommendation. TACs, on average, exceeded the recommendation by 12 percent during the late 1980s and early 1990s. The second source of overharvesting is the omission of certain catches from the TAC. Small vessels using certain gear types (including those participating in the effort restriction options) are not subject to an allocation under the TAC or may have their catch counted at a reduced rate against the TAC. As a consequence, harvests have exceeded the TAC by more than 12 percent on average. These two factors combined have led to the catches exceeding the TAC recommended by the MRI by an average of 26 percent. The condition of the stock may have suffered from these excessive harvests (OECD, 2000a). A new rule for specifying the cod TAC limits the TAC to 25 percent of the fishable biomass (Icelandic Ministry of Fisheries, 2001). Although the rule is intended to bring the TAC in line with scientific recommendations, the cod TAC has continued to be set in excess of the MRI recommendations (see OECD, 2000a and Icelandic Ministry of Fisheries, 2001).

In both the herring and the cod fishery, productivity has increased substantially. Between 1980 and 1996 the number of vessels participating in the herring fishery decreased from more than 200 to less than 30. During the same period, harvests increased almost three fold (NRC, 1999). Although the number of vessels active in the Icelandic fleets has declined, the fleet has grown in terms of gross tonnage (NRC, 1999). The two segments of the fleet that have grown are small vessels exempt from some of the barriers to entry created by the ITQ program and large trawlers that have been substituted for smaller vessels and have increased their interests in the fisheries by purchasing shares. The fleet is still considered to have excess capacity by some experts. Some of the overcapacity is attributed to the rule that permits vessels to enter the fleet only on withdrawal of another vessel. It is argued that this provision has created a value in vessels in excess of their performance in the fishery. The fleet is also thought to be overcapitalized in part because the TAC has been set too high. A larger fleet and more effort are thought to be required to harvest the diminished stock (OECD, 2000a).

The Icelandic groundfish ITQ system also is unique in its characterization of several species in “cod equivalents”. In the program, vessels are issued a single quota expressed in quantities of cod. Since harvests are mixed species, each species can be quantified in its “cod equivalent,” which is based on the market values of the different species in the fishery.

Quota shares have become more concentrated in recent years. In the last ten years, the largest 24 quota share holders have increased their holdings from one-quarter of the outstanding quota shares to more than half of the outstanding quota shares. Parliament has also responded to the consolidation by setting ownership caps of 10 percent in the cod and haddock fisheries and 20 percent in most other fisheries. The transferability of quota shares has caused a backlash from a few groups. Icelanders are concerned that their fisheries have become private—a point of some dispute in a country that believes fisheries are a public resource. In response, Parliament issued a declaration that fish are the property of the nation at the same time modifying rules to increase reliance on the rights created by the ITQ system (OECD, 2000a).

Consolidation of quota shares under the existing program has hurt small communities (with populations of less than 500) more than larger communities, as the tendency is for quota shares to become more concentrated in larger communities (NRC, 1999). The redistribution of interests is not thought to have created any regional redistribution, which may be the reason that most transfers have been permitted (OECD, 2000a). Small communities also fear the move to include small vessels in the program, which they believe will lead to further concentration of quota shares in large vessels that are typically based in larger

communities (FNI, 2001). Small communities depend more on small vessels than large vessels. In a few villages, up to 80 percent of harvests are by the small vessel fleet that is currently exempt from the ITQ program. In over 20 villages, more than 30 percent of harvests are by this small vessel fleet. Losses to communities from quota shares being sold are said to extend beyond the decline in the harvesting sector, as many businesses can be affected (including those unrelated to fishing). Some communities have responded, making purchases in the quota share market to support local fishermen. Small processors also fear that the inclusion of small vessel owners in the program will further harm their businesses.

The positions of small communities, small vessel owners, and small processors are also affected by the price of quota shares. In recent years, the quota share prices have increased sharply. In the current market, quota shares lease for more than one-half of the ex vessel price of fish (NRC, 1999). Quota share sales are at approximately three times the ex vessel price of fish— so the entire revenues of three years harvests would be required to pay the cost of purchasing a share (FNI, 2001). These high prices are thought to exacerbate the problems of small communities, as small vessel owners are attracted to the immediate return from the sale of quota shares. The current quota prices also affect crews and processors. Fishermen are said to have been forced to reduce crew shares to cover the cost of quota shares. The cost of fish to processors is said to have risen to the point where some of the small processors are complaining that they are unable to recruit employees and are unable to keep up with plant maintenance (FNI, 2001). The consequences of the inclusion of small vessels in the program are uncertain. Their inclusion will help regulators control harvests, but the change could be detrimental to the small vessel fleet, small processors, and small communities.

Individual Quotas and Cooperative Management in the Netherlands

In recent years, fisheries management in the Netherlands has focused on the reduction of fleet capacity. Initial efforts to address this problem included a license program that limited entry to replacement vessels of smaller engine capacity than the vessels that they replaced. Later measures have included the development of effort limitations (such as days at sea limits), individual quotas, co-management, and vessel buyouts (MANM, 1993). These measures have been relatively successful, as vessels in the fisheries declined by approximately 15 to 20 percent in the first half of the 1990s (NRC, 1999).

The ability of the Netherlands to implement its own fisheries policy is somewhat constrained by its membership in the European Union (EU). The EU under its Common Fisheries Policy grants member countries a share of the overall TAC in the EU fisheries. Within each member country, allocation of interests among fishermen remains the province of the country.

The Dutch have used individual quotas (IQ) in management since 1976 when they were implemented in the plaice and sole fisheries. Managers have since expanded their use to several other fisheries. IQ first became transferrable among licensed fishermen in 1985, with a provision for temporary ownership by shipyards and banks to enable fishermen to use them as collateral for loans. Transfer rules allow shares to be leased or sold in whole but are not divisible (NRC, 1999). Shares can also be set aside for a period of up to two years, to allow fishermen to take their vessels out of service. Days at sea limits continued to be maintained to limit effort levels in the fisheries (MANM, 1993).

The roundfish fishery (cod and whiting), mackerel, and herring fisheries have been (or are being) managed by using a system of “documents”. “Documents” allow the holder to harvest of a specific amount of a species each month. This system limits the catch and fishing effort by controlling the issue of documents (MANM, 1993).

In 1993, as part of an effort to improve cooperation and to shift some of the management of fisheries to industry, the government developed a program in which fishermen could join together into groups to manage

and fish their IQ shares. Under the program each group is responsible for development and enforcement of rules under which members fish their shares (MANM, 1993). For the program to be implemented a threshold of 75 percent of vessel owners joining groups was required. The program created incentives for group membership, including greater flexibility for transfers among group members, more days at sea for group members, and a threat of more license buyouts if the system did not succeed (MANM, 1993). Under the program, all share transfers by fishermen that are not members are required to be completed by the end of February. Transfers between groups are required to be completed by the end of November and transfers between group members are permitted at any time. The value of quotas held by fishermen that are not group members are reduced further by an additional provision that prohibits fishing of unused quotas in later years (NRC, 1999). The groups have also been used by fishermen to transfer portions of their shares, an option that is not available to fishermen that are not group members. Fishermen seem satisfied with the plan and prefer the flexibility of co-management over a system of government oversight. Many believe that co-management has put to rest the race to fish (OECD, 1997). Fishermen also have indicated that the co-management program has helped to level income disparities among fishermen. Whether the satisfaction is with the co-management program or conditions in the fishery is questionable since TACs have been relatively high and capacity is down since the program was implemented (OECD, 1997).

Under this co-management (cooperative) type program, the group is responsible for managing member IQs and allocating member days at sea limits, to ensure that IQ limits are not exceeded. IQs remain individual but the group assumes the responsibility for their management (MANM, 1993). To enable better tracking of harvests, group members are required to sell harvests at auctions (OECD, 1997). Groups are also required to impose heavy fines on fishermen that violate their quotas (MANM, 1993). Although groups at times have been recalcitrant in sanctioning members, actions of government overseers have improved reliance on the system (OECD, 1997).

Individual Fishing Quotas in the Alaska halibut and sablefish fisheries

The Alaska halibut and sablefish fisheries are regulated by similar Individual Fishing Quota (IFQ) programs. Although the fisheries differ, both historically and in the method of prosecution, they are similar in many respects. Both species are targeted with fixed gear, primarily longlines and command a relatively high ex-vessel price. Prior to implementation of the IFQ programs, the fisheries were open access regulated by TAC and season length. The number of participants in the fisheries grew rapidly in the second half of the 20th century, forcing managers to shorten seasons causing a race to fish. The short seasons led to both fisheries becoming part time fisheries. Many participants in the halibut fishery fished only halibut commercially, relying on other jobs as their primary source of income. Other participants in the fishery split their time between the halibut fishery and other fisheries, including the sablefish fishery. The sablefish fishery has a similar history, although it developed later than the halibut fishery. Sablefish also are fished farther from shore than halibut limiting competition somewhat in that fishery.

In the 1980s, both fisheries were experiencing the consequences of the race to fish. Fishermen would fish in poor weather to avoid being left out of the short seasons (for halibut - some were only one day long). Managers had difficulty regulating harvest quantities, as harvest levels could not be accurately gauged for very short openings. Both fisheries were overcapitalized since the only way fishermen could maintain or increase their share of the TAC was by harvesting fish faster. Excessive gear set to increase catch was abandoned on the closing of the fishery leading to gear loss and deadloss. Quality of fish also suffered both because fresh fish was available for a short time each year and because the race to fish limited the time available to fishermen to carefully handle their catch. The IFQ program was developed, in part, to address these problems.

The initial allocation of quota in the halibut and sablefish IFQ programs was intended to preserve the size and character of the fleets and reward active participants. To accomplish this goal the initial allocation was based on historical participation in the fisheries. To protect investment, only vessel owners (or fishermen that leased vessels) who demonstrated eligibility by participation in the fisheries during 1988, 1989, or 1990 were issued quota shares (QS) in the fisheries. The initial allocation of QS was based on the amount of harvests made by a fisherman during a series of years—a fisherman’s best five years from 1984 to 1990 for halibut and a fisherman’s best five years from 1985 to 1990 for sablefish. The broad, inclusive distribution of QS from this allocation scheme was intended to limit individual windfalls from the initial allocation and also to prevent hardship to any fisherman that might have been unable to fish for a given period of time because of uncontrollable circumstances.

NMFS developed a separate division, the Restricted Access Management (RAM) division, to implement the initial allocation and operation of the fishery under the IFQ programs. As the name suggests, this division has developed a role in the management of several different federal fisheries in the north Pacific. Management of the halibut and sablefish IFQ programs continues to be the primary duty of the RAM division.

Quota shares (QS) entitle a fisherman to a fixed proportion of the annual TAC in a fishery. A fisherman’s annual harvest allotment (referred to as IFQs) is equal to the annual TAC multiplied by the fisherman’s QS, divided by the total outstanding QS in the fishery. Both fisheries are divided into several management areas, each with its own QS allotments, corresponding IFQs, and annual TAC. Under the IFQ program, seasons in both fisheries begin on March 15th and end on November 15th. Fishermen are permitted to harvest their IFQs at any time during that period. Owner operator provisions require that the owner of the IFQs be on board the vessel when most classes of IFQs are harvested.¹

QS (and the corresponding IFQs) are further categorized, based on the size of the vessel on which harvests were made that created the right to the initial allocation of QS. The halibut fishery has four vessel size categories and the sablefish fishery has three vessel size categories. IFQs are permitted to be fished only on vessels of the same or smaller size category. Categorizing QS and IFQ by vessel size is intended to preserve the character of the fleet (especially small vessel participation) by maintaining the distribution of interests across the different vessel size groups.

QS are transferable subject to a variety of limits adopted to manage the fishery and the distribution of interests in the fishery. IFQs, on the other hand, are not transferable, except for IFQs for harvests by freezer vessels. To maintain the owner operator character of the fleet the QS and IFQs can be owned only by IFQ crewmembers (defined as crew that have fished in excess of 150 days in a U.S. commercial fishery) and entities that received an initial allocation.² To prevent over-consolidation, ownership and use caps on QS and IFQs apply to both fisheries. In the halibut fishery, ownership of QS is limited to 1.5 percent of the total harvests from the Bering Sea and Aleutian Islands, 0.5 percent of the total harvests from the Gulf of Alaska and Southeast Alaska, and a special restriction of 1.0 percent of the total harvests in Southeast Alaska alone. In the sablefish fishery, ownership and use are limited to 1.0 percent of the harvests from the entire fishery and 1.0 percent of the harvests from Southeast Alaska alone. Similar restrictions on the consolidation of use of IFQs on a single vessel provide that no single vessel may harvest more than 1.0 percent of the total halibut TAC or no more than 1.0 percent of the Southeast halibut TAC in any year. Likewise, no single vessel may

¹ An exception permits those receiving initial allocation to fish IFQs with hired skippers. In addition, freezer vessel shares are not subject to owner on board requirements, as those vessels are typically owned by larger interests and operated by hired skippers. Corporations or partnerships that own IFQs are required to own at least 20 percent of the vessel on which their IFQs are harvested.

² In Southeast Alaska only IFQ crewmembers are eligible to receive transfers of QS and IFQs.

be used to harvest more than 1.0 percent of the combined TAC from the Bering Sea, Aleutian Islands, and Gulf of Alaska or more than 1.0 percent of the TAC in Southeast Alaska. Southeast Alaska is thought to require additional restriction because of the number of communities in that region that are dependent on the halibut and sablefish fisheries.

The program also contains restrictions on the ownership and division of small quantities of QS (which made up less than 20,000 pounds of IFQs under the 1994 TAC), known as ‘blocks’. Fishermen can own only two blocks or only one block and any amount of unblocked QS. Blocks cannot be divided into more than one block or aggregated with other blocks (except that blocks that collectively amount to less than 5,000 pounds of sablefish or 3,000 pounds of halibut may be aggregated into a single block). The development of rules concerning blocks were intended to ensure that the fisheries retain their small fleet characteristics and that interests in the fisheries do not become consolidated in large vessels.

Provisions intended to prevent the consolidation of QS and the interests of small vessels in fisheries have been largely successful. **Tables 1** and **2** show the number of QS shareholder by size of holding in both fisheries from 1995 (at the initial allocation) through 2000. Although consolidation of QS has occurred in both fisheries, QS is still well distributed across all of the different holding sizes. Relatively small QS holdings (less than 10,000 pounds) are more prevalent than larger QS holdings in both fisheries.

The number of vessels active in the fisheries is still quite large but has remained less than the number of QS holders for at least two reasons (**Tables 3** and **4**). First, a share of fishermen have not fished their IFQs in any year. This is more common among holders of small amounts of QS. Second, fishermen also team up on vessels to fish their shares. Fishermen that received initial issuances may hire skippers to fish their IFQs or combine their IFQs with other QS holders’ and fish them on a single vessels. Owner on board provisions require that fishermen that have entered the fisheries by purchasing QS be on board any vessel fishing their IFQs.

Table 1 **Number of persons holding halibut quota shares by size of holding**

Number of QS	Initial (1995)	End of 1996	End of 1997	End of 1998	End of 1999
3,000 or less	2,522	2,244	1,936	1,832	1,672
3,001-10,000	1,158	925	878	865	853
10,001-25,000	648	629	613	613	586
More than 25,000	500	523	537	536	538
Total (unique persons)	4,816	4,321	3,964	3,846	3,649

Table 2 Number of persons holding sablefish quota shares by size of holding

Number of QS	Initial (1995)	End of 1996	End of 1997	End of 1998	End of 1999
5,000 or less	541	497	446	417	403
5,001-10,000	109	102	113	115	114
10,001-25,000	146	145	144	141	140
More than 25,000	254	252	244	246	240
Total (unique persons)	1,052	996	947	919	897

Table 3 Number of active vessels by halibut management area

Management Area	1992	1993	1994	1995	1996	1997	1998	1999
2C	1,775	1,562	1,461	1,105	1,029	993	836	840
3A	1,924	1,529	1,712	1,145	1,104	1,076	899	892
3B	478	401	320	332	350	357	325	323
4A	190	165	176	140	147	142	120	121
4B	82	65	74	57	64	69	47	51
4C	62	58	64	35	41	46	30	36
4D	26	19	39	27	33	33	22	29
Total (unique vessels)	3,452	3,393	3,450	2,057	1,962	1,925	1,601	1,613

Table 4 Number of active vessels by halibut management area

Management Area	1992	1993	1994	1995	1996	1997	1998	1999
Southeast	507	391	488	378	378	326	296	283
West Yakutat	266	196	249	228	218	218	176	162
Central Gulf	588	462	562	326	294	273	241	226
Western Gulf	103	29	19	86	81	79	66	63
Aleutian Islands	27	33	33	53	50	47	26	27
Bering Sea	72	40	31	55	49	41	28	20
Total (unique vessels)	1,123	915	1,139	517	503	504	449	433

Beginning in the 2001 season, a cost-recovery program was implemented to fund most program administration. Fees of up to 3 percent of ex-vessel value of IFQ landings may be charged to fishermen. A portion of the collections under this program are used to fund a loan program for fishermen that wish to enter the IFQ fisheries and for small vessel owners that wish to increase their interests in the fisheries.

Although many fishermen are satisfied with the IFQ program, a few identifiable groups are not satisfied with the program. Some fishermen felt that their initial allocations were too small. A survey of first year QS

holders in the sablefish fishery found that 20 percent believed that their QS was too small to be fished economically (Knapp and Hull, 1996). Fishermen active in the fishery only between 1991 and 1994 did not receive an initial allocation and believed that the program unfairly excluded them. More than 25 percent of the sablefish and more than 17 percent of the halibut harvested in these years were caught by fishermen that received no initial allocation. Crewmembers were left out of the initial allocation and believe their participation in the fisheries were hurt by the program. Verifying crewmember interests was not possible and crewmembers were viewed as having less of an investment in the fishery than vessel owners who had purchased vessels to support their activity. Processors also were excluded from the initial allocation. Processors believe that their investment in the fisheries are comparable to those of fishermen, since they purchase plant equipment to support their operations.

Individual Quotas in the Newfoundland snow crab fishery

The Newfoundland snow crab fishery originated in the late 1960s. The fishery developed as a directed fishery in the 1970s and steadily expanded in both size and area with declines in the groundfish fisheries. Landings in the fishery were less than 5,000 tons for most of the 1970s. At the end of the 1970s and for the first half of the 1980s landings averaged approximately 12,000 tons. **Table 5** shows that landings declined slightly for the remainder of the 1980s, then rose substantially through the 1990s exceeding 52,000 tons (or 115 million pounds) in 1998.

Table 5 Newfoundland snow crab fishery quota, landings, landed value, and average price for the years (1985-1998)

Year	Quota	Landings (thousand metric tons)	Landed Value (millions \$CA)	Average price (\$CA/Lb)
1985		8	6.9	0.39
1986	9.2	9	10.3	0.52
1987	8.4	6.7	12.6	0.86
1988	8.6	9.6	21.8	1.03
1989	10.1	8.3	10.3	0.56
1990	10.5	11	13.1	0.54
1991	15.8	16.2	19.9	0.56
1992	14.5	16.4	13.0	0.36
1993	18.7	22.9	31.7	0.63
1994	23.8	27.9	87.2	1.42
1995	31.9	32.4	176.2	2.47
1996	37.8	38	96.8	1.16
1997	44.5	45.7	91.7	0.91
1998	49.2	52.7	101.6	0.88

Source: Integrated Management Plan Newfoundland and Labrador Snow Crab 1999-2001 (1999) Fisheries Management Branch, Department of Fisheries and Oceans, Canada.

The increase in landings in the 1990s were a result of two factors. First, good recruitment during this period increased the biomass. Second, the range of fishing expanded substantially as the fishery expanded to accommodate Newfoundland fishermen moving to the crab fishery from the declining groundfish fishery. Although, the fleet consistently exceeded the quota during the late 1980s and 1990s, these overruns resulted primarily from harvests from exploratory fisheries that operated without quotas.

The importance of the crab fishery increased substantially in the early 1990s as Newfoundland groundfish fisheries collapsed. From 1987 to 1991, snow crab harvests comprised 9 percent of the landed value of vessels less than 65 feet. By 1995, crab accounted for 71 percent of this fleet's landed value. Although still

very important, crab harvests declined to approximately was 46 percent of this fleet’s landed value for the years 1996 to 1998.

The distribution of harvests among the fleets in the snow crab fishery has been greatly impacted by the attempt to alleviate financial stress to fishermen resulting from the declines in the groundfish fisheries. The composition of the fleet demonstrates this. The crab fishery is composed of three fleets (Table 6), each of which is divided into several fleets. Original participants in the fishery, most of whom operate vessels 50 to 65 feet in length, comprise the fulltime fleet. A supplementary fleet (established to supplement incomes affected by groundfish declines) is made up of vessels between 34 and 65 feet. A temporary seasonal fleet for vessels under 35 feet in length without crab licenses was established in 1995 for small vessels adversely affected by the closure of the cod fishery. This fleet carries only yearly permits, with the continued issuance dependent on stock levels in the fishery. A small exploratory fleet also participates in the fishery. The fishery is divided regionally and is structured so that larger vessels are required to fish in areas further from shore. A large majority of vessels are in the temporary seasonal fleet, with the fulltime fishery being the smallest. In addition, a communal snow crab license is issued to the Labrador Inuit Association, who participate in the northern area of the fishery.

Table 6 Number of Newfoundland snow crab fishery license and permit holders 1998 season

Temporary Seasonal	Supplemental	Fulltime	Exploratory	Total
2,499	700	71	70	3,340

Fleet quotas (or allocations of quotas to different sectors of the fleet), limitations on entry, individual quotas, harvest limits, seasons, softshell closures, specific landing weeks and gear limitations are used to regulate the fishery. The first individual quotas were issued as part of a pilot program in 1995. Individual quotas were quickly adopted throughout the fleet with 95 percent of the fishery currently managed under individual quota systems. Support for individual quotas is evident since conversion to quotas requires two-thirds agreement of license holders in the affected fleet. Only one fleet in one region did not elect to operate under individual quotas in the 1999 and 2000 seasons. Individual quota distributions are made from the fleet quota, which is determined annually by Department of Fisheries and Oceans (DFO). Once the individual quota system is adopted, fleet representatives determine the specific individual quota distributions (DFO, 1999). Currently, fleets distribute quota equally among vessels. Neither licenses nor quotas are transferable. Processors have participated in the consultative process but have no direct allocation of an interest in the fishery. Crewmembers do not receive a direct allocation, except for crewmembers that are the heads of enterprises and license holders (Dooley, 2001).

Individual quotas have decreased the need for some management measures, such as staggered openings, landing limits, and trap limits.³ These measures, however, have been retained to maintain orderly harvesting and processing of quotas. Because these measures were adopted through a consultation process involving both the harvesting and processing sectors, changes in these measures would require approval of both sectors.

One of the more controversial management measures is a “buddy up” program that is applicable only to the temporary seasonal fleet. Under the program, two license holders can work together on a single vessel to harvest their individual quotas. Participants must notify DFO of their intent to participate in the program. The

³ No landing limits apply to the temporary seasonal fleet, since the small vessels in this fleet have limited capacity.

program requires both license holders to participate in harvesting and prohibits vessel leasing. The program is also applicable only in areas where it is approved by a majority of the temporary seasonal fleet.

All landings are monitored by DFO certified monitors at the expense of the fisherman or fleet. In addition, a fee of one-third cent per pound of quota is paid by each fisherman to pay for 10 percent observer coverage. In addition, each fleet is responsible for administration of its own individual quota program and week and trip landing limits. Guidelines adopted by each fleet are subject to the approval of DFO and should contain appropriate sanctions for fishermen that exceed their quotas.

The management of the fishery has been adapted to meet several objectives, including maintaining or increasing quotas for all vessels. This objective is being addressed in part by developing the fishery further from shore. Generally, fleet members are not forced to move out but vessels have been induced to move out by the potential to obtain greater quota for participating in more distant waters.

High grading is also a concern in the fishery since two prices exist in the market. A higher price is usually received for crab with a carapace greater than 4 inches. High grading has been discouraged by a “20 percent tolerance” pricing program adopted in the fishery. Under this program, the first 20 percent of undersized crab is purchased at the higher price paid for larger crab, reducing the incentive for discarding undersized crab.

Pacific whiting cooperatives

In 1996, a limited entry program divided the Pacific Coast whiting fishery among the onshore, offshore, and mothership sectors. The program permitted catcher processors to purchase and combine licenses from smaller catcher vessels to enter the fishery. By 1997, four companies owned licenses for the offshore sector and were using ten catcher processors in the fishery. Regulation fixed the offshore sector’s share of the fishery, creating a small, identifiable class of vessels that competed for a fixed share of the fishery. In mid-1997, the four companies participating in the offshore fishery, formed the Pacific Whiting Conservation Cooperative, dividing the offshore fishery among the companies and ending the race to fish in that sector.⁴ Under the cooperative agreement, the companies negotiated a division of the annual harvests based on each company’s history in the fishery and harvest capacity. The cooperative agreement provides for harvest monitoring and penalty provisions for overharvesting shares to ensure that the agreement is adhered to.

The cooperative brought substantial changes to the offshore sector of the fishery. With the reduced pressure to harvest fish quickly, three of the ten catcher processors were no longer used in the fishery in 1998. Shares were leased among the cooperative members to increase efficiency of the fleet. Management of the harvests from the fishery are also more precise under the cooperative. Under the previous management, managers would close the fishery as the fleet approached the TAC, using a conservative cut off to ensure that the TAC was not exceeded. Private harvest monitoring on a vessel basis under the cooperative has enabled the members to limit their harvests to their allocation. Accuracy is improved by the slower pace in the fishery. The division of the fishery among members and coordination of monitoring has allowed participants to focus efforts on harvesting the quota, not simply harvesting fish as quickly as possible. The cooperative has also coordinated the harvest of the last part of the each member’s quota on a single vessel to limit the chances of overharvesting the quota.

Bycatch rates have declined as much as 50 percent under the cooperative. Since a vessel’s allocation is not determined by the rate at which it harvests fish, vessels can afford the time to move if bycatch rates in an area

⁴The inshore fleet has not entered a cooperative agreement, but has engaged in some co-management to establish rules to reduce bycatch of rockfish (Salens, 2001).

are high. Real-time monitoring among cooperative members has provided more current bycatch information enabling vessels to avoid areas with high bycatch rates. The success of the cooperative in reducing bycatch is shown by the decline of bycatch of yellowtail rockfish from 2.47 kg per metric ton of whiting to 0.96 kg per metric ton. Vessels in the mothership sector increased bycatch of yellowtail rockfish from 3.43 kg per metric ton to 6.51 kg per metric ton during the same period.

Recovery rates have risen by 40 percent under the cooperative. Vessels have time to target larger fish, which have higher product yields than smaller fish. Changes in production output, mostly in response to market changes, have also increased recovery rates. With the weak Asian economy demand for surimi was low in the late 1990s. Catcher processors in the cooperative were able to switch production from surimi to fillets and block products increasing profitability. The cooperative helped make this possible by allowing producers to respond to markets without the time pressures of the race to fish. A secondary advantage of the change is that the distribution of products to US consumers increased since US consumers tend to prefer fillets and block products to surimi.

The only reported downside of the development of cooperatives is that some of the vessels that became surplus in the whiting fishery have moved contributing to overcapacity in other fisheries.

BSAI pollock cooperatives

Passage of the American Fisheries Act (AFA) generated an industry structure suitable to the formation of cooperatives. The AFA divided the at-sea portion of the BSAI pollock allocation into two parts (an allocation to catcher/processors and the catcher vessels that deliver to them and the catcher vessels in the mothership sector). The AFA also limited entry into the fishery by identifying an eligible pool of vessels and processors based on recent historic participation. These were the two primary factors that allowed cooperatives to form.

Cooperatives were formed in all three sectors of the BSAI pollock fishery. All eligible catcher/processors and the catcher vessels that delivered to them were able to form a cooperative in 1999. Members of the mothership sector formed a single cooperative in 2000. Seven cooperatives were formed in the inshore sector in 2000.⁵ Activities of all the inshore cooperatives are linked/monitored through an inter-cooperative agreement that every inshore cooperative has agreed to operate under. Inshore cooperatives were formed by the catcher vessels that delivered a majority of their landings to an eligible processor during the qualifying years.

The structure of the current BSAI pollock fishery divided the TAC so that 50% is allocated to the inshore sector, 40% to the catcher/processor sector (including the catcher vessels that deliver to catcher/processors), and 10% to the mothership sector, after 10% of TAC is deducted for Community Development Quotas and an additional deduction (about 3-5%) is made for pollock bycatch in other fisheries. Each cooperative is then allocated a percentage of that sector's allocation, by NMFS, based on the catch history of the vessels that join. The cooperatives then determine how much pollock each vessel in the cooperative will be allowed to harvest. Cooperatives then monitor the catch of individuals to ensure they have not exceeded their allocation. Cooperative agreements are in place that define penalties and fines if a vessel exceeds their allotment. NMFS in turn monitors the harvests of the cooperatives, and imposes penalties if a cooperative exceeds its allocation.

⁵Some of the vessels that were eligible to join those cooperatives elected to remain in the open access fishery instead. The quota in that fishery is determined by the historical catch of the vessels that elect to join. Fewer vessels joined the open access fishery in 2001 than in 2000. Part of the decrease is due to regulatory changes that define the amount of pollock assigned to the open access pool.

Members of the BSAI pollock fleet then operate under “sideboard” caps in other fisheries. These caps limit the amount of other species they can harvest, to protect the historic participants in those fisheries from being adversely impacted as a result of the pollock fleet changing harvest patterns.

Most members of the fishing industry feel that the cooperatives have been very successful (NPFMC, 2002). The race to fish has slowed, excess capacity has been removed from the fishery, utilization rates of the pollock harvested have increased, and spillover into other fisheries has been constrained. The improvements in fishing performance were predicted by the fleets before the AFA was implemented.

Some members of industry, primarily those excluded from the initial allocation or those that would have received relatively small allocations, have expressed the most dissatisfaction with the program. Those concerns are certainly understandable. Others that have expressed concern are members of other fisheries that could potentially be affected by changes in the pollock participation patterns.

Individual transferable quota in the South Atlantic wreckfish fishery

An Individual Transferable Quota (ITQ) program is currently used to manage the South Atlantic wreckfish fishery. The fishery is conducted in an area approximately 120 miles offshore of South Carolina. Wreckfish species biology was and is largely unknown. The fish is long lived but population dynamics are not well understood. The fishery began in 1987. The fishery grew rapidly from its outset. Harvests grew from 29 thousand pounds in 1987 to 4 million pounds in 1990. Participation grew from 2 vessels in 1987 to 80 vessels in 1991. Prior to the ITQ program the fishery was managed by TAC, trip limits, a permit system, a spawning closure, restricted offloading hours, and a bottom longlining limit. The ITQ program was adopted both to protect the species and to avoid a race to fish that was developing in the fishery.

Shares in the fishery were allocated to all permit holders that landed more than 5,000 pounds of wreckfish in either 1989 or 1990. Half of the initial allocation was distributed in proportion to landings for the years 1987 to 1990 and half was distributed in equal shares to all permit holders qualified to receive an initial allocation. The initial allocation to any business entity was capped at 10 percent of the total initial allocation. Annually, each holder of shares is issued a coupon for a share of the TAC, which is based on proportion of the total share holdings. Coupons are valid for use in a single year. Only permit holders are allowed to own shares or the coupons that represent yearly harvest allocations. Permits are limited and apply not only to the wreckfish fishery but also to the snapper and grouper fisheries. Transfers of shares and coupons are otherwise unrestricted.

Under the program the TAC and harvests have remained relatively constant. In every year, harvests are far below the TAC. Underharvesting is thought to be caused by the relatively low price of wreckfish, in comparison to other species that could be targeted by the same vessels. The number of vessels in the fishery has declined substantially since the ITQ program was implemented. By 1996, the fishery was reduced to 25 shareholders, only 8 of whom participated in the fishery. Currently, approximately 2 fishermen are active in the fishery. These 2 fishermen sell their harvests to the same dealer. Vertical integration does not appear to be a problem in the fishery.

Because of the relatively few fishermen participating in the fishery and the quantity of unharvested TAC some experts believe that quota share holders may be “banking” the catch, saving the biomass for future years when prices rise relative to the other fisheries. Given the dearth of information concerning wreckfish populations, the unharvested TAC may also be beneficial from a biological and management perspective. On the other hand, fishermen wishing to enter the fishery are frustrated by the amount of TAC that ITQ holders have left unharvested. These excluded fishermen believe that the ITQ program has unfairly excluded them from participating in an underexploited resource.

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Appendix 2-7

BSAI Crab Rationalization: Implications from the AFA's Effects on Efficiency and Capacity Utilization in the Pollock Fishery

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Abstract

The American Fisheries Act (AFA) of 1998 significantly altered the Bering Sea and Aleutian Islands (BSAI) pollock fishery by allowing the formation of harvesting and processing cooperatives and defining exclusive fishing rights. Currently, a rationalization scheme is being considered for the BSAI crab fisheries that may include components similar to those within the AFA. Thus, where applicable, impacts of the AFA may be used as an indicator of the potential effects of certain proposed crab rationalization tools. This paper discusses the findings of a recent study that looked at the effects of the AFA on catcher-processors' technical harvesting efficiency and capacity utilization.

Therefore, it may be useful to begin this discussion with a description of specific types of production efficiency. This clarification will allow for a bit more specificity and detail in assessing effects of the American Fisheries Act (AFA) and rationalization in the crab fisheries. A common way to decompose overall efficiency is into technical and allocative components (Coelli, Rao, and Battese, 1998). With this distinction made, one can then further specify whether the focus is input-or output-oriented, and whether the focus on harvesting or processing.

In an input orientation, the degree of *technical* efficiency relates to the quantity of inputs used to obtain a given bundle of output(s), where lower levels of input use imply increasing technical efficiency. In an output orientation, the degree of technical efficiency reflects the amount of output one can obtain from a given bundle of inputs. Because the input- and output-oriented measures of technical efficiency essentially capture the same information, the distinction will be dropped for the balance of this discussion.¹ Both measures essentially indicate one's skill in combining inputs to create outputs.

In an input orientation, *allocative* efficiency pertains to the degree to which one chooses the optimal proportion of inputs (to achieve a given level of output), given their relative costs and marginal products. In an output orientation, allocative efficiency reflects the degree to which one chooses the optimal mix of outputs (with a specific input bundle), given the respective market prices and marginal rates of transformation. Loosely speaking, measures of input (output) allocative efficiency can be thought of as the extent to which one minimizes (maximizes) the cost of (revenue from) a given level of outputs (inputs). Note that one can be input-allocatively efficient and output-allocatively inefficient, or vice-versa. Similarly, one can be allocatively efficient and technically inefficient. The point here is that each measure captures a different aspect of production, and each can be affected in different ways from changing institutional or regulatory environments.

It may also be worthwhile to briefly clarify the concept of capacity in fisheries. Many people will equate capacity with capital, or excess capacity with overcapitalization, but as discussed in Kirkley and Squires (1999), the notions coincide only under fairly stringent restrictions on production technologies. Simply put, excess capacity may arise because of excessive use of *all* factors of production (relative to some target level of output), while overcapitalization merely refers to the presence of excess capital in a fishery – the former being the more relevant concern. Thus, measures of *capacity utilization* indicate the extent to which a vessel is using variable inputs in conjunction with the fixed capital stock to create output (and not just, for example, the size of the capital stock relative to output). In a harvesting context, capacity utilization can be thought of as how one is utilizing the capital base used in fishing practices, while in processing it reflects one's utilization of processing equipment and facilities.

¹ Input and output distance functions (Shephard, 1970) are the theoretical constructs typically used to measure technical efficiency in input and output orientations, respectively. Under constant returns to scale, the value of an input distance function is the reciprocal of an output distance function.

A recent paper by Felthoven (2001) looks at the effects of the American Fisheries Act (AFA) on the BSAI catcher-processor fleet. Although the empirical analysis focuses primarily on the technical efficiency and capacity utilization in harvesting, the paper does discuss effects on allocative efficiency and some aspects of processing. Many of the findings do not appear to be unique results arising from the specific cooperative structure, but instead due to the benefits afforded from eliminating the race for fish and allowing the transfer of quota. Thus, the results of the study presented below represent changes in efficiency and capacity utilization that may be likely under various crab rationalization approaches.

One effect of eliminating the race for fish in the pollock fishery was a significant increase in the harvesting capacity utilization estimates for AFA-eligible vessels.² The number of days spent fishing also increased markedly over past three years, as did the average annual towing time and crew hours. Anecdotal evidence from the pollock fishery also suggests that the slower daily pace allowed vessels to harvest in a more cost-effective manner, thus improving input allocative efficiency. In contrast, estimates of technical harvesting efficiency did not significantly increase after rationalization. This result may come as a surprise, as one might think that with a slower pace and less fierce competitions, one could fish under more desirable conditions and increase the catch per unit effort. The probable causes for this result can likely be attributed to two main factors.

First, the pre-AFA race for fish served as an incentive for throughput and catch maximization, which bolster measures of technical harvesting efficiency. However, in absence of a race for fish, less emphasis is placed on the sheer quantity of fish caught per trip, with more attention being given to the quality and characteristics of the fish being caught. Processing operations now tend to dictate the rate at which fish are caught, and vessels have increased output allocative efficiency through their heightened ability to adapt production to market signals. Second, the potential for increases in technical harvesting efficiency afforded by improved timing and searching for the most productive fishing grounds may have been stifled somewhat by Steller sea lion restrictions. Thus, given the stricter regulatory environment and the apparent harvesting/processing tradeoffs for catcher-processors, the net effect on technical harvesting efficiency (i.e., the lack of an increase) is not too surprising.

The extent to which technical harvesting efficiency may increase under crab rationalization is less likely to depend on sea lion closures than the pollock fishery, but should still be affected by the processing strategies and capacity of inshore processors, and by the potential for gains in allocative efficiency (arising from the heightened ability to target larger, more valuable crabs). Furthermore, capacity utilization gains appear to be quite likely given the relatively short seasons in many of the current crab fisheries.

On the processing side, the AFA led to large gains in technical processing efficiency through increased product recovery rates (PRRs) for pollock. They are reported to have increased by 26% during 1999 over the 1998 baseline, and by 35% in 2000 relative to 1998 (PCC and HSCC, 2001).³ And, given the strong production link in harvesting and processing aboard catcher-processors, the estimated increases in capacity utilization reported for harvesting operations were likely achieved in processing as well⁴. While it is unlikely that the potential PRR increases in crab processing will match those for pollock, other efficiency and capacity utilization gains may be possible. In particular, given the existing capacity of crab processors, the likelihood

² The increases in capacity utilization were also due to increases in each vessel's catch share (because of the buyback program).

³ This increase is attributable to two factors: pure technical efficiency increases in processing for a given type of product, and a change toward products that have relatively high product recovery rates (which was largely motivated their market prices).

⁴ Increases in harvesting capacity utilization are likely to lead to additional utilization of processing capacity since most fish accounted for in harvesting by pollock catcher-processors will enter the processing chain due to the full retention and utilization requirements for pollock and cod.

of a slower pace under rationalization, and the heterogeneity of processing equipment, it may be possible for processors to achieve both technical and allocative gains by retiring older equipment and utilizing newer, more cost-effective capital.

Another interesting factor to note about the pollock fishery is that there were significant differences in the historic technical harvesting efficiency among vessels. This finding is likely due to the heterogeneity of the fleet in terms of vessel size and age. When such differences exist, it implies that potential technical efficiency gains could be realized by shifting harvesting effort from less efficient vessel to more efficient vessels. Given that the fleet of crab vessels is also quite heterogeneous, similar opportunities may exist there as well. Quota transfers would be facilitated within a cooperative or ITQ system. Within the pollock fishery, transfers have occurred between vessels within the same company, between companies, and from catcher boats to catcher-processors.

The empirical results in Felthoven indicate the companies that transferred fishing quota among their vessels typically chose to idle vessels that had the historically lowest levels of technical harvesting efficiency and capacity utilization.⁵ This finding is consistent with the claim that the ability of vessels to trade quota will lead to increases in production efficiency. However, the estimates also suggest that the remaining group of active vessels in the fishery was not the most technically efficient group of harvesters overall; some companies active vessels had been historically less technically efficient than other companies' idled vessels, and differences exist among remaining active vessels. This suggests that another potential way to realize increases in technical harvesting efficiency is through inter-company trading of quota, which could be facilitated within either a cooperative or an ITQ system.

The changes in efficiency and capacity utilization discussed above are short-run effects. As discussed in Matulich, Inada and Sever (2001), and Halvorsen, Khalil and Lawarree (1999), the long-term gains depend on issues of market power, the initial allocation of quota, the extent to which the quota can be traded, the rules within any cooperative structure (if adopted), and more. In general, the extent to which a competitive market for quota is limited – either through market power, market failure, regionalization, or other mechanisms – will affect the extent of overall efficiency in a fishery. Furthermore, the management plan that maximizes the degree of efficiency achieved in harvesting and processing may not coincide with that which provides an equitable or popular distribution of benefits to current fishery participants. Regardless of such concerns, one thing is relatively certain, and is supported by the repercussions of the AFA: relative to open-access, rationalization provides the mechanism and incentives for increases in technical and allocative efficiency for both harvesters and processors. It is the question of who will capture these benefits that is more difficult to address.

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⁵ This is not to say that past levels of technical efficiency or the extent to which the vessel had been utilized is the deciding factor in choosing which vessel to operate. However, these factors are correlated with overall profitability and had good predictive power in probit models that modeled post-AFA participation as a function of past technical efficiency and capacity utilization.

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Appendix 2-8

Product Markets and Prices

Crab produced in Alaska's fisheries enters a world market. As a result, global production, seasonal supply and demand fluctuations, inventory levels, and exchange rates all play a role in the market for Alaska crab. Product markets and prices can influence the ex-vessel price that processors are willing to pay for harvested crab. This subsection provides data and information on the global production and consumption of crab products. The discussion separates crab by general species groups focusing on the two species groups produced in the BSAI crab fisheries—*Paralithodes* (or king crab) species group and the *Chionoecetes* (or Tanner crab) species group.¹

2-9.1 Global production of king and Tanner crab

Figures 2-9-1 and 2-9-2 show the historical harvest levels of king and Tanner crab by the major global harvesters. King crab is currently harvested primarily by the U.S. and Russia. In the early 1970s, Japan was also a major harvester of king crab. Since Japanese harvests declined in the mid-1970s, the combined harvests of king crab by countries other than the U.S. and Russia (formerly the U.S.S.R.) has averaged less than 1 percent of the global harvest. From 1972 to 1981, the U.S. harvested the majority of the global king crab harvests. U.S. harvests peaked in 1980 at about 186 million pounds—82 percent of global harvests. Starting in 1981, the U.S. harvest of king crab declined sharply as resource abundance declined. At the same time, king crab harvested by the former U.S.S.R. began to increase. Since 1982, the global harvest of king crab has averaged approximately 100 million pounds per year, with the U.S. harvesting approximately 22 percent and Russia (or the former U.S.S.R.) harvesting approximately 77 percent.

The majority of global Tanner crab harvests are by the U.S. and Canada. Japan and Russia also harvest Tanner crab, although harvest data for Russia (and the former U.S.S.R.) is not available prior to 1978. Since the early 1970s, U.S. harvests of Tanner crab have cycled—sharply increasing and decreasing with changes in effort and resource abundance. From a low of approximately 50 million pounds in 1984, the U.S. harvest of Tanner crab climbed to a peak of approximately 357 million pounds in 1991. The number of U.S. vessels participating in the Tanner crab fisheries increased steadily during this time period, precipitated in part by the decline of the king crab fisheries in the early 1980s. Canadian harvests of snow crab have also cycled, but a relationship with U.S. cycles is not clear. Since 1989, Canadian harvests of Tanner crab have steadily grown, reaching 209 million pounds in 1999. Since 1995 (except in 1998), Canada's share of global Tanner crab harvests has exceeded that of the U.S.

¹ For purposes of this subsection the king crab group includes all species of king crab and the Tanner crab group includes *C. opilio* and *C. bairdi*.

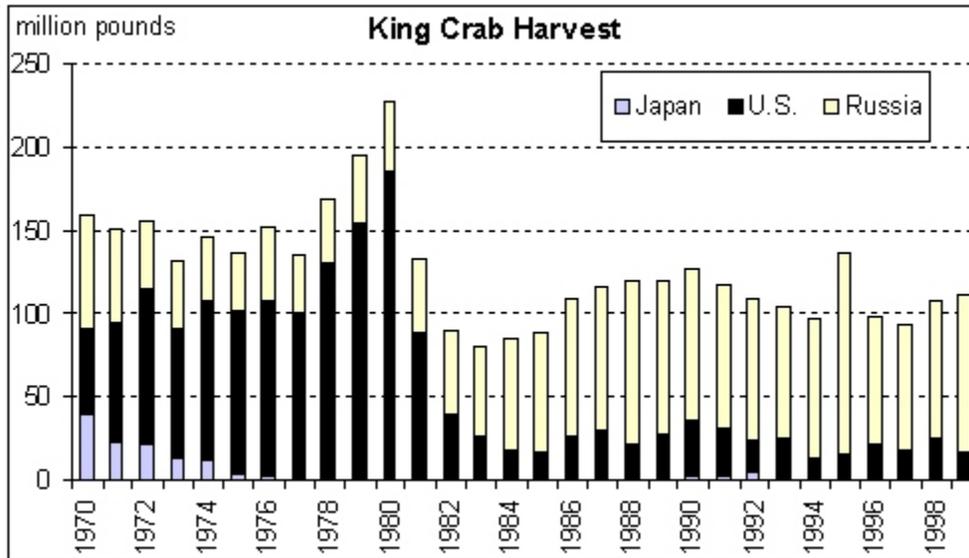


Figure 2-9-1 Harvest of king crab species by major producing country. Source: U.N. FAO

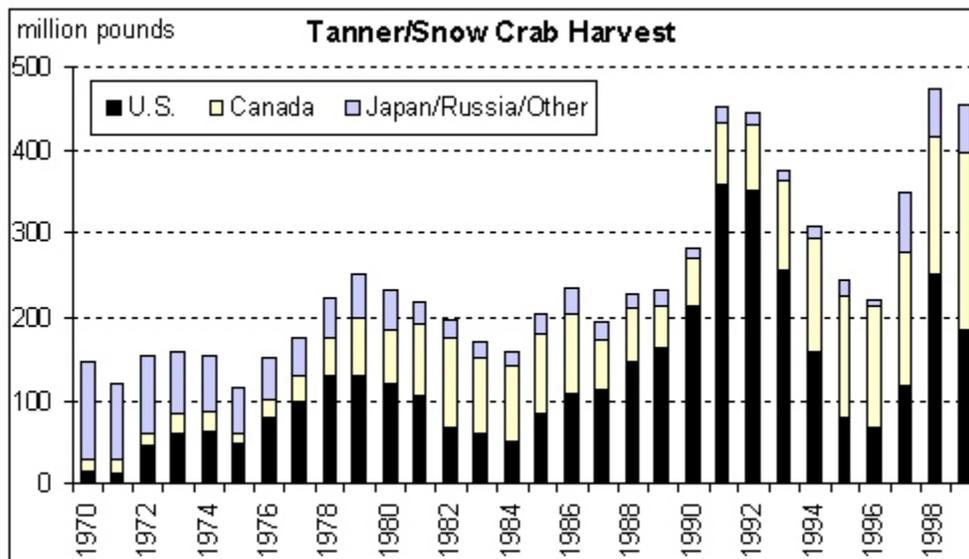


Figure 2-9-2 Harvest of snow crab species by major producing country. Note: data for Russia not available prior to 1997. Source: U.N. FAO

2.9.2 Exports, Imports and Consumption of King and Tanner Crab

Statistics on U.S. exports and imports of king and Tanner crab are available from the NMFS Office of Industry and Trade.²

U.S. Exports by Country. U.S. exports of king and Tanner crab are shown in Tables 2-9-1 and 2-9-2. For both king and Tanner crab, the majority of crab exports are exported to Japan. King crab exports peaked in 1993 at 13.4 million pounds, with 92 percent of exports going to Japan. Since 1993, annual exports of King crab have ranged from 6 to 10 million pounds. Since then, the proportion of King crab exports going to Japan has declined (from 92 percent in 1993 to 71 percent in 2000), while the proportion of exports to Canada has risen (from 6 percent in 1993 to over 20 percent in 1998, 1999, and 2000).

U.S. exports of snow crab products peaked in 1992 at 137 million pounds, with 92 percent exported to Japan. Since 1992, U.S. exports of snow crab have dropped sharply, mainly due to the decline in resource abundance. In 2000, the U.S. exported 12.3 million pounds of snow crab which is less than 10% of the 1992 export level. The proportion of snow crab exports going to Japan has also declined, from 92% in 1992 to 72% in 2000. Over this time, the proportion of exports to other countries has increased, especially exports to China. For example, less than 5% of snow crab exports went to China in 1992 while over 20% of exports went to China in 1999.

Table 2-9-1 U.S. Exports of King Crab Products

	U.S. Exports of King Crab (millions of pounds)							%
	Japan	Canada	Thailand	China	Mexico	Other	Total	
1989	0.03	0.05			0.01	0.02	0.11	25%
1990	0.04				0.00	0.08	0.13	35%
1991	8.54				0.00	0.05	8.59	99%
1992	7.89	0.37			0.03	0.14	8.43	94%
1993	12.37	0.76		0.22	0.01	0.05	13.41	92%
1994	7.22	0.61			0.06	0.28	8.17	88%
1995	5.55	0.62	0.00	0.08	0.00	0.18	6.44	86%
1996	8.60	0.87	0.17	0.03	0.00	0.26	9.92	87%
1997	4.48	0.98	0.37	0.17	0.04	0.40	6.44	70%
1998	4.74	1.57	0.47		0.01	0.34	7.13	66%
1999	3.93	1.68	0.13		0.14	0.31	6.18	64%
2000	5.20	1.55	0.08	0.02	0.11	0.35	7.30	71%

Source: NMFS, Office of Industry & Trade

² Data files of the NMFS Office of Industry & Trade define “snow crab” to include both *C. bairdi* and *C. opilio* (and a few other species). For consistency, “Tanner” is substituted for “snow” in this analysis.

Table 2-9-2 U.S. Exports of Snow Crab Products

Year	U.S. Exports of Snow Crab (million pounds)							Total	%
	Japan	China	S. Korea	Canada	Thailand	Other			
1989	0.31		0.10	0.05		0.08	0.54	57%	
1990	2.15	0.09	0.94		0.00	0.16	3.34	64%	
1991	68.54	1.49	0.36		0.67	0.82	71.88	95%	
1992	127.14	6.54	0.78	0.68	0.79	1.21	137.13	93%	
1993	92.25	7.26	1.00	0.36	0.55	0.44	101.87	91%	
1994	62.43	5.17	0.66	0.26	0.04	0.22	68.78	91%	
1995	26.25	0.65	0.03	0.07	0.06	0.28	27.34	96%	
1996	19.22	1.57	0.14	0.11	0.17	0.95	22.17	87%	
1997	20.28	1.19	0.01	0.40	0.38	0.75	23.00	88%	
1998	23.71	2.24		0.45	0.00	0.39	26.79	89%	
1999	27.53	7.55		0.18	0.01	0.41	35.68	77%	
2000	8.92	2.21	0.05	0.15	0.19	0.80	12.32	72%	

Source: NMFS, Office of Industry & Trade

U.S. Imports by Country. U.S. imports of king and snow crab products are shown in Tables 2-9-3 and 2-9-4, respectively. The majority of king crab imports are imported from Russia while the majority of snow crab imports are imported from Canada. While exports of king and snow crab products declined in the late 1990's due to declining resource abundance, imports of both have increased during this time period. Imports of king crab increased from a low of 3.1 million pounds in 1993 to a high of 27.4 million pounds in 1998. Since 1997, over 90% of king crab imports have been imported from Russia. U.S. imports of snow crab have generally increased during the 1990's, except for a one-year decline in 1995. In 2000, the U.S. imported over 68 million pounds of snow crab, with 86% coming from Canada.

Table 2-9-3 U.S. Imports of King Crab

	U.S. Imports of King Crab (million pounds)							Total	%
	Russia	S. Korea	Canada	Japan	Indonesia	Other			
1989	0.00	0.07	0.00	0.20	0.20	0.53	1.00		
1990	0.00	0.00	0.07	0.03	0.27	0.64	1.01		
1991	0.00	0.15	0.14	0.08	0.25	1.22	1.84		
1992	4.43	0.15	0.29	0.51	0.02	0.17	5.59	79%	
1993	2.41	0.00	0.39	0.18	0.06	0.08	3.12	77%	
1994	5.68	0.09	0.89	0.04	0.05	0.08	6.83	83%	
1995	8.58	0.10	0.49	0.00	0.07	0.23	9.48	91%	
1996	12.27	0.90	0.37	0.19	0.08	0.51	14.32	86%	
1997	19.89	1.62	0.30	0.03	0.03	0.09	21.97	91%	
1998	25.87	0.33	0.21	0.05	0.06	0.86	27.38	94%	
1999	24.38	0.88	0.04	0.36	0.05	0.15	25.87	94%	
2000	20.59	0.56	0.08	1.04	0.05	0.14	22.46	92%	

Source: NMFS, Office of Industry & Trade

U.S. Exports by Product Form. Amounts and average values of U.S. exports of king and snow crab by product forms are shown in Tables 2-9-5 and 2-9-6, respectively. Exports of crab are broken down into three product categories, frozen crab, frozen crabmeat and crabmeat in air tight containers (ATC). For both king and snow crab, the vast majority of exports are in the frozen crab product form. Relatively small amounts of king and snow crab are exported as crabmeat (either frozen or in ATC). Typically, frozen crab sections have a higher average exported value than crabmeat. Also, exported king crab typically has a higher average value than exported frozen snow crab. For example, since 1991, the average value of exported frozen king crab ranged from \$3.34 per pound (in 1998) to \$7.31 per pound in 1992 while the average value of exported frozen snow crab ranged from \$2.03 per pound (in 1998) to \$4.58 per pound (in 1995). The difference in average exported value between frozen king crab and frozen snow crab reflects (1) differences in end market uses, and (2) differences in supply and demand. For example, king crab is viewed as comparable to lobster and tends to be sold into the higher end of the market while snow crab tends to be sold into the lower end of the market (e.g., restaurants offering buffets, etc.).

Table 2-9-4 U.S. Imports of Snow Crab Products

Year	U.S. Imports of Snow Crab (million pounds)						Total	% Canada
	Canada	Russia	S. Korea	Greenland	Japan	Other		
1989	0.18		0.11		0.48	0.07	0.84	22%
1990	1.73		0.43		0.41	0.12	2.69	64%
1991	3.51		1.16		0.46	0.19	5.32	66%
1992	4.20		0.72	0.00	0.38	0.19	5.49	77%
1993	7.69		0.67		0.45	0.09	8.90	86%
1994	7.95		1.63		0.55	0.16	10.29	77%
1995	4.68		1.17	0.76	1.14	0.20	7.96	59%
1996	9.13	0.08	1.07	0.09	0.86	0.02	11.26	81%
1997	14.68	1.82	1.63	0.70	0.56	0.06	19.44	76%
1998	24.73	3.69	1.51	0.64	0.72	0.10	31.38	79%
1999	52.34	2.99	1.12	2.73	0.72	0.80	60.70	86%
2000	58.70	2.92	0.63	3.70	0.98	1.67	68.59	86%

Source: NMFS, Office of Industry & Trade

Table 2-9-5 U.S. Exports of King Crab by Product Form

Year	King Crab Frozen		King Crabmeat Frozen		King Crabmeat in ATC*		Total	
	mil lbs	\$/lb	mil lbs	\$/lb	mil lbs	\$/lb	mil lbs	\$mil
1989			0.07	5.60	0.03	2.35	0.1	0.5
1990			0.05	8.02	0.07	2.83	0.1	0.6
1991	8.5	6.31	0.04	6.19	0.05	4.76	8.6	54.1
1992	8.2	7.31	0.05	4.35	0.22	3.57	8.4	60.7
1993	13.1	6.56	0.08	6.41	0.19	3.69	13.4	87.4
1994	8.0	5.99	0.05	2.69	0.13	4.06	8.2	48.5
1995	6.3	5.54	0.06	2.61	0.09	2.87	6.4	35.3
1996	9.8	5.75	0.04	2.55	0.05	2.65	9.9	56.8
1997	6.2	4.58	0.04	4.62	0.24	2.14	6.4	28.9
1998	6.8	3.34	0.09	3.21	0.21	2.59	7.1	23.6
1999	6.0	4.24	0.06	1.89	0.10	2.04	6.2	25.9
2000	6.7	6.75	0.32	2.39	0.26	2.44	7.3	46.8

*ATC = air tight container

Source: NMFS, Office of Industry & Trade

Table 2-9-6 U.S. Exports of Snow Crab by Product Form

Year	Snow Crab Frozen		Opilio (meat) Frozen		Opilio (meat) in ATC*		Other (meat) Frozen		Other (meat) in ATC*		Total	
	mil lbs	\$/lb	mil lbs	\$/lb	mil lbs	\$/lb	mil lbs	\$/lb	mil lbs	\$/lb	mil lbs	\$/mil
1989			0.1	1.80			0.5	1.77	0.0	7.61	0.5	1.0
1990			1.8	2.19	0.0	5.50	1.5	2.11	0.0	5.23	3.3	7.3
1991	71.0	2.16	0.2	1.89	0.0	3.37	0.7	0.86	0.0	3.21	71.9	154.5
1992	135.8	2.22	0.1	2.26			1.1	0.67	0.1	1.39	137.1	303.2
1993	100.5	2.67	1.0	2.47			0.1	1.20	0.3	1.63	101.9	271.8
1994	68.6	3.72	0.0	2.02			0.0	5.88	0.1	1.36	68.8	255.9
1995	27.0	4.58	0.1	1.80			0.2	0.95	0.1	1.65	27.3	124.1
1996	21.0	3.33	0.1	1.63			1.0	1.14	0.0	2.03	22.2	71.3
1997	22.4	2.39	0.1	1.80	0.2	2.69	0.2	1.23	0.1	1.21	23.0	54.7
1998	26.4	2.03	0.1	1.52			0.2	1.97	0.0	1.42	26.8	54.2
1999	34.5	2.69	1.0	2.05	0.0	5.14	0.2	1.50	0.0	2.65	35.7	94.9
2000	10.5	3.94	1.1	1.82	0.6	2.04	0.1	1.53	0.0	6.10	12.3	44.9

*ATC = air tight container

Source: NMFS, Office of Industry & Trade

U.S. Trade Balance in Crab Products. The U.S. trade balance (in millions of U.S. dollars) is summarized for king and snow crab products in Table 2-9-7. Note that a small portion of the imports are re-exported to other countries. The U.S. trade balance was positive for both king and snow crab in the early 1990's, i.e., the value of U.S. exports exceeded the value of U.S. imports. Starting 1995 for king crab and 1997 for snow crab, the U.S. has been running a trade deficit for crab products, i.e., the value of imports has exceeded the value of exports. In 2000, the value of U.S. imports reached \$146 million for king crab and \$277 million for snow crab, resulting in trade deficits of \$93 million and \$229 million for king and snow crab, respectively.

Table 2-9-7 U.S. Trade Balance (\$millions) for King and Snow Crab Products

Year	King Crab				Snow Crab			
	Import	Export	Re-Export	Balance	Import	Export	Re-Export	Balance
1989	2.3	0.5	0.02	(1.8)	3.2	1.0	0.30	(1.9)
1990	2.6	0.6	0.02	(2.0)	12.9	7.3	0.47	(5.2)
1991	7.5	54.1	0.01	46.7	23.2	154.5	0.02	131.3
1992	24.6	60.7	1.97	38.0	18.8	303.2	0.07	284.5
1993	15.1	87.4	0.02	72.3	28.5	271.8	0.49	243.8
1994	40.5	48.5	0.46	8.5	39.9	255.9	0.23	216.3
1995	49.7	35.3	0.42	(14.0)	35.8	124.1	0.60	88.9
1996	66.4	56.8	0.07	(9.6)	41.7	71.3	0.25	29.9
1997	112.1	28.9	0.69	(82.4)	58.5	54.7	0.18	(3.6)
1998	125.6	23.6	0.22	(101.8)	82.4	54.2	0.60	(27.6)
1999	137.6	25.9	0.43	(111.3)	199.2	94.9	0.08	(104.1)
2000	145.9	46.8	6.06	(93.1)	277.1	44.9	2.72	(229.4)

Source: NMFS, Office of Industry & Trade

Estimated U.S. Consumption and Inventory Changes. Tables 2-9-8 and 2-9-9 summarize estimated yearly U.S. consumption and changes in inventory for king and snow crab, respectively. The yearly consumption plus inventory change (not broken out separately) is estimated as the sum of production and imports minus exports and re-exports. Production (in pounds of product) is estimated by multiplying the yearly harvest by an average product yield (or recovery rate). Typical product yields of 64 percent for king crab and 62 percent for snow crab were used in the calculations (these product yields were provided by the Alaska Seafood Marketing Institute).

Table 2-9-8 Estimated Consumption (+ Inventory Change)
of King Crab (in millions of pounds)

Year	Production					Consumption + Chg Inv
	Catch ¹	Product ²	Import ³	Export ³	Re-Expo ³	
1989	26.4	16.9	1.00	0.1	0.01	17.78
1990	33.9	21.7	1.01	0.1	0.00	22.59
1991	28.1	18.0	1.84	8.6	0.00	11.27
1992	19.1	12.2	5.59	8.4	0.33	9.03
1993	24.7	15.8	3.12	13.4	0.00	5.54
1994	12.0	7.7	6.83	8.2	0.06	6.25
1995	14.7	9.4	9.48	6.4	0.06	12.37
1996	21.0	13.4	14.32	9.9	0.01	17.83
1997	18.0	11.5	21.97	6.4	0.16	26.91
1998	24.1	15.4	27.38	7.1	0.04	35.65
1999	16.9	10.8	25.87	6.2	0.10	30.43

Sources: (1) U.N. FAO; (2) Calculated assuming 64% recovery rate;
(3) NMFS, Office of Industry & Trade

In 1993, the year that the harvest of king crab peaked, U.S. consumption (including inventory changes) of king crab bottomed at 5.5 million pounds. Between 1993 and 1998, U.S. consumption grew steadily reaching 35.6 million pounds in 1998, with over 75 percent from imports. The consumption pattern for snow crab has generally followed changes in harvest levels since the majority of snow crab is consumed domestically. Thus, consumption (including inventory changes) bottomed in 1995 at 30.5 million pounds and most recently peaked in 1998 at 160.5 million pounds. During the 1990's, the percentage of annual U.S. consumption that is imported (versus the percentage produced domestically) has increased for both king and snow crab. Imports of king crab comprised less than 10 percent of consumption in 1989 but over 80% of consumption in 1999. Similarly, imports of snow crab comprised less than 1 percent of consumption in 1989 but over 40% of consumption in 1999.

Japan Imports of Crab by Country. Table 2-9-10 shows the Japan imports of crab by product type and by country for the year 2000 in millions of pounds. In 2000, Japan imported a total of 301.6 million pounds of crab with a value of \$1.13 billion. The highest percentage of imports were from Russia (58%), followed by Canada (12%), China (11%), and the U.S. (5%). Japan imported 6.2 million and 7.1 million pounds of king and snow crab from the U.S., respectively. Japan, however, imported five times as much snow crab from Canada and more than 10 times as much king and snow crab from Russia that year. Japan also imported over 10 million pounds of snow crab (live, fresh or chilled) from North Korea.

Table 2-9-9 Estimated Consumption (+ Inventory Change)
of Snow Crab (in millions of pounds)

Year	Production					Consumption + Chg Inv
	Catch ¹	Product ²	Import ³	Export ³	Re-Expo ³	
1989	164.7	102.1	0.84	0.5	0.08	102.32
1990	213.4	132.3	2.69	3.3	0.06	131.63
1991	357.2	221.5	5.32	71.9	0.00	154.90
1992	350.1	217.1	5.49	137.1	0.02	85.41
1993	255.8	158.6	8.90	101.9	0.11	65.51
1994	159.6	99.0	10.29	68.8	0.05	40.42
1995	80.8	50.1	7.96	27.3	0.22	30.53
1996	67.9	42.1	11.26	22.2	0.13	31.05
1997	118.9	73.7	19.44	23.0	0.05	70.13
1998	251.9	156.2	31.38	26.8	0.29	160.47
1999	185.2	114.8	60.70	35.7	0.02	139.83

Sources: (1) U.N. FAO; (2) Calculated assuming 62% recovery rate;
(3) NMFS, Office of Industry & Trade

Table 2-9-10 Japan Imports of Crab in 2000 by Country (million pounds)

	Russia	Canada	China	U.S.	N. Korea	Other	Total
Frozen king crabs	41.4	0.1	0.8	6.1	-	0.5	48.9
King crabs	46.1	-	-	0.0	0.0	-	46.2
Frozen snow crabs	25.8	35.3	0.9	7.0	0.2	5.4	74.5
Snow crabs	49.1	0.0	-	0.1	10.4	0.1	59.8
Frozen swimming crabs	-	-	15.4	0.2	-	12.9	28.4
Swimming crabs	-	-	2.6	0.0	-	0.8	3.3
Frozen crabs (other)	0.4	0.0	0.3	0.3	0.2	0.7	1.9
Crabs (other)	9.5	0.0	0.2	-	0.2	1.1	11.0
Crab preserved (no rice)	1.6	1.0	14.0	0.4	0.0	10.2	27.2
Crab (airtight containers)	0.1	-	-	0.0	-	0.1	0.2
Crabs, dried, salted	-	-	0.1	0.0	0.0	0.0	0.1
Subtotal King Crab	87.5	0.1	0.8	6.2	0.0	0.5	95.1
Subtotal Snow Crab	74.9	35.4	0.9	7.1	10.6	5.5	134.3
Subtotal	174.0	36.6	34.2	14.1	10.9	31.7	301.6
Percent of Total	58%	12%	11%	5%	4%	11%	100%

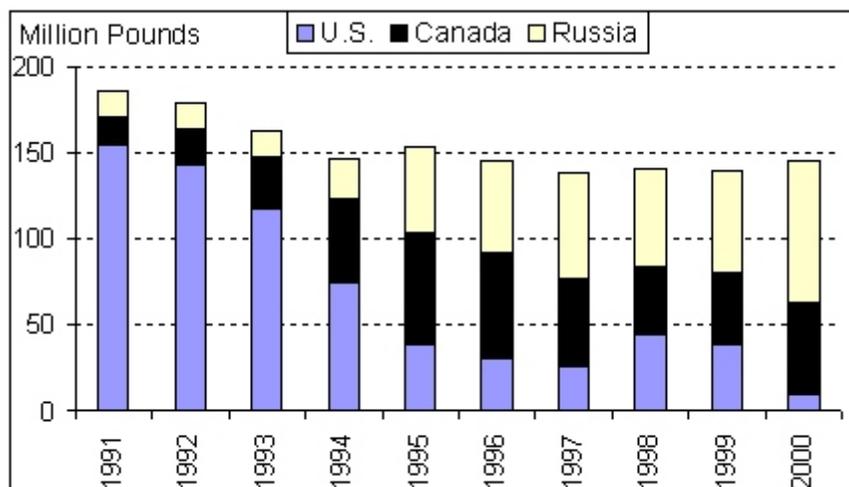
Source: Ministry of Finance International Trade Statistics

Table 2-9-11 Japan Snow Crab Inventories, Imports and Consumption 1991-2000

Year	Beginning Inventory	Imports/Production				Total	Ending Inventory	Consumption	% from U.S.
		U.S.	Canada	Russia	Coastal				
1991	6.6	154.3	16.8	14.1	18.7	203.9	13.2	197.3	78.2%
1992	13.2	143.3	20.5	15.4	17.6	196.9	15.4	194.7	73.6%
1993	15.4	117.9	29.8	14.3	9.7	171.7	8.8	178.4	66.1%
1994	8.8	74.1	48.7	24.0	11.0	157.9	13.2	153.4	48.3%
1995	13.2	38.6	65.0	50.0	8.8	162.5	19.8	155.9	24.8%
1996	19.8	30.2	61.9	53.6	3.3	149.0	22.0	146.8	20.6%
1997	22.0	26.0	51.4	60.6	2.9	140.9	11.0	151.9	17.1%
1998	11.0	44.8	39.7	56.4	2.2	143.1	11.0	143.1	31.3%
1999	11.0	38.1	41.9	59.3	4.4	143.7	22.0	132.7	28.7%
2000	22.0	10.4	52.9	81.6	4.4	149.3	22.0	149.3	6.9%

Source: Bill Atkinson, Japanese seafood market analyst.

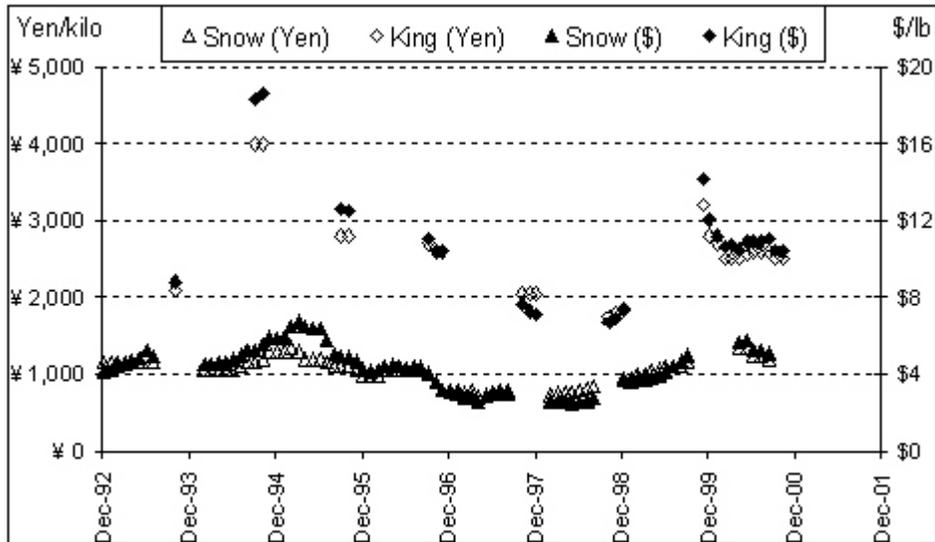
Japan Inventories, Imports and Consumption of Snow Crab. Table 2-9-11 shows Japan beginning and ending inventories, imports/production and consumption of snow crab for 1991-2000. The snow crab imports from the U.S., Russia and Canada are graphed in Figure 2-9-3. This data was obtained from Bill Atkinson, an analyst for the Japan seafood markets, and exhibits some modest differences from the data obtained from NMFS and the Japan Ministry of Finance. We believe these differences are largely due to differences in product categorization and the timing of reporting. As shown, Japan's consumption of snow crab has declined during the 1991-2000 period, from 197 million pounds (in 1991) to 149 million pounds (in 2000). Imports of snow crab from the U.S. have declined during this period, both in terms of pounds and as a percentage of consumption. In 1991, imports from the U.S. comprised 78% of consumption while, in 2000, imports comprised only 7% of consumption. Growth in imports from Canada and Russia have partially offset the decline in imports from the U.S.; from 1991 to 2000 imports from Canada grew from 17 million to 53 million pounds and imports from Russia grew from 14 million to 82 million pounds. Compared to U.S. consumption of snow crab (see Table 2-9-9), Japan's annual consumption has exceeded U.S. consumption during most of the 1990's. In 1998 and 1999, however, the U.S. consumed amounts of snow crab that were comparable to the amounts consumed by Japan.



Source: Bill Atkinson, Japanese seafood market analyst.

Figure 2-9-3 Japanese imports of snow crab (millions of pounds).

Japanese Wholesale Market Prices. Figure 2-9-4 shows Japanese wholesale market prices for Alaskan snow and king crab in Japanese yen and U.S. dollars. The wholesale prices in dollars were calculated from the prices in yen and the average monthly exchange rates (yen per dollar). Japanese wholesale prices for king crab have exhibited a high degree of variability during the 1990's. King crab prices spiked up to 4000 yen/kilo (above \$18/lb) in 1994, fell below 2000 yen/kilo (below \$7.00/pound) in 1998, and again spiked above 3000 yen/kilo (above \$12/lb) in late 1999. By contrast, Japanese wholesale prices for snow crab have been somewhat more stable in terms of yen/kilo (or \$/pound) but as volatile on a percentage basis. During the 1993-2000 period, Japanese wholesale prices for snow crab have ranged from 700-1,400 yen/kilo (or \$2.50 - \$6.80 per pound).



Source: Bill Atkinson, Japanese seafood market analyst.

Figure 2.3-6 Japanese Wholesale Prices for Alaskan King and Snow Crab

Appendix 3-1

NOAA GC Letter

July 23, 1999



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of General Counsel
P.O. Box - 21108
Juneau, Alaska 99802-1108
Telephone (907) 586-7414

DATE: July 1, 1998
MEMORANDUM FOR: Steven Penoyer
Regional Administrator
NMFS, Alaska Region
THROUGH: Lisa Lindeman LL
Regional Attorney
GCAK
FROM: Robert Babson RB
Attorney
GCAK
SUBJECT: Proposed Action 4: Clarify the Council's Intent
on the Transfer of Catch History.

RECEIVED
JUL - 9 1998
NPFMC

This is to inform you and the Council that the proposal, above, currently being analyzed in the Draft Analysis of Proposed License Limitation Amendment Package (May 28, 1998, p. 58) is, in our opinion, contrary to Federal fishery management policy as expressed in the Magnuson-Stevens Act and legally indefensible.

The purpose of the proposal is to amend the LLP so as to deny permits to the owners of the fishing history of otherwise qualified vessels solely on the basis that after the qualifying period, the vessels were re-flagged so as to participate in a foreign (Russian) fishery. Section 301(f) of the Magnuson-Stevens Act requires "reciprocity" of foreign nations in fishing activities in our respective EEZ's. Section 202(a)(4)(A) of the Act instructs the Secretary of State to negotiate international fishing agreements "which allow fishing vessels of the United States equitable access to fish over which foreign nations assert exclusive fishery management authority..." The vessels targeted by the proposal in question fished under such a negotiated agreement and with the full knowledge and assistance of the U.S. Departments of Commerce, State, and Transportation. To now penalize the owners of the fishing histories of these vessels for no other reason than that the previous owners of the vessels availed themselves of such opportunities does not meet the legal requirements of the Act. A reviewing court likely would find "arbitrary and capricious" any proposal which uses past participation in such a foreign fishery as

In its mission statement, the agency has committed itself to "...leadership supporting U.S. fishery interests globally."



the sole criterion for the denial of limited entry rights to otherwise qualified applicants.

To the extent the proposal is based upon a wish to amend the LLP to require a showing of continued reliance upon the fishery after the qualifying period, there seems no rational relationship between such a purpose and the way in which that purpose is effectuated because the proposal treats similarly situated persons differently. For example, the proposal would deny LLP permits to the present owners of the fishing histories of those vessels which were re-flagged on June 17, 1995, while granting permits to the owners of fishing vessels who participated in foreign fisheries after the qualifying period without re-flagging, as well as vessels which failed to continue participation in the fishery after the end of the qualifying period for other reasons (e.g., vessels used in other non-Alaskan domestic fisheries, vessels not used in the fishery because of bankruptcy proceedings, vessel owners who have since retired). It is probable that the failure of the proposal to rationally effectuate such a stated purpose would lead a reviewing court to find the proposal "arbitrary and capricious" on this additional ground as well.

For the reasons stated herein, we recommend you advise the Council that this proposal is likely to be disapproved.

cc: Jay Johnson, DGC
Margaret Hayes, GCF

Appendix 3-2

Analysis of QS Ownership Caps

Using Vessel Ownership Data

Fishery	Catcher Processor	Sum of	Sum of	Sum of	Sum of	Number of Owners
		Owners Over 8 Percent Cap	Owners Over 5 Percent Cap	Owners Over 1 Percent Cap	Owners Over 0.5 Percent Cap	
Bering Sea Opilio						
Option 1 A -1994 - 1999 (Best of 5 seasons)	No	0	0	0	62	236
	Yes	0	0	*	12	18
Option 2 A - 1992 - 1999 (Best of 7 seasons)	No	0	0	0	59	240
	Yes	0	0	*	12	18
Option 3 A -1995 - 1999 (All seasons)	No	0	0	*	66	231
	Yes	0	0	*	9	16
Option 3 B - 1995 - 1999 (Best of 4 seasons)	No	0	0	0	66	231
	Yes	0	0	*	10	16
Option 4 A -1996 - 2000 (Best of 4 seasons)	No	0	0	0	61	233
	Yes	0	0	*	8	16
Bristol Bay Red King Crab						
Option 1 A -1993 - 1999 (All seasons)	No	0	0	0	54	255
	Yes	0	0	*	*	16
Option 1 B - 1992 - 1999 (Best of 4 seasons)	No	0	0	0	50	255
	Yes	0	0	0	*	16
Option 2 A -1993 - 1999 (All seasons)	No	0	0	0	55	255
	Yes	0	0	0	*	16
Option 2 B - 1992 - 1999 (Best of 5 seasons)	No	0	0	0	49	255
	Yes	0	0	0	*	16
Option 3 A -1996 - 2000 (Best of 4 seasons)	No	0	0	0	60	246
	Yes	0	0	0	*	10
Bering Sea Bairdi (EBS Tanner Crab)						
Option 1 A -1992 - 1996 (All seasons)	No	0	0	*	79	252
	Yes	0	0	*	6	16
Option 1 B - 1992 - 1996 (Best of 4 seasons)	No	0	0	*	76	252
	Yes	0	0	*	9	16
Option 2 A -1991-1992 - 1996 (Best of 5 seasons)	No	0	0	*	71	253
	Yes	0	0	*	9	16
Pribilof Red King Crab						
Option 1 A -1993 - 1998 (Best of 4 seasons)	No	*	*	34	68	120
	Yes	0	0	0	0	*
Option 2 A -1994 - 1998 (All seasons)	No	*	0	36	58	109
	Yes	0	0	0	0	0
Option 2 B - 1994 - 1998 (Drop one season)	No	*	0	37	59	109
	Yes	0	0	0	0	0
Pribilof Blue King Crab						
Option 1 A -1993 - 1998 (Best of 4 seasons)	No	0	*	35	49	83
	Yes	0	0	0	*	*
Option 2 A - 1994 - 1998 (All seasons)	No	0	*	35	49	83
	Yes	0	0	0	*	*
Option 2 B -1994 - 1998 (Drop one season)	No	0	*	35	49	83
	Yes	0	0	0	*	*
St. Matthew Blue King Crab						
Option 1 A -1993 - 1998 (Best 4 seasons)	No	0	0	23	101	138
	Yes	0	0	0	*	6
Option 2 A - 1994 - 1998 (All seasons)	No	0	0	33	92	133
	Yes	0	0	0	*	6
Option 2 B - 1994 - 1998 (Drop one season)	No	0	0	30	97	133
	Yes	0	0	0	*	6

Fishery	Catcher Processor	Sum of	Sum of	Sum of	Number of Owners
		Owners Over 40 Percent Cap	Owners Over 20 Percent Cap	Owners Over 10 Percent Cap	
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab					
Option 1A -1992-1993 to 1998-1999 (All seasons)	No	0	*	*	17
	Yes	0	0	0	*
Option 1B -1992-1993 to 1998-1999 (Drop one season)	No	0	*	*	17
	Yes	0	0	0	*
Option 2A -1995-1996 to 1998-1999 (All seasons)	No	0	*	*	13
	Yes	0	0	0	0
Option 2B -1995-1996 to 1998-1999 (Drop one season)	No	0	*	*	13
	Yes	0	0	0	0
Option 3A -1996-1997 to 1998-1999 (All seasons)	No	0	*	*	11
	Yes	0	0	0	0
Option 3B -1996-1997 to 1998-1999 (Drop one season)	No	0	*	5	11
	Yes	0	0	0	0
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	No	0	*	4	11
	Yes	0	0	0	*
Western Aleutian Islands (Adak) Golden King Crab					
Option 1A -1992-1993 to 1998-1999 (All seasons)	No	0	0	0	20
	Yes	*	*	*	*
Option 1B -1992-1993 to 1998-1999 (Drop one season)	No	0	0	0	20
	Yes	*	*	*	*
Option 2A -1995-1996 to 1998-1999 (All seasons)	No	0	0	0	14
	Yes	*	*	*	*
Option 2B -1995-1996 to 1998-1999 (Drop one season)	No	0	0	0	14
	Yes	*	*	*	*
Option 3A -1996-1997 to 1998-1999 (All seasons)	No	0	0	0	9
	Yes	*	*	*	*
Option 3B -1996-1997 to 1998-1999 (Drop one season)	No	0	0	0	9
	Yes	*	*	*	*
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	No	0	0	*	10
	Yes	*	*	*	*
GHL Split EAI (Dutch Harbor)/Western Aleutian Islands (Adak) Golden King Crab					
Option 1A -1992-1993 to 1998-1999 (All seasons)	No	0	*	*	20
	Yes	0	*	*	*
Option 1B -1992-1993 to 1998-1999 (Drop one season)	No	0	*	*	20
	Yes	0	*	*	*
Option 2A -1995-1996 to 1998-1999 (All seasons)	No	0	*	*	14
	Yes	0	*	*	*
Option 2B -1995-1996 to 1998-1999 (Drop one season)	No	0	*	*	14
	Yes	0	*	*	*
Option 3A -1996-1997 to 1998-1999 (All seasons)	No	0	*	*	11
	Yes	0	*	*	*
Option 3B -1996-1997 to 1998-1999 (Drop one season)	No	0	*	*	11
	Yes	0	*	*	*
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	No	0	*	*	11
	Yes	0	*	*	*
Western Aleutian Islands (Adak) Red King Crab					
Option 1A -1992 - 1996 (All seasons)	No	0	0	*	27
	Yes	*	*	*	*
Option 1B -1992 - 1996 (Best 2 seasons)	No	0	0	*	27
	Yes	0	*	*	*

Appendix 3-3

Company Ownership

of Processing Plants

Plant Type	Company	Plant or Vessel Name
Shore based	ADAK SEAFOODS LLC	ADAK SEAFOODS LLC - ADA
Shore based	ALASKA FRESH SEAFOODS INC.	ALASKA FRESH SEAFOODS INC. - KOD
Shore based	ALYESKA SEAFOODS INC.	ALYESKA SEAFOODS INC. - DUT
Shore based	BALLARD LAMAR	BALLARD LAMAR
Shore based	BALLARD LAMAR	BALLARD LAMAR - ANC
Catcher/processor	BARANOF FISHERIES	BARANOF
Catcher/processor	BLUE DUTCH LLC	BLUE DUTCH
Catcher/processor	BLUE DUTCH LLC	KISKA ENTERPRISE
Catcher/processor	CJW FISHERIES	PACIFIC LADY
Catcher/processor	CJW FISHERIES	PACIFIC WIND
Shore based	COOK INLET PROCESSING	COOK INLET PROCESSING - KOD
Catcher/processor	COURAGEOUS SEAFOODS	COURAGEOUS
Shore based	DEEP CREEK CUSTOM PACKING	DEEP CREEK CUSTOM PACKING - NIN
Catcher/processor	GOLDEN SHAMROCK INC.	PRO SURVEYOR
Catcher/processor	HIGHLAND LIGHT SEAFOODS	WESTWARD WIND
Shore based	HIS CATCH VALUE ADDED PRODUCTS	HIS CATCH VALUE ADDED PRODUCTS
Floater	ICICLE SEAFOODS INC.	ARCTIC STAR
Floater	ICICLE SEAFOODS INC.	BERING STAR
Floater	ICICLE SEAFOODS INC.	COASTAL STAR
Floater	ICICLE SEAFOODS INC.	EVENING STAR INC.
Floater	ICICLE SEAFOODS INC.	NORTHERN VICTOR
Shore based	KING FISHER	KING FISHER
Shore based	MALEZI KWASI DBA	MALEZI KWASI DBA FISHERMAN OF AK
Floater	NORQUEST SEAFOODS INC.	ALEUTIAN FALCON
Floater	NORQUEST SEAFOODS INC.	LAFAYETTE
Shore based	NORQUEST SEAFOODS INC.	NORQUEST - ADAK INC
Shore based	NORQUEST SEAFOODS INC.	NORQUEST - CHIGNIK
Floater	NORQUEST SEAFOODS INC.	PRIBILOF
Shore based	NORTH ALASKA FISHERIES INC.	NORTH ALASKA FISHERIES INC.
Shore based	NORTH PACIFIC PROCESSORS INC.	NORTH PACIFIC PROCESSORS INC. - KOD
Shore based	OCEAN BEAUTY SEAFOODS INC.	OCEAN BEAUTY SEAFOODS INC-KOD
Floater	OCEAN BEAUTY SEAFOODS INC.	OCEAN PRIDE
Shore based	OSTERMAN FISH	OSTERMAN FISH
Catcher/processor	PATRICIA LEE INC.	PATRICIA LEE
Catcher/processor	PAVLOF INC.	NEW STAR
Catcher/processor	PAVLOF INC.	PAVLOF
Floater	PETER PAN SEAFOODS INC.	BLUE WAVE
Shore based	PETER PAN SEAFOODS INC.	PETER PAN - KCO
Shore based	PETER PAN SEAFOODS INC.	PETER PAN - MOL
Shore based	PRIME ALASKA SEAFOODS INC.	PRIME ALASKA SEAFOODS INC.
Shore based	PRIME ALASKA SEAFOODS INC.	PRIME ALASKA SEAFOODS INC.
Shore based	QUALITY ALASKAN SEAFOODS	ORION
Shore based	ROYAL ALEUTIAN SEAFOODS INC.	ROYAL ALEUTIAN SEAFOODS INC. - DUT
Catcher/processor	SANKO FISHERIES LLC	ALASKAN ENTERPRISE
Catcher/processor	SEAWIND FISHERIES	SEAWIND
Floater	SNOPAC PRODUCTS INC.	SNOPAC
Catcher/processor	SOUTH ATLANTIC FISHERIES LLC	MR. B
Floater	STELLAR SEAFOODS INC.	STELLAR SEA
Floater	TRIDENT SEAFOODS CORP.	AKUTAN
Floater	TRIDENT SEAFOODS CORP.	ALASKA PACKER
Catcher/processor	TRIDENT SEAFOODS CORP.	BOUNTIFUL
Catcher/processor	TRIDENT SEAFOODS CORP.	GLACIER ENTERPRISE
Floater	TRIDENT SEAFOODS CORP.	INDEPENDENCE
Catcher/processor	TRIDENT SEAFOODS CORP.	NORTHERN ENTERPRISE
Catcher/processor	TRIDENT SEAFOODS CORP.	ROYAL ENTERPRISE
Floater	TRIDENT SEAFOODS CORP.	SEA ALASKA
Shore based	TRIDENT SEAFOODS CORP.	SOUTH NAKNEK

Plant Type	Company	Plant or Vessel Name
Floater	TRIDENT SEAFOODS CORP.	TEMPEST
Shore based	TRIDENT SEAFOODS CORP.	TRIDENT SEAFOODS CORP. - AKU
Shore based	TRIDENT SEAFOODS CORP.	TRIDENT SEAFOODS CORP. - STP
Catcher/processor	TRIDENT SEAFOODS CORP.	WESTERN ENTERPRISE
Floater	UNISEA INC.	OMNISEA
Shore based	UNISEA INC.	UNISEA - STP
Shore based	UNISEA INC.	UNISEA INC. - DUT
Shore based	WESTWARD SEAFOODS INC.	WESTWARD SEAFOODS INC. - DUT
Shore based	WHITTIER JOHN WALTER	WHITTIER JOHN WALTER
Floater	YARD ARM KNOT INC.	YARD ARM KNOT

Appendix 3-4A

Analysis of Arbitration Alternatives

Last best offer binding arbitration

General

The Last Best Offer Model provides efficiency by resolving all price and delivery disputes pre-season, while also providing a later opportunity for an IFQ holder, who did not arbitrate or conclude a contract, to opt in on the same terms to a contract resulting from any of the completed arbitrations. The Last Best Offer Model allows voluntary agreements between IFQ and IPQ Quota Holders at any time, and provides a pre-season "matching" period for IFQ Holders to match with an IPQ Holder. The arbitration would occur close to the beginning of the season.

Specific characteristics include:

1. Processor-by-processor. Processors will participate individually and not collectively, except in the choice of the market analyst and the arbitrator/arbitration panel.
2. Processor-affiliated shares. Participation of processor-affiliated shares will be limited by the current rules governing antitrust matters.
3. Arbitration standard. The standard for the arbitrator is the historic division of revenues between harvesters and processors in the aggregate (across the entire sectors), based on arm's-length first wholesale prices and ex-vessel prices (Option 4 under "Standard for Arbitration" in the staff analysis). The arbitrator shall consider several factors including those specified in the staff analysis, such as current ex vessel prices for A, B, and C Shares, innovations, efficiency, safety, etc.
4. Opt-in. An IFQ holder may opt in to any contract resulting from a completed arbitration for an IPQ holder with available IPQ by giving notice to the IPQ holder of the intent to opt in, specifying the amount of IFQ shares involved, and acceptance of all terms of the contract. Once exercised, an Opt-in is binding on both the IPQ holder and the IFQ holder.
5. Performance Disputes. Performance and enforcement disputes (e.g. quality, delivery time, etc.) initially will be settled through normal commercial contract dispute remedies. If those procedures are unsuccessful and in cases where time is of the essence, the dispute will be submitted for arbitration before the arbitrator(s). The costs of arbitration shall be paid from the fees collected, although the arbitrator(s) will have the right to assign fees to any party for frivolous or strategic complaints.
6. Lengthy Season Approach. For a lengthy season, an IPQ holder and an IFQ holder (or group of IFQ holders) may agree to revise the entire time schedule below and could agree to an arbitration(s) during the season. That approach may also be arbitrated pre-season if the holders cannot agree.

Process

1. Negotiations and Voluntary Share Matching.

At any time prior to the season opening date, any IFQ holders may negotiate with any IPQ holder on price and delivery terms for that season (price/price formula; time of delivery; place of delivery, etc.). If agreement is reached, a binding contract will result for those IFQ and IPQ shares. IPQ holders will always act individually and never collectively, except in the choice of the market analyst(which may occur at any time pre-season) and the arbitrator/arbitration panel for which all IFQ and IPQ holders will consult and agree.

2. Required Share-Matching and Arbitration.

Beginning at the 25-day pre-season point, IFQ holders may match up IFQ shares not already subject to contracts with any IPQ shares not under contract, either as collective groups of IFQ holders or as individual IFQ holders (the offered IFQ Shares must be a substantial amount of the IFQ Holder(s)' uncontracted shares). The IPQ holder must accept all proposed matches up to its non-contracted IPQ share amount. All IFQ holders "matched" with an IPQ holder will jointly choose an arbitrator with that IPQ holder. The matched share holders are committed to the arbitration once the arbitrator is chosen (if the parties wish, the arbitrator may initially act as a mediator to reach an agreement quickly). Arbitration must begin no later than 15 days before the season opening date.

3. Data.

The Arbitrator will gather relevant data independently and from the parties to determine the historical distribution of first wholesale crab product revenues (at FOB point of production in Alaska) between harvesters and processors in the aggregate (across the entire sectors). For a vertically integrated IPQ holder (and in other situations in which a back-calculation is needed), the arbitrator will work with that IPQ holder and the IFQ holders to determine a method for back-calculating an accurate first wholesale price for that processor. The Arbitrator will receive a pre-season market report from the market analyst, and may gather additional data on the market and on completed arbitrations. The Arbitrator will also receive and consider all data submitted by the IFQ holders and the IPQ holder. The Arbitrator will not have subpoena power.

All data obtained by the Arbitrator will be shared with the parties, subject only to antitrust limitations. The Arbitrator may consult with the third party data collector (e.g., the Pacific States Marine Fisheries Commission) for purposes of verifying data.

4. Arbitration Decisions.

Arbitration will be based on a "last best offer" system, with the Arbitrator choosing one of the last best offers made by the parties. The Arbitrator will work with the IPQ and IFQ holders to determine the matters that must be included in the offer (e.g. price, delivery time & place, etc.) and will set the date on which "last best offers" must be submitted. The last best offers may also include a price over a specified time period, a method for smoothing prices over a season, and an advance price paid at the time of delivery.

If several groups or individual IFQ Holders have "matched" with that IPQ Holder, each of them may make a last best offer. Prior to submission of the last-best offers, the Arbitrator may meet with parties, schedule joint meetings, or take any actions aimed at reaching agreement. The Arbitrator will notify the IPQ holder and the IFQ holders of the Arbitration Decision no later than 10 days before the season opening date. The Arbitration Decision may be on a formula or ex-vessel price basis. The Arbitration Decision will result in a contract for the IPQ holder and the IFQ holders who participated in arbitration with that IPQ holder.

5. Post-Arbitration Opt-In.

Any IFQ holder with shares not under contract may opt in to any contract resulting from an Arbitration Decision for an IPQ holder with IPQ that is not under contract, on all of the same contract conditions (price, time of delivery, etc.). If there is a dispute regarding whether the "opt in" offer is consistent with the contract, that dispute may be decided by the arbitrator who will decide only whether the Opt-in is consistent with the contract.

6. Formula and Prices.

Throughout the year, the market analyst will survey the crab product market and publish periodically a composite price. That price will be a single price per species, based on the weighted average of the arm's length transactions in products from that species.

7. Additional Modifications.

The Committee is requested to consider the following modifications to this preferred alternative and to report back to the Council at the April meeting:

- a. The arbitrator who makes the last pre-season arbitration decision will review all of the arbitration decisions for that season and select the highest arbitrated prices(s), which is representative of 7% of the market share of the PQ. That price shall become the price for all arbitrated prices of that season, inclusive of the opt-in provision, and, independent of delivery terms at the harvester option. If the arbitration decisions include both formula and straight price decisions, the arbitrator shall have the discretion to select and apply one of each type. The decision on which price is the 'highest arbitrated price' shall take into consideration terms of delivery that may have a significant impact on price, including time and place of delivery.
- b. A single annual fleet-wide arbitration will be used to establish a non-binding formula under which a fraction of the weighted average first wholesale prices for the crab products from each fishery may be used to set an ex-vessel price. The formula is to be based on the historical (1990-2000) distribution of first wholesale revenues between fishermen and processors. The formula may be adjusted by the arbitrator(s) to take into account post-rationalization developments as the arbitrator(s) deem appropriate, subject to certain general guidelines.

Appendix 3-4B

Analysis of Arbitration Alternatives

Fleet-wide binding arbitration model

General

A single annual fleet-wide arbitration will be used to establish a formula under which a fraction of the weighted average first wholesale prices for the crab products from each fishery is used to set a default ex-vessel price. This price will apply in cases where a delivery is made in the absence of contract between a harvester and a processor. The formula is to be based on the historical (1990-2000) distribution of first wholesale revenues between fishermen and processors.¹ The formula may be adjusted by the arbitrator(s) to take into account post-rationalization developments as the arbitrator(s) deem appropriate, subject to certain general guidelines.

On certain terms and conditions, harvesters holding individual fishing quotas (IFQs) for which they do not have a contract with a processor may "put" such IFQs to any processor with available individual processing quota (IPQs) for the arbitrated default price, by providing a notice of intent to deliver, which specifies the date, place, quantity, etc. of the proposed delivery. If a processor to whom a harvester puts IFQ does not agree with the delivery terms, the terms will be subject to expeditious negotiation, and, if the harvester elects, binding arbitration before the arbitrator(s) that establish the default price formula. Under no circumstances will a processor have the ability to "call" IFQ.

To address differences in timing between when deliveries are made and when the related product is sold, and the potential that processors will exclusively reserve delivery periods when product has higher value to harvesters with whom they are affiliated, the arbitrator(s) will have the authority to "smooth" first wholesale prices over a period that the arbitrator(s) determine is appropriate.

Because there will be some time lag between deliveries to which the default price applies and the determination of that price, the arbitrator(s) will establish a method for projecting the default price, and will establish a formula for determining the percentage of the default price to be paid at delivery (as an advance), and the balance to paid when the default price has actually been calculated (as a settlement).

Procedure

1. **Arbitrator.** Representatives of the harvesting and processing sectors select an arbitrator. If the two sectors are not able to agree, each sector will choose an arbitrator, and the two so chosen will choose a third arbitrator.
2. **Market Analyst.** The arbitrator(s) select a market analyst, in consultation with representatives of the harvesting and processing sectors.
3. **Data Gathering.** The arbitrator(s) and the market analyst (the "Team") meet with each processor individually as necessary (to address antitrust issues) and harvesters individually and/or collectively (subject to the vertical integration standards of generally applicable antitrust laws²) to:

¹ The reference first wholesale price for purposes of constructing and applying the formula is to be determined in the course of the pre-season arbitration of the price formula. It could be, for example, the FOB point of production.

² Currently, the standards to be applied are the general standards promulgated in the Hinote case, and not the more permissive standards applicable to processor affiliates participating in AFA cooperatives.

- a. gather data relevant to determining the historical distribution of first wholesale crab product revenues between harvesters and processors;
 - b. determine a method for constructing a composite first wholesale price from the IPQ holders' crab product transactions;
 - c. determine composite price adjustment factors for each crab delivery port, to reflect the differential costs associated with delivering to, processing at and shipping from each port;
 - d. determine the percentage of the default price to be paid at delivery (as an advance), and the balance to paid when the default price has actually been calculated (as a settlement);
 - e. determine the start date and duration of the period during which harvesters may "put" their IFQ to an IPQ holder with available IPQs, on a fishery by fishery basis;
 - f. determine the level of "upward" vertical integration of each IPQ holder, and to determine, in cases where a processor does not sell product on an arm's length basis at the first wholesale level, the value accrued by the processor at each transaction level up to and including the first point at which it sells on an arm's length basis to a third party (which will be used to back-calculate a proxy first wholesale price for any such processor); and
 - g. the variety of crab product forms projected to be produced and the likely markets for such products.
4. Initial Discussions/Mediation. Not less than 120 days before the opening of the first crab fishery of the upcoming year, the Team meets with each processor individually and with harvesters collectively (subject to the vertical integration standards set forth above) to present their preliminary conclusions regarding the items listed in section 3., above. The arbitrator(s) seek consensus among representatives of the harvesting and processing sectors regarding these issues.
 5. Contract Negotiation Period. The Team encourages harvesters and processors to negotiate voluntary contracts concerning IFQ/IPQ transactions prior to the opening of the period during which put options may be exercised. The arbitrator(s) allow adequate time between the initial discussions and mediation referenced in Section 4., above, and the opening of the put option period(s) to facilitate contract negotiation and formation.
 6. Arbitration. Not less than 30 days before the first crab fishery opens, the arbitrator(s) stipulate the revenue distribution formulas, method for constructing composite first wholesale prices, advance and settlement percentages and the put option periods for each fishery, if they have not been agreed upon by all IPQ and IFQ holders.
 7. Composite Price Calculation. Throughout the year, the market analyst surveys the crab product market, and publishes a weekly composite price based on the survey structure and price construction methodology developed by the Team. The weekly composite price is a single price per species, based on the weighted average of the arm's length transactions in products produced from that species.
 8. Price Smoothing Function. The weekly composite prices may be used, at the arbitrators' discretion, to establish a single season or multi-week price, to "smooth" differences between prices at delivery and prices at the time of product sales, and to address optimal delivery times being reserved to processor-affiliated vessels. In addition, for purposes of determining appropriate seasonal advance payments at delivery, the

Team will produce a weekly projection of the smoothed price that would apply to deliveries made during a given week.

9. **Delivery Mechanics.** In the absence of a contract, a fisher would have the option to put his IFQs to a processor with available IPQs³ at the default price, during the put exercise period. A harvester may exercise its put option by providing a notice of intent to deliver, proposing place, time, quantity, etc. The amount of IFQ involved must be substantial, relative to the harvester's uncommitted IFQ. Upon a harvester putting IFQ to a processor with available IPQ, the put IFQ and the equivalent amount of IPQ are reserved until: (i) terms of delivery are agreed upon (in which case the IFQ and IPQ are committed), (ii) the harvester withdraws the IFQ put (which may be any time through the harvester electing to undertake binding arbitration with respect to the put), or (iii) expiration of the negotiation period, if the harvester does not elect to enter binding arbitration. The negotiation period is 5 business days for harvesters that are not members of a cooperative, and 7 business days for harvesters that are. In cases where a processor objects to any term of the IFQ put, the matter is not resolved through negotiation during the negotiation period, and the harvester elects to undertake binding arbitration, the dispute will be arbitrated by the arbitrator(s) selected to determine the formula. To reduce the administrative burden associated with such dispute resolution, the arbitrator(s) are expected to use reasonable efforts to consolidate such disputes on a processor by processor basis, such that each processor is subjected to no more dispute resolution sessions than necessary, and to conduct the related arbitration(s) expeditiously.

10. **Opt-In.** After the put option period has closed, a harvester with uncommitted IFQ may deliver to a processor with uncommitted IPQ by either (i) accepting the delivery terms established under put option arbitration(s) with that processor, or (ii) by negotiating mutually agreeable delivery terms with the processor.

11. **Payment.** Because the price smoothing function may introduce some lag between delivery and price determination, payments will be made on an advance and settlement basis. The advance percentage is intended to be that which typically applied pre-rationalization in transactions where a harvester was not sharing market risk, and is expected to be a reasonably high percentage (i.e., 80%) of the projected composite price. The settlement will be calculated promptly following the close of the price smoothing period, and paid promptly thereafter.

12. **Performance-Related Dispute Resolution.** Disputes arising out of any IFQ/IPQ transactions (including but not limited to disputes concerning product quality, delivery, payment or other harvester and processor performance obligations) will initially be addressed through standard commercial contract procedures (i.e., notice of breach, opportunity to cure for a commercially reasonable period, etc.). Disputes that are not resolved through such procedures will be submitted to binding arbitration before the arbitrator(s). To reduce the risk that disparate resources could affect the outcome, the costs of arbitration will be paid out of the pool of funds collected (as taxes or industry assessments) to support the price arbitration process. On the other hand, to discourage frivolous or strategic (as opposed to substantive) complaints, the arbitrator(s) may deny access to arbitration or assess arbitration costs and fees in cases where a party asserts a non-substantive claim.

Summary comments

The arbitrator(s) pre-season functions (other than determining the historical distribution of first wholesale revenues) are repeated annually. The arbitrator(s) are expected to take into account changes in fishery and

³A regularly updated report of processors holding uncommitted IPQs will be issued during the "put" exercise period and thereafter.

market characteristics, such as changes in season duration and product forms each successive season, and to adapt the structure and function of the model accordingly, while preserving its general parameters.

In addition to developing a composite base price formula, the arbitrator(s) and the market analyst will be expected to develop individual port price adjustment factors, to reflect the differential costs of delivering to, processing in and shipping from each community.

The arbitrator(s) may exclude high value products from the composite price calculation in cases where processors and/or harvesters have incurred extraordinary expenses or made capital investments to produce such products, or in cases where the arbitrator determines exclusion of such products is appropriate to provide an incentive to improve efficiency or product quality. The arbitrator(s) would not be expected to exclude high value products in cases where the higher value relates to market timing.

Price smoothing is intended to eliminate the need to track product from delivery to first arm's length sale, reducing administrative burden to processors. Further, price smoothing is intended to address the disparity in value related to delivery timing, where delivery periods associated with peak values are reserved to a processor's affiliated fleet, and/or in cases where a processor chooses to process products other than crab during such periods. On the other hand, it may be appropriate in some circumstances to allow the composite price to float with the market price, to reflect differences in value associated with harvest timing, such as in-fill percentages, and generally applicable market cycles. The arbitrator(s) will have substantial discretion in balancing relevant factors, and determining the appropriate duration and scope of the price smoothing function.

The arbitrator(s) will have the authority to address market timing and processor operational or logistical considerations in put option arbitrations. On the other hand, the arbitrator(s) will be expected to address the opportunity costs incurred by harvesters as the result of addressing those considerations.

Because the historical distribution of first wholesale revenues was based on an ex-vessel cash sales and not on profit/loss sharing, it did not include risk compensation for fishermen. Therefore, in cases where the ultimate composite price is less than the advance, fishermen would not be expected to refund the difference.

APPENDIX 3-4C

Experimental Analysis of Arbitration Structures Preliminary Results

At its June 2002 meeting the North Pacific Fishery Management Council selected a preferred alternative for the rationalization of the Bering Sea/Aleutian Islands crab fisheries. As a part of its decision, the Council formed an industry committee to develop an arbitration program to resolve ex vessel price disputes between harvesters and processors. The committee developed two alternative structures for the arbitration program for consideration by the Council. To help the Council understand of the implications of the different arbitration structures, Council staff contracted Charles Plott, Ph.D. of California Institute of Technology to conduct an experimental analysis of the two arbitration structures preferred by the committee.¹ The analysis is to determine whether differences in the bargaining strength of sectors are inherent in the different arbitration structures.

Experimental economic analysis is the use of a controlled institutional environment with real money incentives to examine economic outcomes. Experimental methods are particularly useful for testing theories that are applied in an uncontrolled environment. Experimental methods are also useful for examining a complex institutional system too rich for comprehensive theoretical analysis. The application of experimental methods to the arbitration system in the crab fishery is intended to isolate the influence of the different arbitration structures to facilitate the analysis of those structures.

Dr. Plott has applied experimental methods to a variety of complex allocation problems, including allocation of resources on Space Station Freedom, the markets for emissions permits in southern California (RECLAIM), and mechanisms for pricing the use of natural gas pipelines, the auctioning of the right to use railroad tracks, markets for electric power in California and the design and implementation of the auction used by the Federal Communications Commission for the sale Personal Communications Systems licenses.

Following is a description of the experiment and its results. This report concludes with a discussion of some caveats concerning the interpretation of the results.

Environment

Three experiments were conducted, two using the fleet-wide model and one using the last best offer model. Different players participated in the different experiments, so all participants entered the experiment with no experience.

A three to one ratio of harvesters to processors was maintained in each experiment. The first fleet-wide experiment used three processors and nine harvesters, the second fleet-wide experiment and the last best offer experiment used two processors and six harvesters.

The first fleet-wide experiment consisted of 3 periods. The second fleet-wide experiment and the last best offer experiment used 4 periods each.

Each harvester is allocated 20 shares each period. 18 of these shares are A shares (requiring delivery to a processor holding processing shares) and 2 are B shares deliverable to any processor. Each processor is allocated 54 shares.

Harvesters had a per share operating cost of 50 francs in the fleet-wide experiments. In the last best offer experiment harvesters had a per share operating cost of 75 francs per unit. Processors have no operating costs. This assumption does not affect the results. Operating costs of each sector are unknown to the other sector. Harvesters can convey a slight benefit on processors by timing of deliveries. Making a delivery in a manner that favors a processor increases the processor's return by 10 francs. Harvester's bear a minor cost

¹ A copy of Dr. Plott's vita is attached.

(of 5 francs) for making a timely delivery. This factor is within a harvester's control but is outside negotiations. The harvester can use delivery timing to build a reputation with the processor.²

Revenues generated for delivery of a share by processors are 200 francs in the fleet-wide model. In the last best offer model these revenues were 225 francs per share.³ The historic division of revenues in the fishery is 0.7 to harvesters and 0.3 to processors.

Prior to commencing negotiations all parties are informed of the historic division of revenues (i.e., 70/30). They also are informed of the arbitrator's decision rule, which differs slightly between the two models. During the experiment, on the completion of any contract all participants were informed of the negotiated price in the contract. Harvesters did not collude in negotiating prices for any deliveries.⁴

Fleet-wide model

Prior to negotiations, the fleet gathers and adopts a initial proposed price for A share deliveries, which is announced to the processing sector.⁵ A negotiation period follows during which contracts can be formed for any deliveries on a voluntary basis between any harvesters and processors that come to terms. At the end of this negotiating period, each processor submits a price proposal, each harvester submits an arbitration price proposal, and an arbitrated price is announced based on the arbitration rule.

The arbitration rule uses four numbers:

1. The average negotiated price in the A share delivery market in the period
2. The historical division of revenues (70/30) fixed in all periods
3. The average harvester arbitration proposal in the period
4. The average of the processor proposals in the period

The two of these that are closest to the average negotiated price and the average negotiated price are retained (i.e., three of the four are retained, always including the average price), then one of those three is selected at random. The arbitration determines that A share delivery price only. Proposals apply only to A share deliveries. B share prices are negotiated independent of the arbitration process.

After the arbitrated price is announced, a second negotiating period begins. At the expiration of the negotiation period, harvesters can put deliveries to processors at the negotiated price. A harvester can elect not to make a put.

This completes a period (or season). The procedure is repeated in each following period.

² Having timing in as a negotiated term would make the experiment overly complex. Four products would need to be included in the market; deliveries of A shares and deliveries of B shares, both with good and bad timing.

³ Revenues are akin to first wholesale prices.

⁴ In the fisheries, harvesters might work together, using B share deliveries to elicit a higher price from a processor.

⁵ Prices here refer to ex vessel prices.

Last best offer model

This process begins with a negotiation period (with no harvester price proposal). During this period contracts can be formed for any deliveries on a voluntary basis between any harvesters and processors that come to terms. At the end of this term, an announcement is made of the number of shares held by each processor that are not under contract. Each harvester with available A shares then submits its preferences for processor associations, ranking each processor. Harvesters are then assigned to processors using a “draft choice” procedure, under which harvesters are randomly selected and assigned to processors with available shares in accordance with their preferences. A harvester is constrained to negotiations for A share deliveries with the identified processor for the remainder of the period.

A second negotiation commences, at the end of which any unresolved A share deliveries are subject to arbitration at the election of the harvester. The arbitration is between the processor and the harvesters assigned to the processor. The arbitration is final offer with each processor submitting a single proposal applicable to all of its shares and each harvester submitting a proposal. For each harvester, the arbitrator selects between the harvester offer and the offer of the assigned processor. A harvester may elect not to arbitrate. Proposals to the arbitrator apply only to A share deliveries.

The arbitration rule uses four numbers:

1. The average negotiated price in the A share delivery market in the period
2. The historical division of revenues (70/30) fixed in all periods
3. The harvester proposal in the period
4. The average of the processor proposals in the period

The two of these that are closest to the average price and the average price are retained (i.e., three of the four are retained, always including the average price), then one of those three is selected at random. The proposal that is closest to this number is the arbitrated price. The arbitration determines that A share delivery price only. Harvesters are unconstrained in their B share deliveries (so they may make those deliveries to a different processor than their A share deliveries without added cost.)

This completes a period (or season). The procedure is repeated in each following period.

Results of the fleet-wide experiments

The results of the two fleet-wide experiments are shown in Figures 1 and 2. The figures show increasing prices from period to period for both A share and B share deliveries. Different prices for A and B share deliveries can be observed. In the experiment, A share delivery prices appear to drift upward with the B share delivery price. Prices for deliveries of both share types appear to tend toward a competitive market outcome in which processors would earn normal profits. This outcome could take several periods to transpire. The cause of this outcome is not readily apparent. Delivery timing may contribute. Whether this outcome is inevitable is not determined.

The initial harvester proposal has no influence on the outcome. That proposal is only remotely connected to the arbitrator's decision. Since the initial harvester proposal is made prior to any contracting, it is disregarded by processors in fashioning their proposals. In this experiment, in most instances deliveries were timed in a manner favorable to the processor.

Results of the last best offer experiment

The results of the last best offer experiment are shown in Figure 3. Two distinct markets develop for deliveries of the different types of shares. Prices for A share deliveries are relatively stable in this experiment. In this model processors use negotiated A share delivery prices to drive the arbitration result, which keeps that price relatively stable. A separate market develops for B share deliveries with substantially greater competition and higher prices. This price appears to be the competitive price. In this experiment, in many instances deliveries were timed in a manner unfavorable to processors.

Caveats

The experiments are designed to elicit the impacts of the different arbitration structures on outcomes of price negotiations. Developing a workable experiment always requires reasonable assumptions with respect to the environment, the institutional setting, and policies. Interpretation of the results requires accommodation of those assumptions. Several factors likely to impact the outcome from the application of the arbitration structures in the fisheries could not be included in the experiment. The influence of these factors on outcomes is lost to the experiment results. For example, the proposed standard to be applied by the arbitrator is a historic division of revenues considering a list of enumerated factors (such as current delivery prices and market developments). Although derived from the arbitration standard, the somewhat mechanical rule applied in the experiments does impact the experiment outcomes. The exact impact cannot be determined without a complete understanding of the arbitrator's application of the standard, which is unknowable.

Another factor likely to have an impact on the outcome is share trading. In the experiments 90 percent of each harvester's allocation was A shares and 10 percent was B shares. Altering this ratio of holdings for different harvesters might affect outcome for not only those individuals, but also for all others (through the impact on the arbitrator's decision).

Several other factors are not incorporated into the experiment including:

- annual changes in TACs
- product market changes
- prior experience and knowledge of other participants
- differences in participants (including share holdings, non-crab revenues, cost structures)
- geographic locations of processors and regional landing requirements (including their affect on production costs and transaction costs)
- any influence of or on captain's shares is omitted

These factors all could influence price settlements in the fisheries. In assessing the results of the experiment, the potential influence of these various factors should be borne in mind.

Figure 1

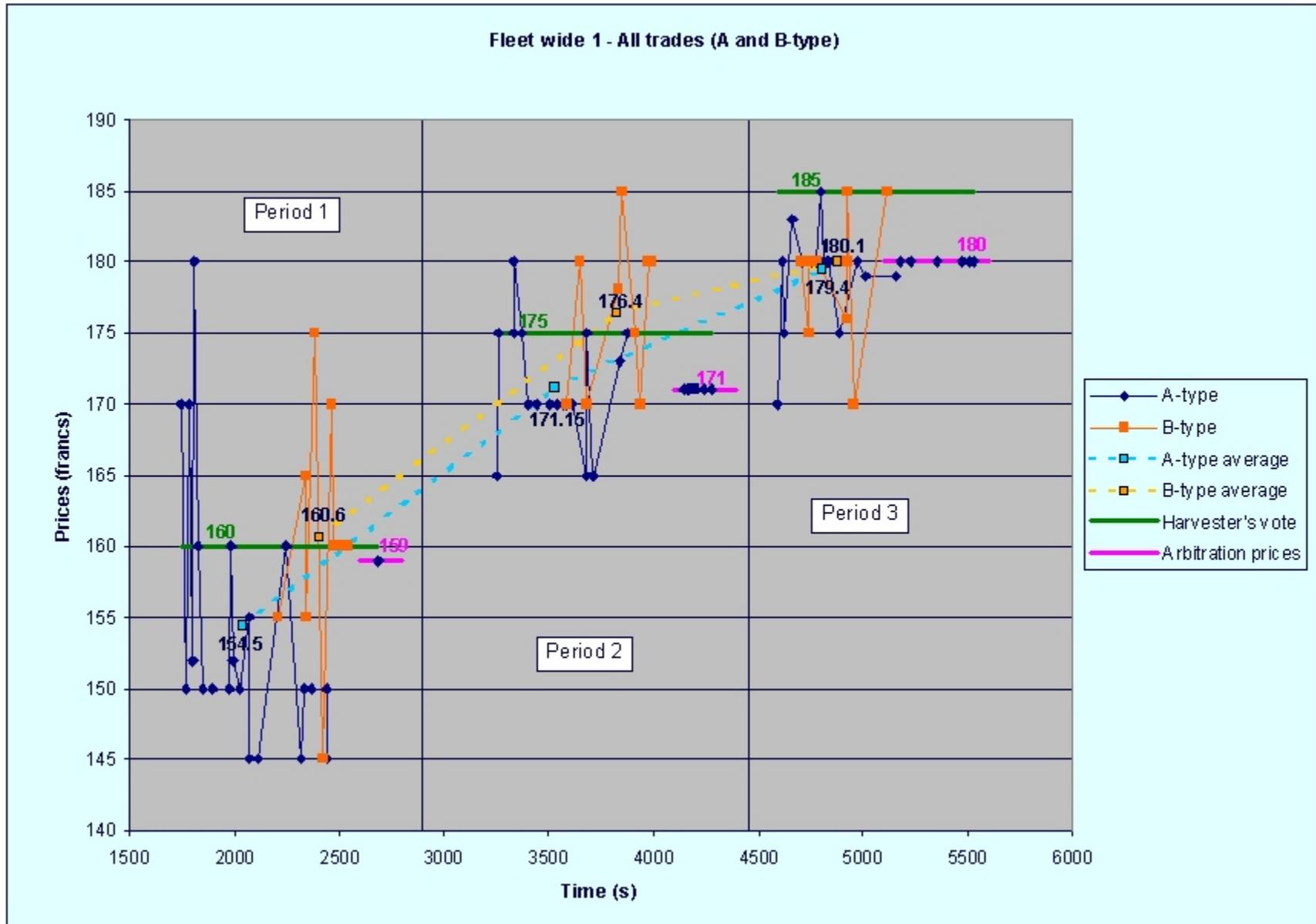


Figure 2

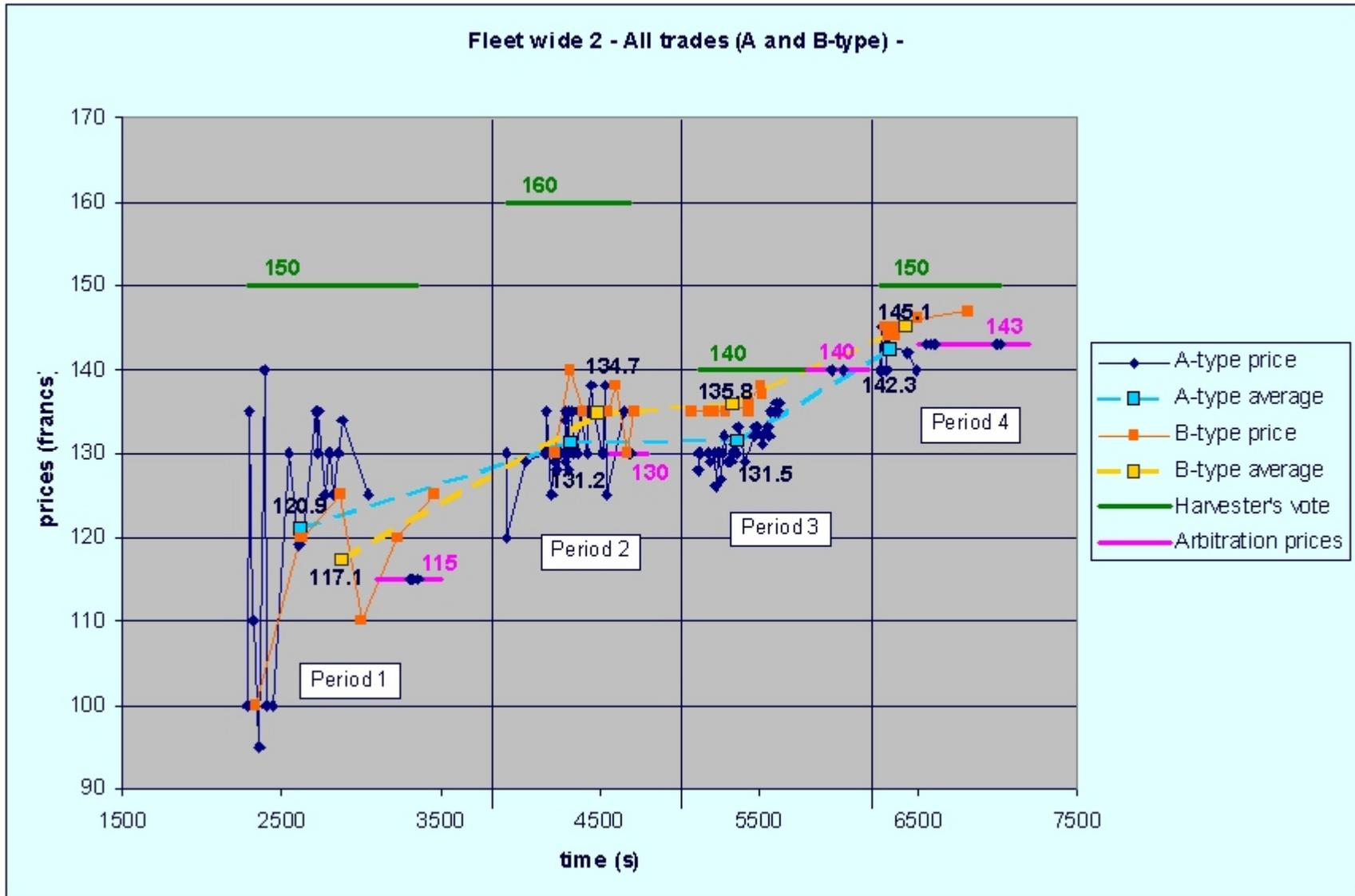
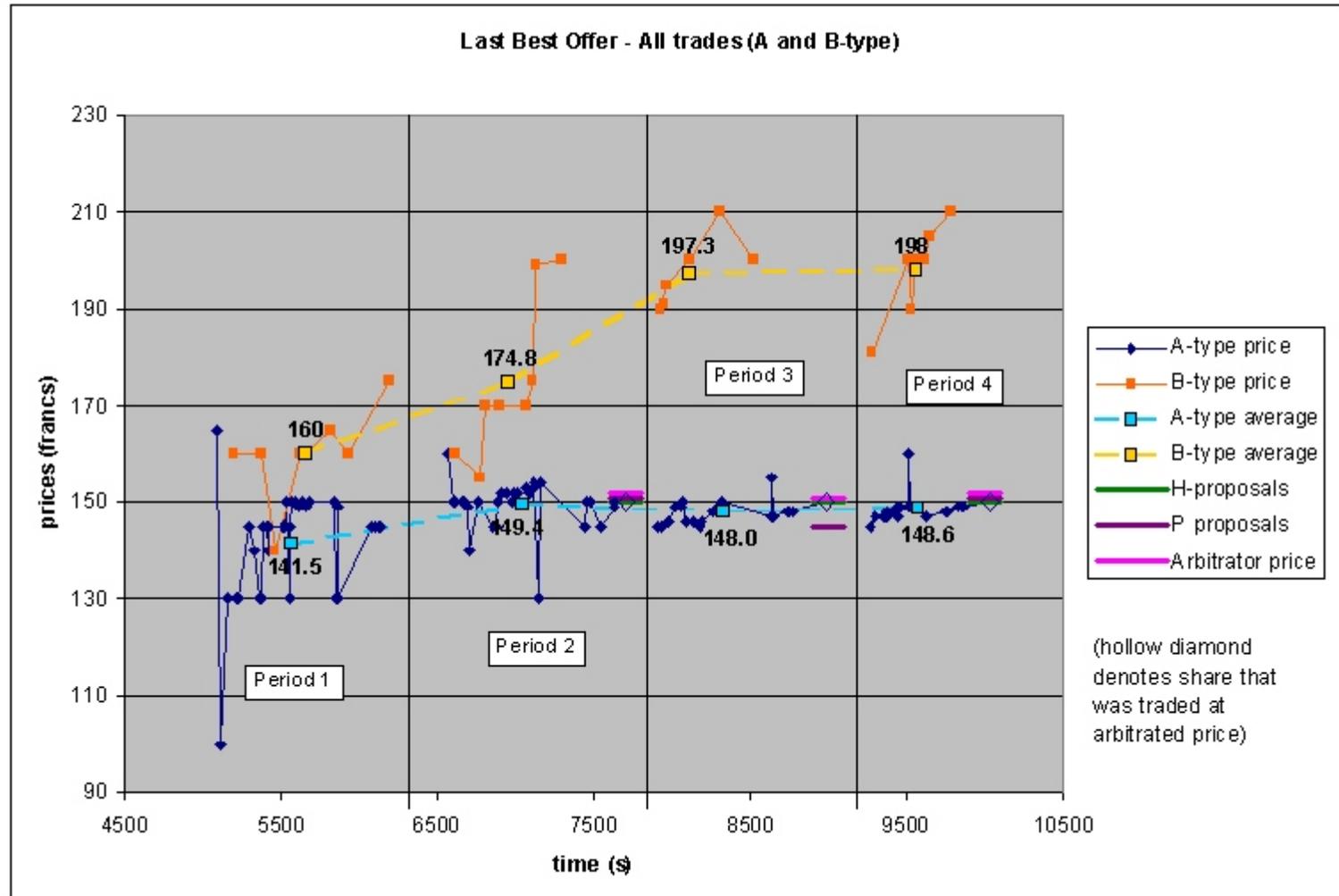


Figure 3



Appendix 3-5

Application for Entry Permit

Southeastern Crab Pot Fishery

APPLICATION FOR ENTRY PERMIT
SOUTHEASTERN ALASKA RED AND BLUE KING CRAB POT FISHERY

COMMERCIAL FISHERIES ENTRY COMMISSION
P.O. BOX KB
JUNEAU, ALASKA 99811

This is an application for a permanent entry permit for the SOUTHEASTERN ALASKA RED AND BLUE KING CRAB POT fishery. If you wish to apply for a permanent entry permit, complete this application and submit it to the Commission before April 30, 1987. ALL ELIGIBLE FISHERMEN ARE STRONGLY URGED TO SUBMIT APPLICATIONS REGARDLESS OF THE NUMBER OF POINTS CLAIMED. A non-refundable application fee of \$100 is required and should be submitted with each application. Without the application fee your application will not be processed. Alaska residents may apply for a reduced application fee of \$30 if their total family income falls within the poverty guidelines. See pages 25 and 26 of the instruction booklet for the poverty guidelines. THE APPLICATION DEADLINE IS APRIL 30, 1987. Late applications may be accepted until June 30, 1987, if the applicant can demonstrate good cause for the late filing.

		Commission Use Only
IMPORTANT: Read the instruction booklet before completing this application. (Please Print)		Date Issued
Name (FIRST, M.I., LAST)		Perm. Permit No.
Permanent Mailing Address	Physical Location	Date Awarded
Temporary Mailing Address		Verified Points
Birthdate	Social Security Number	Fee Received: \$
		<input type="checkbox"/> Cash <input type="checkbox"/> Check <input type="checkbox"/> M.O. No. TR No.

INTERIM-USE PERMITS for the 1987 crab seasons must be applied for by a separate interim-use permit application form. No applications for interim-use permits for these limited crab fisheries will be accepted after the application deadline of April 30, 1987 unless you have a permanent permit application on file.

We recommend you mail your application by certified or registered mail, especially if mailing close to the application deadline. The Commission will mail you notice to verify the receipt of your application. IF YOU DO NOT RECEIVE VERIFICATION FROM THE COMMISSION WITHIN TWO WEEKS AFTER YOU MAIL YOUR APPLICATION, YOU SHOULD CONTACT THE COMMISSION BY MAIL OR BY TELEPHONE AT (907) 586-3456. If you are unable to mail or deliver your application to the Commission by the deadline, you will be allowed to submit it until June 30, 1987, ONLY IF YOU ARE ABLE TO DEMONSTRATE GOOD CAUSE FOR LATENESS. MAKE EVERY EFFORT TO FILE YOUR APPLICATION BY THE APRIL 30, 1987 DEADLINE.

THE APPLICATION DEADLINE IS APRIL 30, 1987.

Part I. Fishing History

ITEMS I-1 THROUGH I-3 MUST BE COMPLETED BY ALL ELIGIBLE APPLICANTS. If a particular item does not apply to you or your situation, you must check the box(es) marked N/A (Not Applicable). If additional space is needed to answer any of the items, use the space on the back of this booklet, or additional sheets. Please refer to the item number when responding.

I-1. ELIGIBILITY TO APPLY: You must have harvested red or blue king crab as a gear license or interim-use permit holder in Southeastern Alaska some time between 1960 and December 31, 1983. If your fishing was prior to 1975, indicate the year(s), ADF&G number and vessel name from which you harvested crab.

Year	ADF&G Number	Vessel Name From Which Landings Were Recorded

I-2. For each of the following year(s) in which you participated in the Southeastern red and blue king crab fishery, check the type(s) of license(s) you held.

N/A	Year(s)	Crewmember License	Gear License	Interim-Use Permit
<input type="checkbox"/>	75	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	76	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	77	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	78	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	79	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	80	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	81	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	82	<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>	83	<input type="checkbox"/>		<input type="checkbox"/>

(9/86)

Appendix 3-6

Sections 1 through 4

Section 1: Inter-agency economic data collection workgroup draft report

The following draft report, prepared by the Inter-Agency Economic Data Collection Workgroup, includes a detailed discussion of the need for mandatory data collection programs:

DRAFT FOR AGENCY REVIEW (February, 2002)

A Proposal to Develop an Inter-Agency Economic Data Collection Protocol And Data Sharing Agreement for FMP Fisheries in Alaska and Other Fisheries for Which the North Pacific Fishery Management Council Makes Recommendations to the U.S. Secretary of Commerce (SOC)

1. Summary

Economists from four State and Federal agencies have met to discuss methods of collecting economic data that are necessary for the preparation of FMP amendments but are currently not available. After review of past experiences and agency problems associated with voluntary data collection, participants in the meeting have concluded that it is necessary to develop a mandatory data collection program. Participants in the meeting also felt that it was necessary to ensure that the data collected under such a program would be available only to authorized staff from each of the represented agencies.

Economists from these agencies are charged with conducting net benefit and distributional analyses. A mandatory data collection system is believed to be the best way to meet these objectives. Voluntary data collection programs, with rare exceptions, are not timely, have low response rates, do not result in adequate time series, and can be subject to strategic bias. Moreover, several recent attempts by NMFS, ADF&G and the Council to collect economic data have not been successful despite multiyear efforts and working very closely with industry members.

Many important issues, including property rights, closed areas, Improved Retention/Improved Utilization, and endangered species, have been brought to the forefront recently, but economists do not have adequate data to conduct complete and thorough analyses of these issues. New emphases on regulatory completeness, such as was the case in the shark FMP amendment, have also highlighted the need for better economic data.

Economists attending the meeting believe that successful economic data collection will require the State and Federal agencies to continue to work together on the program. To facilitate development of the proposed economic data collection program the economists also concluded that the agencies should provide the staff time and resources necessary to develop a draft document that would outline some alternatives for a mandatory data collection program.

2. Background Information

Economists from four State and Federal management agencies are currently involved in developing a proposal for an inter-agency agreement to collect economic data for Alaskan fisheries. Combined, those agencies¹ have the responsibility of managing both the

¹Dave Colpo, Pacific States Marine Fishery Commission (PSMFC) economist, also attended the meeting in an advisory capacity.

commercial and recreational fisheries off the coast of Alaska. The agencies involved in developing the proposal are the:

- Alaska Department of Fish and Game (ADF&G) represented by Jeff Hartman;
- Commercial Fisheries Entry Commission (CFEC) represented by Kurt Schelle;
- National Marine Fisheries Service (NMFS) represented by Todd Lee;
- North Pacific Fishery Management Council (NPFMC) represented by Darrell Brannan.

The economists held a meeting during September 2001 to discuss the current status of economic data collection and the future outlook. The economists from each agency unanimously agreed that a mandatory data collection program should be explored and that inter-agency coordination is needed. The need for mandatory economic data collection is evident since several attempts to collect these data under voluntary programs have only had very limited success. It is important that a mandatory data collection program has the support of each of the management agencies involved in overseeing FMP fisheries and other fisheries for which the NPFMC makes recommendations to the SOC. Cooperation will ensure that the necessary data are collected while minimizing the burden on industry members. Cooperation will also help to ensure that once the data are collected they will be available only to the analysts within each agency.

The present need for economic data is quite high. Currently there are many important policy issues that affect commercial fisheries in Alaska. These include property rights, closed areas, Improved Retention/Improved Utilization, and endangered species. These policy issues may lead to economic and structural change in the fishing industry and result in distributional effects that rival or exceed those associated with the initial Americanization of North Pacific fisheries. Economic analyses are also coming under increased scrutiny to ensure that agencies are living up to their statutory requirements. New emphases on regulatory completeness, such as was the case in the Atlantic shark FMP amendment, have continued to highlight the need for better economic information.

In light of the increased scrutiny and threat of litigation, there has been a national and regional commitment by NMFS to supply more resources to improve the collection and analysis of economic data. If these regulatory requirements are to be addressed, the economists participating in this meeting are not aware of any viable alternatives to mandatory economic data collection for the FMP fisheries of the North Pacific. Thus, we recommend that the participating agencies work toward a unified data collection system. The data to be collected would include cost, employment and earnings data at the vessel or plant level.

3. Voluntary Economic Data Collection

Over the past several years, as the stakes have increased in fisheries management decisions, it has become more and more difficult to collect economic data on a voluntary basis, and the most recent attempts were met with very limited success. Today there are no economic cost data being collected for the commercial fleets on a voluntary basis that can be used for FMP

The Commission has no opinion on voluntary versus mandatory data collection mechanisms for economic data.

and regulatory amendments for fisheries that the NPFMC makes recommendations to the SOC.

The most recent attempt at voluntary economic data collection was a program developed by NMFS. That economic survey focused on the pollock harvesting and processing sectors participating in the Bering Sea and Aleutian Island groundfish fisheries. After approximately two and a half years of working with industry members to develop the data collection surveys, only one firm completed a survey and that was ultimately returned to the company when no other industry members responded. This effort included the development of a data verification process as requested by the industry.

ADF&G has recently attempted to collect ownership information from pollock catcher vessel owners. This information is essential to defining each firm as an entity for economic analysis. Catcher vessel response rates to the survey was initially very low and there has been continuing resistance to requests for reporting this basic data. These data were ultimately collected after a strong request was made by both the ADF&G and the NPFMC.

In another independent effort, the Council's economic data committee was unable to secure a commitment from industry participants to collect individual firm level cost data from the EEZ pollock groundfish fisheries after several meetings from 1998 through 2000. That committee has recently been disbanded by the Council for lack of progress towards meeting its objectives. Given the reluctance of industry members to supply these data, economists from each of the agencies have concluded that it is unlikely that any voluntary program will result in a systematic and periodic data collection program that would provide analysts with a useful time series of disaggregated economic data. Therefore, the focus should shift to studying how the data can be collected through a mandatory program.

4. Existing Mandatory Data Collection

Currently, revenue and price data are the only economic data being systematically collected under mandatory programs. Two examples of these are ADF&G's fish ticket records, which contain a value field, and ADF&G's Commercial Operator's Annual Reports (COAR) which contain data on both ex-vessel and wholesale values.

The data from these reporting systems are extremely useful for a variety of purposes, but neither fish tickets nor COAR reports collect the additional data on costs or employment that are needed to carry out requisite economic net benefit and economic impact analyses. A systematic approach to collecting cost, employment, and earnings data at the vessel or plant level is needed.

In recent years, some efforts have been made to indirectly estimate marginal costs from fish ticket data based upon the participant's in-season fishing decisions. While similar approaches to estimate in-season marginal costs deserve continued exploration, the methodologies require many simplifying and ad hoc assumptions. The regular and systematic collection of detailed cost and employment data from participating entities would directly provide a reliable database that could be used for the analyses of many proposals.

5. Problem Statement

A successful economic data collection program has all of the following characteristics:

- The data are available in a timely fashion
- Sufficient cross sectional and time series data coverage at the operating unit level to allow for statistical analyses
- Sufficient in scope to carry out standard economic analyses (i.e., net benefit)
- Minimal biases (i.e., non-response bias and strategic bias)
- High degree of confidence in the accuracy of the data

If data satisfying the above characteristics were available, it would substantially improve the ability of economists to develop models and provide useful information to the public, fishing industry, policy makers, and fishery managers.

The economic data necessary to study the impacts of regulatory changes are currently not available. Analysts are being tasked with analyzing complex FMP and regulatory amendment packages without being provided the economic data necessary to conduct formal economic analyses. These analyses are considered to be inadequate by many reviewers of the documents, since most must fall back on gross revenue calculations, which provide no insights to profitability or net benefits to the nation. Recent legal actions leave the agencies vulnerable to regulatory challenge (i.e., Atlantic Shark Amendment). Because the analysts lack the data required to conduct formal cost-benefit or distributional analyses, policy makers that rely on their work are often required to base their decisions on incomplete economic analyses. Furthermore, the number of policies requiring these types of analyses are increasing.

6. Goals

The goal of the proposed project is to develop a mandatory data collection program for vessel or plant level data that is verified to the extent practicable. The program will be designed to protect confidential data, coordinate the collection of data, minimize the burden on industry, and be administratively efficient. Improving the quality and scope of the economic data that are being collected will require cooperation from all of the agencies involved, as well as a commitment to supply the resources necessary to make the program successful.

It is the intent of this group that the disaggregated (raw) data be shared among participating agencies in accordance with Federal and State laws². Each agency would then be responsible for ensuring that the confidentiality of the data is protected.

7. Tasks

To facilitate the collection of economic data it is necessary to develop a data collection protocol that all of the agencies would agree to follow. The protocol would establish the following:

- Which agency would collect specific data
- Who would be responsible for oversight of the data collection and ensuring its confidentiality
- How the data would be shared between agencies,
- Ensure adequate data sharing agreements that allow the exchange of disaggregated economic data among the appropriate staff members within the participating agencies, and

² It is also the intent of the committee that if current laws prohibit/inhibit the sharing of disaggregated economic data among the appropriate analytical staffs of the agencies participating in this effort, that those laws be modified to allow the sharing of disaggregated economic data.

- The funding sources for the data collection projects.

Defining the basic structure of the data collection process before setting out to collect the data should ensure that the proper data are collected, they are properly stored and maintained, and that they can be used in the most effective manner.

A larger group of economists from the agencies met in July 2001 to develop a list of needs for economic research. That list represents the areas we feel need to be improved. Some of the areas of need that relate to this effort are:

$^{\circ}P_t$	Markets
$1/2P_t$	Industrial organization
$1/4P_t$	Regional and community economic impacts
$\emptyset P_t$	Prediction of behavior
2P_t	Economic performance
$^n P_t$	Rights based management

It is critical that the process to develop these protocols begins within a relatively short period of time. Currently several fisheries under the authority of the NPFMC, NMFS, and ADF&G are moving towards systems of more rational management. The management system changes being discussed for these fisheries will alter the economics of the industries and communities that rely on them. Without collecting information on the fisheries before these changes take place, economists and policy makers will not be in a position to determine the overall impacts of the programs. Therefore, without an adequate data collection mechanism, the successes, failures, and ability of those programs to meet their objectives may never be truly understood.

8. The Next Steps

If each of the agencies agrees to provide staff support for development of this project, the next two steps towards implementing a mandatory data collection program will be (1) developing a draft Inter-agency proposal fleshing out the mandatory data collection mechanisms and (2) presentation of the proposal to each agency for modification and approval of the concepts.

Should each of the agencies agree to the proposal then efforts will focus on developing the implementation details of the program and the collection of data. These steps will require additional support from a broad group of people with specialized knowledge in the agencies (lawyers, policy experts, and database designers and administrators).

Section 2

Objective Measures, Models, and Necessary Data

Discussion Paper

Prepared for the Crab Data Group

August 19, 2002

National Marine Fisheries Service
Alaska Fisheries Science Center
Seattle, Washington

This discussion paper is based upon the objective measures previously identified by the SSC to monitor the success of the crab rationalization program. It identifies the method or models typically used to construct such measures and the data required to adequately construct them.

The measures identified by the SSC are intended to allow the Council to monitor the success of the crab rationalization program in terms of addressing the five problems currently facing the fishery (as identified in the BSAI crab rationalization problem statement prepared by the Council in June 2002). Those five problems and the summary of the problems facing the Council are as follows:

1. Resource conservation, utilization and management problems;
2. Bycatch and its associated mortalities, and potential landing deadloss;
3. Excess harvesting and processing capacity, as well as low economic returns;
4. Lack of economic stability for harvesters, processors and coastal communities; and
5. High levels of occupational loss of life and injury.

"The problem facing the Council, in the continuing process of comprehensive rationalization, is to develop a management program which slows the race for fish, reduces bycatch and its associated mortalities, provides for conservation to increase the efficacy of crab rebuilding strategies, addresses the social and economic concerns of communities, maintains healthy harvesting and processing sectors and promotes efficiency and safety in the harvesting sector. Any such system should seek to achieve equity between the harvesting and processing sectors, including healthy, stable and competitive markets."

The objective measures

This paper discusses the economic objective measures that will likely need to be computed, and the corresponding economic data that is needed (some of which must be elicited through the surveys). For a majority of the measures elaborated on below, the required data is discussed in the context of the vessel or plant (and at times, the firm), depending on the measure. Measures that are primarily production based (capacity utilization, productivity, and efficiency) are best constructed with data from the vessel or plant level. Such a focus allows the analyst to more directly identify the link between inputs used to catch or process fish and the quantity of fish or product forms obtained, respectively. Characterizing this link, and how it changes, is a key part in assessing the changes in economic performance that arise under rationalization. However, because the production process of one vessel or plant is at times only one component of the overall business structure, instances arise in which the firm (which may own one or more vessels, plants, or both) is the natural unit of observation.

Therefore, in addition to the individual measures discussed below, ownership data are required to link each piece of the overall puzzle. This data allows one to assimilate the individual effects into the likely “overall” effect of crab rationalization on the residual claimants of the operations we observe on a piece-by-piece basis. It also allows analysts to monitor structural changes not reflected directly in performance- or profit-based measures, such as changes in the concentration of domestic and foreign ownership in the harvesting and processing sectors, the structure of ownership (including proprietorships, publicly traded corporations and privately held corporations), and the relationships both within firms, (i.e., the amount and nature of vertical and horizontal integration) and among firms.

Although vessel-, plant-, or firm-level detail is needed to adequately construct many of the measures discussed below, there are measures for which aggregate (e.g., sector-level) data can likely provide an adequate representation. One underlying problem with using aggregated data for all purposes, however, is that the conditions under which the aggregate data accurately represents the individual firms’ production technologies and decisions is quite restrictive. The result is a model with unrealistic assumptions may seriously bias the resulting measures (aggregation issues constitute a large branch of economic theory). Furthermore, if the aggregation is too extreme, the information that can be obtained from a model will not allow the analyst to adequately explain the source or cause of any changes. In other cases, the lack of sufficient number of observations (i.e., data on each vessel, plant, or firm operating in a given time period) may preclude estimation of the model typically used to construct a particular measure. Finally, aggregate data cannot be used to determine whether most fishermen and processors will have benefitted from crab rationalization. For example, aggregate processor profits could increase even though the profits for the majority of the processors decreased. Additional discussion of these issues is provided in the Appendix.

Note that this paper does not provide a discussion of the specific data needed to address problems 1), 2), and 5), as the primary data required is not necessarily “economic” in nature and therefore not requested in the economic data surveys under consideration. However, some of the objective measures discussed for problems 3) and 4), and the data used therein, may be useful in monitoring the success of the crab rationalization program with regard to problems 1), 2), and 5). For example, issues of resource conservation and utilization may be addressed by examining the patterns of spatial and temporal effort and catch given in the trip-level harvesting records. The incidence of ghost fishing mortality can, in part, be inferred by changes in pot losses, which are currently requested on the draft harvesting surveys. Information regarding changes in the likelihood of injury or loss of life may be supplemented by data on the nature of fishing trips that reflects their intensity and duration.

Problems, measures, and data

3. Excess harvesting and processing capacity and low economic returns

Measures:

a) Harvesting capacity and capacity utilization

Data Required: Typically, the analysis of capacity and capacity utilization is based upon the cost structure of the vessel, and examines whether the observed level of catch coincides with the least-cost level, given the capital stock. This process requires one to compile information on all significant variable costs (labor, fuel, bait, pots, etc.), including the price of all variable inputs and the quantities used. A measure of the capital stock is also required, and is often expressed as the dollar value of the vessel and equipment onboard, or with proxies such as vessel characteristics [length, tonnage, horsepower, etc.]. One can then model the relationship between output (total catch, by species) and cost. If production is currently less than the level at which total average costs are minimized, given the existing capital stock, capacity is under utilized (the opposite is true if current output exceeds such a level). Further extensions of the model allow one to directly compute the contribution of the capital stock in production and thus, provide an alternative measure of the extent to which capital is being utilized.

Summary: Variable input prices and quantities purchased, capital quantities, and catch quantities (by species) are required.

b) Processing capacity and capacity utilization

Data Required: The same approach and data requirements would apply in assessing processing capacity and capacity utilization (although the specific inputs used and outputs produced are different). It can be more difficult, however, to quantify the capital stock for processors, as is evidenced by conversations with industry.

Summary: Variable input prices and quantities purchased, capital quantities, and production quantities by species and product form are required.

c) Harvesting sector profit (total revenue - total cost)

Data Required: This measure is comprised of total revenues less total cost. If one wants to understand the source of any change in its value at the most basic level, one needs separate measures of total revenues and total costs. However, without details on total catch, the prices and quantities of variable inputs, and fixed costs, one cannot tell if costs changed due to changes in catch levels, effort (variable input) levels, input prices, or fixed costs. Furthermore, without detail on the quantities sold and prices received, for each species, one cannot tell if changes in revenue are attributable to changes in price or total catch. Thus, without the above information, changes in profit cannot be explained and increased production or cost efficiency cannot be discerned from exogenous market impacts. The data components described above can also be used to construct predictive models that assess the likely change in production patterns, revenues, and costs in response to market shocks and/or regulations.

Summary: Variable input prices and quantities purchased, fixed costs, total catch quantities and prices received, by species are required.

d) Harvesting sector quasi rent (total revenue - total variable cost)

Data Required: The comments expressed in c) with respect to profits apply to quasi-rents as well, except fixed costs are not required for the analysis. Such a focus eliminates accounting for fixed costs that cannot be easily allocated to a specific vessel (or solely to crab operations), and must be prorated across several vessels.

Summary: Variable input prices and quantities purchased, total catch quantities and prices received, by species are required.

e) Processing sector profit

Data Required: essentially the same type of information is required as for harvesters, which is discussed in c) above (with the obvious qualification that the respective variable inputs are likely to be different and revenue data should include product form, by species, quantity produced, and price received).

Summary: Variable input prices and quantities purchased (including fish purchases by species), fixed costs, total production, by species and product form, and prices received for each product are required.

f) Processing sector quasi rent

Data Required: The same comments apply to quasi-rents, except fixed costs are not required for the analysis. Such a focus eliminates accounting for fixed costs that cannot be easily allocated to a specific plant (or solely to crab processing), and must be prorated across several plants.

Summary: Variable input prices and quantities purchased (including fish purchases by species), total production, by species and product form, and prices received for each product are required.

Productivity:

Data Required: The measurement of productivity essentially involves the quantity of inputs required to produce a unit of output. The inputs included in the model should consist of those that directly contribute to the quantity of output one can produce. In the simplest terms, a single-input productivity measure such as labor productivity is computed as the ratio of output to labor hours. These measures are quite limited, however, in that they fail to account for the use of other inputs in production. That is, the ratio of total output to labor hours may have increased over time for a particular plant, but this may be due to increased use of automation (so the decreased labor use has been offset by increased capital expenditures). Therefore, *total* factor productivity measures are preferred, which account for the use of, and substitution among, all inputs in production. Because the contribution (and cost) of a one-unit change in each factor of production can differ widely, each input's share of the total cost of production is needed as a weight when accounting for the changes in input use.

Summary: Direct inputs in production (quantities used and the cost of each), total catch quantities, by species are required.

Efficiency:

Technical Efficiency

Data Required: The measurement of “efficiency” can be undertaken in several ways to identify different notions of efficiency. *Technical* efficiency is similar to productivity in that it relates to the quantity of inputs used to obtain a given bundle of output(s). Essentially, productivity measurement involves computing how the skill with which inputs are converted to outputs progresses (or regresses) over several periods of time, and technical efficiency measurement involves analyzing each firm’s relative proficiency in production processes within each period.

Summary: Direct inputs in production and total catch quantities by species are required.

Allocative Efficiency:

Data Required: The measurement of *input-allocative* efficiency pertains to the degree to which one minimizes costs of producing a given level of output by choosing an optimal proportion of inputs, given their relative costs and contributions to production. In more familiar terms, cost savings afforded by eliminating the race for crab are likely to increase input-allocative efficiency. *Output-allocative* efficiency reflects the degree to which one chooses the optimal mix of outputs (here, catch), given the respective market prices and opportunity costs of targeting one species instead of another. Loosely speaking, measures of input (output) allocative efficiency can be thought of as the extent to which one minimizes (maximizes) the cost of (revenue from) a given level of outputs (inputs). Note that one can be input-allocatively efficient and output-allocatively inefficient, or vice-versa. Similarly, one can be technically efficient and allocatively inefficient. The point here is that each measure captures a different aspect of production, and each can be affected in different ways from changing institutional or regulatory environments.

Summary: The quantities of direct inputs in production and their costs, total catch quantities and prices by species are required.

h) Processing sector productivity and efficiency

Data Required: The basic data required to measure productivity and efficiency in the processing sector is the same as in the harvesting sector -- only the definition of direct inputs and outputs changes. See g) I), ii), and iii) for a description of the measures, models, and data.

4. Lack of Economic Stability for Harvesters, Processors and Coastal Communities

The objective measures c), d), e) and f) listed for Problem 3 are well suited to assess the success of the crab rationalization program in increasing economic stability for harvesters and processors. This can be accomplished by examining each vessel or plant’s annual profit or quasi-rents, and calculating measures of variation for pre- and post-

rationalization periods. The detail afforded in the data used to construct c), d), e) and f) also allows one to account for exogenous market effects (or varying stock levels) that may affect stability. That is, one can ascertain whether economic stability or viability is more likely in the rationalized fishery (relative to pre-rationalization) when market shocks are prevalent. Stability can also be analyzed by designating vessels or plants into groups of interest (based on size, species composition, regional designation, etc.) and presenting the mean values for the group (along with indicators of the variation within that group) for each year. Such an approach will preserve confidentiality, yet allow for the most accurate and informative measures of stability and the distribution of income among and between harvesters and processors. The following section outlines additional measures that can be constructed -- many of which provide information on impacts to coastal communities, which are not adequately addressed in c), d), e), and f) above.

Measures:

- a) Distribution of catch and ex-vessel revenue by vessel class (e.g., length class and type), port of landing, and residence

Data Required: Catch and revenue information, vessel information, and vessel owner information are required.

- b) Distribution of processed product revenue by community and processor or processor category (size, ownership, location)

Data Required: Product revenue information, plant and plant owner information are required.

- c) Distribution of profits and quasi rents within and between the harvesting and processing sectors

Data Required: The measures computed in c), d), e), and f) from Problem 3 above can be aggregated together in various ways to construct measures of profits and quasi-rents within and between the harvesting and processing sectors. Such an approach would allow analysts to explain any observed changes and facilitate predictive modeling.

- d) Distribution of harvester use rights by vessel class:

Data Required: Distribution of use rights by vessel and vessel class information are required.

- e) Distributions of harvester and processor use rights by processor or processor category

Data Required: Distribution of use rights by processor and processor category information are required.

- f) Seasonality of catch and ex-vessel revenue by vessel class, port of landing, and residence

Data Required: Catch, ex-vessel revenue, vessel class, port of landing, ownership, and owner residence data are required.

- g) Processor ownership interest in BSAI crab catcher vessels and harvester QS/catch history
Data Required: Processor, vessel and QS ownership data are required.
- h) Catcher vessel ownership interest in BSAI crab processors and processing QS/catch history
Data Required: Processor, vessel and QS ownership data are required.
- I) Concentration of domestic and foreign ownership in the BSAI crab harvesting and processing sectors
Data Required: Processor and vessel ownership data are required.
- j) Level and distribution of harvesting and processing sector employment and payments to labor (number of individuals, hours/days worked, and income)
Data Required: Harvesting and processing sector employment and payments to labor data are required.
- k) Degree of involvement of BSAI crab harvesters and processors in other AK fisheries
Data Required: Processor and vessel ownership data, as well as, catch, production, and revenue data are required.
- l) Value of use right
Data Required: Information on the prices of buying and leasing QSs is required.
- m) Regional economic impacts (employment and income) of the BSAI crab fisheries
Data Required: Data on expenditures by location and the residence of those involved in harvesting and processing crab, and other regional economic data are required to develop regional economic models.

Appendix: - The need for (disaggregated) observations in economic models

Economic theory is concerned with explaining the relationships among economic variables (e.g., inputs in production, outputs, input prices/costs, and output prices) and using that information to explain, evaluate, and/or predict production, allocation, and distribution decisions. This process typically involves specifying a “model” that characterizes the salient aspects of a particular process or decision. The chosen model defines the general relationships to be examined, and within the model, observed choices, outcomes and factors (i.e., data) are used to provide information regarding the relationships of interest.

For example, one may specify a model of producer behavior that examines the effect of input and output prices on input and output decisions. Within this model, one can establish both the sign of certain relationships (i.e., does an increase in the cost of fuel decrease the quantity of fuel demanded?) and the magnitude or sensitivity of these relationships (i.e., what is the percent change in fuel consumption when fuel prices increase by one percent?). These relationships are established by examining the observed reactions of all the producers in the sample to changes in the price of fuel.

To get an accurate and complete characterization of how firms may react to the price changes, one must observe several choices over the quantity of fuel purchased at various prices. These observations increase the amount of “evidence” substantiating the relationship, and show the relationship over a wider range of conditions (e.g., is the reaction to increasing fuel prices larger when fuel prices are low or when they are already higher than their typical levels?). Furthermore, the quality and reliability of the model increases when one observes the same firm or decision making unit in several periods. Such observations help to establish whether observed choices and relationships are stable, and the extent to which they may change in conjunction with other potential shocks. Therefore, it is widely accepted that “more is better” when incorporating data into models -- as long as the quality of the data is not compromised by extracting more detail.

Fortunately (for both those supplying the data and the analyst tasked with compiling it), statistical tests can be used to evaluate the strength or significance of the estimated relationships, and one typically knows the number of observations necessary to construct a particular model. Assuming that all relevant variables are included in the model, there comes a point at which one can reject the conclusion that the estimated relationships are spurious. Just as with the relationships one attempts to characterize in the model, the tests of significance typically become increasingly conclusive as the number of observations increase. Going in the opposite direction, by say, aggregating data, results in a loss of unique observations from which to characterize and test relationships, and generates a “representative” data set that does not coincide with actual choices.

To elaborate this point a bit, let us go back to our fuel example. Micro-level data (the plant or vessel in our current context) may indicate that “firm one” decreased fuel consumption by 1,000 gallons when fuel costs rose, while “firm two” decreased consumption by 500 gallons. The obvious information here is that the two firms may react differently to input price changes. This would be masked by instead only seeing that total fuel consumption dropped by 1,500 gallons – when in fact no actual decision maker cut fuel consumption by 1,500 gallons in response to the price change. Furthermore, we would not know if one firm is more price-sensitive than the other is, or if the entire change should be attributed to only one of the firms. At the micro-level, we could examine the scale of the two operations and see if firm one’s production was twice the second’s (and thus, they reacted the same, but total quantity consumed was different due to their differently sized operations), or if their product mix is more varied and they could thus switch to a less fuel-intensive production plan.

It should be fairly clear by this point that the aggregate response postulates a relationship that does not reflect the observed choices, and often eliminates one's ability to say why changes occurred. In addition to this anecdotal example, there is a vast literature on the effects of aggregation across firms and the conditions under which it is valid. Unfortunately, many of the assumptions required do not coincide with reality. For example, to model the cost structure of multiple fishing vessels using data on total catch and the total quantity (and cost) of the inputs used, all vessels in the sample must have identical marginal costs of production. If this is not the case, and one proceeds with the analysis, the model results will be inaccurate and biased by the aggregation. There are several other aggregation-related issues that not only restrict the types of production that can be analyzed in aggregate, but compromise the interpretability of the results from the models that can be constructed.

It is worth emphasizing at this point that the benefits of using firm-level data in models (increased precision, robustness, and validity of estimated relationships) need not be tainted by concerns regarding elicitation of the detail used to construct them. The results of the models can be presented at an aggregate level – as though the micro-level detail was never there. The essential difference, however, is that much more information went into establishing the relationships described by the model, even though the level of sensitive detail shown in the model results is identical. If there is a large enough sample that sub-groups (with similar operating characteristics) can be broken out without threatening confidentiality, the increased precision of the micro-level data allows for much more accurate description, evaluation, or prediction of the subgroup's choices and/or reactions.

Section 3: Other issues associated with implementing mandatory reporting requirements

1. Data Collection Mechanisms

As noted above, the existing data collection programs (e.g., the fish ticket, COAR, crab observer, fishery permit, and ADOL processing sector employment data programs) provide only some of the data required to monitor the effects of the crab rationalization program. Furthermore, they collect data on a less frequent basis than that required for the development of economic models required to monitor and predict economic effects. The other required data can be obtained by expanding the current programs and by establishing additional data collection programs such as log book or periodic survey programs. The cost to the industry and the usefulness of the data are two key criteria for determining what mix of these two methods should be used and how to modify each existing data collection program. A cooperative effort among the management agencies and industry will be required to develop efficient and effective data collection programs. Obviously no change could be made to an existing data collection program without the approval of the agency responsible for that program.

2. Data Verification

During the late 1990s, NMFS staff and representatives of the harvesting and processing sectors of the BSAI groundfish fishery had extensive discussions of economic data collection programs. One issue for which there was general agreement was the need for a process to verify the data provided by the industry. Such a process would provide industry with an incentive to supply accurate data and would tend to increase the confidence that industry, management agencies, and other stakeholders would have in assessments based on that data. Therefore, methods of verification are expected to be developed and implemented. This will also require a cooperative effort among the management agencies and industry.

3. Frequency of Data Collection

The frequency at which data would be collected is expected to vary by type of data. For example, ex-vessel price data are collected for each trip but fixed cost data would be collected much less frequently. The cost to the industry and the usefulness of the data are two key criteria for determining how frequently each type of data should be collected. A cooperative effort among the management agencies and industry will be required to determine how frequently to collect the various types of data.

4. Federal and State Reporting Requirements

It is anticipated that some of the data required to monitor the success of the crab rationalization program will be collected under State of Alaska reporting regulation for the harvesting and processing sectors, and that other data will be collected using Federal reporting regulations. When existing State programs are used to collect data, State regulations would be required. Similarly, when existing Federal programs are used to collect data, Federal regulations would be required. It will have to be determined if the new data collection programs that are required will be State or Federal programs with State or Federal regulations, respectively. Although it is assumed that the expansions of existing data collection programs and the implementation of new data collection programs will be principally federally funded, it is expected that there will continue to be a mix of State and Federal data collection programs. If the new programs are implemented by the State, the existing State statute and data sharing agreement for confidential data would need to be modified to provide access to the new data sources to Council and NMFS staff. If new Federal data collection programs are implemented, the data sharing agreement may need to be amended to provide access to that data by ADF&G staff.

The cost, effectiveness, State and Federal restrictions on data collection programs, and confidentiality are four critical criteria for determining whether new data collection efforts should be administered as a State or Federal program. The plan is to use a cooperative effort among the management agencies and industry to determine what mix of State and Federal programs will be used to collect the data required to monitor the success of the crab rationalization program.

5. Magnuson-Stevens Fishery Conservation and Management Act Considerations

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) contains requirements to monitor the economic and social impacts of fishery management plans (FMPs) and to assess the economic and social impacts of changes to the FMPs. At a minimum, this implies a requirement to collect the data needed to monitor and assess these impacts. However, the MSA also contains data collection restrictions in sections 303(b)(7) and 402.

The relevant language from those two sections with the restrictions highlighted are as follows:

SEC. 303. CONTENTS OF FISHERY MANAGEMENT PLANS

(b) DISCRETIONARY PROVISIONS.--Any fishery management plan which is prepared by any Council, or by the Secretary, with respect to any fishery, may--

(7) require **fish processors** who first receive fish that are subject to the plan to submit data **(other than economic data)** which are necessary for the conservation and management of the fishery;

SEC. 402. INFORMATION COLLECTION

(a) COUNCIL REQUESTS.--If a Council determines that additional information **(other than information that would disclose proprietary or confidential commercial or financial information regarding fishing operations or fish processing operations)** would be beneficial for developing, implementing, or revising a fishery management plan or for determining whether a fishery is in need of management, the Council may request that the Secretary implement an information collection program for the fishery which would provide the types of information **(other than information that would disclose proprietary or confidential commercial or financial information regarding fishing operations or fish processing operations)** specified by the Council. The Secretary shall undertake such an information collection program if he determines that the need is justified, and shall promulgate regulations to implement the program within 60 days after such determination is made.

The former restriction (Sec 303) applies to the Councils and the Secretary; however, the latter restriction (Sec 402) applies only to information collection programs initiated by a Council.

"Economic data" is not defined in the MSA but can be interpreted any number of ways. Put simply, subparagraph 7 both authorizes and limits the collection from processors of "data...necessary for the conservation and management of the fishery". The phrase "would disclose proprietary or confidential commercial or financial information regarding fishing operations or fish processing operations" is another phrase that can be interpreted broadly like the "economic data". There are innumerable ways to break the phrase apart and try to fit or categorize data in or out of it. There is virtually no helpful legislative history.

Recently at the request of the Council, NMFS promulgated regulations that extended to at-sea processors the requirement to submit groundfish COAR data to the State. State reporting requirements have been in effect for shoreside processors for many years. In reviewing the proposed regulation, General Counsel (GC) had to weigh the phrases above and ascertain if the wholesale price information was "economic data" or "proprietary or operations" data. GC decided wholesale information and the rest of the data collected under the COAR was not exempt from collection.

To ensure that these two data collection restrictions will not prevent the Council and NMFS from obtaining the data required to monitor the success of the crab rationalization program, it probably is necessary to have Congress explicitly provide to the Council and NMFS the authority to collect the types of data discussed in this discussion paper. The Congressional action could include one of the following

- (a) Eliminate these restrictions.
- (b) Eliminate these restrictions, require the Council to collect the data required to monitor the effects of the crab rationalization program, and increase the protection provided for confidential data received by NMFS.
- (c) Eliminate these restrictions, require the Secretary to collect the data required to monitor the effects of the crab rationalization program, and increase the protection provided for confidential data received by NMFS.

In addition, Congress could help ensure that the data required to monitor the success of the crab rationalization program are available in a cost effective manner by providing NMFS limited authority to access information collected by other Federal agencies. One example is the ownership information collected by the Maritime Administration

6. Confidentiality

Protecting the confidentiality of the economic data collected to monitor the success of the crab rationalization program is a very high priority for the management agencies and the industry. Although the MSA, other Federal law, and State law provide substantial protection for such data, methods for providing additional protection should be considered. Those methods could include strengthening existing laws and having some of the data collected by the Bureau of the Census, which has additional legal protections for confidential data. The decision as whether to use State or Federal data collection programs could be made in part based on which alternative provides the greater protection for confidential data.

7. Scope of the Data Collection Programs

The following topics are addressed in this section: (1) the need to collect sufficiently detailed economic data on harvesting and processing activities both before and after the crab rationalization program is implemented; (2) the need to collect economic data for all of the economic activities of the firms participating in the BSAI crab fisheries; and (3) the required level of detail of the economic data.

How Many Years of Data

In order to monitor the success of the crab rationalization program, it will be necessary to collect economic data for one or more years preceding program implementation. This data would provide a benchmark that would allow for "before and after" comparisons. Different data collection mechanisms

may be appropriate for the pre-implementation data and post-implementation data, unless the data collection can be put in place one or more years before the crab rationalization program is implemented. Once the program is implemented, ongoing data collection programs will be required to allow periodic assessments of the success of the crab rationalization program and to identify ways to make the program more successful.

Economic Data for All Fisheries

The effects of the crab rationalization program will depend not only on how it affects economic activity in the BSAI crab fisheries, but also on how it affects the economic activity of BSAI crab fishing vessels and processing plants in other fisheries. Therefore, the success of the crab rationalization program cannot be fully assessed without data for the full range of fishery activities of those vessels and plants.

Required Level of Detail

The level of detail that is required naturally depends on intended uses of the data. At the very minimum, analysts will require the data necessary to construct the objective measures discussed in this discussion paper. Such a level of detail will allow analysts to show how the objective measures may differ in the pre- and post-rationalization periods, but will not allow them to: (1) determine which changes were principally the result of the crab rationalization program, as opposed to other external factors or (2) predict the changes that would occur over time with the crab rationalization program as initially implemented or with proposed changes to the program after it is implemented.

Section 4: Additional issues concerning data collection

Between the April and June 2002 Council meetings, informal discussions were held with members of the agencies involved in crab management and the fishing industry regarding the collection of economic data. While these meetings did not define a complete program to collect economic data for the BSAI crab fisheries, they did provide insights into the types of data that would be required and some of the concerns members of industry have with providing the data. These issues are discussed in more detail in the remainder of this section.

Data are proposed to be collected from shore-based processors, harvesters, catcher/processors, and floating processors (floaters). A distinct data collection procedure would be developed for each of the four industry segments listed. The goal of the program would be to collect the data that are needed by analysts to study the impacts of the crab rationalization program in addition to collecting the data that would be needed for future BSAI crab FMP amendments.

Summaries of the data that were proposed to be collected are provided in Appendix 3-8. A separate list was generated for each of the four industry segments (i.e., shore-based processors, harvesters, catcher/processors, and floaters). These lists were developed by using the surveys constructed for harvesters and processors by the North Pacific Crab Association. Their surveys were expanded to create the lists attached in Appendix 3-8.

Preliminary meetings with some members of industry have allowed them to express concerns over specific aspects of the data collection program. Foremost on their minds were concerns over who would have access to the data and how enforcement would react to data that were submitted and later determined to contain errors. These two issues will be addressed first; then other topics discussed during the meetings will be presented.

Protection of Confidential Data Members of the fishing and processing industry have indicated that before data are collected there must be regulations established that protect the data from being released for reasons other than the purposes for which it was collected. Individuals have stated that in the past data have been provided to agencies on a voluntary basis. Those data were then forced to be released, through court proceedings, and used in lawsuits against the companies that provided the data. Because of such incidents, members of industry feel it is imperative that laws are in place which preclude the data from being used by individuals that are not intended to have access to the data. Authorized agency staff from NMFS, ADF&G, and NPFMC are currently defined as the primary users of these data. Other users would include individuals that are contractors of the above agencies that are conducting research associated with the BSAI crab fisheries. Examples include agencies like AKFIN or PSMFC that are involved in maintaining and supplying data to other agencies. University faculty conducting research for one of the above agencies would also be envisioned as users that would be given access to these data. The release of these data outside of the primary users or for other purposes would be strictly regulated. NMFS has stated that protecting the confidentiality of the data will be one of its highest priorities.

NOAA GC will need to be involved in the development of laws designed to protect the data being collected so that the data are collected under an appropriate statute. Their input will help ensure that the goals set out for the protection of these data are strictly adhered to by all agencies. Until legal advice is received, it is not possible to address the specific laws that need to be added or modified.

Other laws will require modification to allow the collection of these data. Those issues were addressed in earlier sections of this document.

Ensuring Data Accuracy Regulations need to be developed in order to ensure the accuracy of data being provided and protect the suppliers of the data from fines or other penalties when good faith efforts were made to supply accurate data (even though errors may be found). To help protect both the providers of the data and the agency collecting the information, a review process could be established to ensure the data being submitted is accurate. This could be accomplished through a review of the underlying information by an auditor. While the review of the data would not likely be an official “audit” in the accounting sense of the term, it would be an established procedure that could be used to verify the accuracy of the data being submitted.

Input from certified public accountants was solicited when NMFS was developing the pollock data collection program. Knowledge gained from that processes could be used as a starting point from which procedures for verifying crab data could be developed.

The second concern with the accuracy of data being submitted deals with the enforcement/laws under which the data are collected. Members of industry are concerned that fines or jail time could result from accidental submission of incorrect data. If a firm’s data are determined to contain errors, a mechanism for correcting the problem must be in place. If it is determined that the data were willfully and purposely submitted in error, enforcement proceedings against the firm should be initiated. In cases where there was no intent to misrepresent the activities of the firm, corrections to the data should be made without imposing sanctions against the firm that submitted the inaccurate data. It will be up to legal experts to develop regulations that accomplish the desired result.

Other Issues Several other issues that industry members felt were important to consider during the data collection process were discussed during the meetings. Those issues are listed below and each is then discussed briefly.

1. Some cost data are not solely assigned to crab production.
2. The cost of borrowing money is different depending on its source (i.e., CCF funds vs bank loans).
3. Industry needs to understand why collection of the data are important and how it will be used.

The first issue raised by members of industry is that not all costs are specific to the crab fisheries. Obtaining an accurate description of costs will require that these costs are somehow divided among the appropriate fisheries. For example, a processor that produces both crab and pollock may purchase permits, land, equipment, or labor that is used in both fisheries. The costs associated with those inputs must be apportioned among the two activities to estimate the expenditures associated with crab production.

There are a variety of ways the costs could be apportioned among activities (based on value, volume, production time, etc.). Selecting the best method for dividing the costs among the various operations of the firm will require a cooperative effort of the analysts and industry.

The next issue of concern pertained to the cost of borrowing money. Fishermen can often access loans at lower rates than are available in the open market (CCF funds are an example). Understanding the impacts of being able to access money at a lower interest rate was felt to be important in the crab fishery, where owners require substantial amounts of capital to purchase vessels and gear.

While other issues were raised during the meetings with members of industry, the last issue that will be addressed here is the importance of providing an understanding of why the data are needed. The earlier section on data collection in this analysis, provided by NMFS, provides a good discussion of why the data are needed. In addition to that discussion it is important to look at the Council's problem statement for the crab rationalization issue to understand why these data are needed.

DRAFT

Minutes from the July 25th Meeting of the Crab Rationalization Data Collection Workgroup.

The following individuals were in attendance for the meeting. Note that members of the workgroup that were appointed by the Council are listed with an asterisk next to their name.

Glenn Reed*	Mark Fina
Kevin Kaldestad*	Darrell Brannan
John Garner*	Dave Colpo
Gary Painter*	Ron Felthoven
Doug Wells*	Joe Terry
Terry Leitzell*	Jeff Harman
Tom Casey	
Margaret Hall	

Terry Cosgrove and Joe Plesha are also members of the workgroup, but were unable to attend this meeting.

John Garner and Gary Painter were elected as co-chairs of the workgroup. Co-chairs were elected to help provide a balance between the harvester and processor interests as the data collection process moves forward.

Mark Fina provided an overview of the current time lines for completing the analysis of the crab rationalization program. The goal of the workgroup is to have the analysis of the data collection aspects of the program included in the analysis when it goes forward for initial review. That will likely occur in December. To meet that timeline the program will be presented to the Council in October when it reviews all of the trailing amendment packages. The Council would then be on a schedule to take final action on the crab rationalization EIS/RIR/IRFA in April of 2003.

Considerable discussion and comments occurred on the structure, detail, and definitions used in the draft surveys developed by the NMFS Alaska Fisheries Science Center for the crab fisheries. Ron Felthoven will be responsible for incorporating the workgroup's comments into a revised draft of the surveys that is to be available for review at the next meeting.

The workgroup provided several comments regarding the need for additional information and the structure of that data collection system. Major points from the group's discussion were:

1. Industry suggested that historical data over a longer period of time (such as five years, or back to 1997) would be more meaningful compared to the two years

prior to implementation of the data collection program that was initially suggested. The two years prior to implementation were years when the GHGs were low and several fisheries were closed, and therefore may not be representative of a participant's historic fishing activities.

Data for the longer time period should be accessible to most harvesters that use computers in their operations and processors so long as they could refer to internal company summaries and recaps for the data. If source documents were required for processors to access the data, then it may not be possible to supply the data with the accuracy requested, and the data may be very expensive and cumbersome to produce.

The collection of historic data should be mandated by Congress to ensure that the data can be protected from unauthorized access. It would also help to ensure that all members of the crab harvesting and processing industry comply with the program. Currently NMFS cannot mandate the collection of data from past fishing seasons, such a mandate would require Congressional authorization.

2. NOAA GC and the State of Alaska Attorney General's office should provide a side-by-side comparison of how data could be protected under their regulatory structure when data are submitted to a third party, under a mandatory data collection program, and under a voluntary data collection program. This discussion should also include a discussion of the various State and Federal rules governing the release of confidential data. Industry attorneys noted that under the current interagency data sharing agreement between NMFS and ADF&G, the agreement, by itself, is not sufficient to protect FOIA requestors from accessing confidential ADF&G data. Though the ADF&G data is collected under a mandatory State data collection system there must be some form of sufficient Federal law requiring protection of this type of data from FOIA of federal records. It was not determined at this meeting if any such protective federal laws exist. Darrell Brannon agreed that he would forward some questions to NOAA GC and Kevin Duffy. This would aid in answering these legal questions. If Federal law does not provide adequate protection of data supplied by ADF&G, the committee may recommend measures to correct that deficiency.
3. NMFS enforcement should provide a report on the penalties that will be imposed when errors in the data are found. This would include errors that are deemed to be inadvertent as well as intentional misstatements of data.
4. A discussion of whether the aggregation rules of 3 (used by NMFS) or 4 (used by the State of Alaska) are the proper rules to use when reporting the economic data collected under this program. We should develop alternative rules that better protect these data - if additional protections are needed.
5. A single method to allocate fixed costs should be selected. Members of industry have suggested using purchase dollars, sales dollars, purchase pounds, finished

pounds, operating days, or relative labor costs. The method selected should be used throughout the life of the data collection program to allocate fixed costs. The government agencies support the collection of certain verifiable data on fixed costs that is required to address crab rationalization policy questions developed by the Council. Particularly, they agree that fixed costs would lend themselves to determining the distributional impacts and indirect effects of crab rationalization. The method to be used for allocating these fixed costs should be determined for the specific application by the agencies, with careful consideration of input from the industry. The allocation method may depend on the policy question being addressed. If industry is requested to supply information on allocation of fixed costs, a specific method should be specified by the data collection agencies throughout the life of the data collection program.

6. The persons that is responsible for the fishing operation and processing operation would be responsible for filling out the cost surveys and the person that leased the QS would be responsible for reporting the amount of revenues generated from the lease. Depending on the roles skippers play in harvesting their IFQ, they may need to respond to one or both surveys.
7. The cost of repacking crab needs to be captured in the surveys.
8. CDQ crab needs to be accounted for in the surveys filled out by both harvesters and processors.
9. Processors cannot assign labor costs by month. Those costs can be more accurately assigned by fishing season.
10. The issue of whether revenue information needs to be collected on sales that were made to related firms, or whether it would be more appropriate to collect only revenues from sales that were made to unrelated firms needs to be addressed. Some believe that transfers that occur within a company may not result in a credit to the processor equal to the true market price. Therefore, it may be more appropriate to apply the average price of the transactions that occur between unrelated firms to the sales of crab that take place within a firm. Others believe that sales data should not be categorized by whether the transaction was between a related or unrelated party. Current US law and corporate practice is to state a revenue amount for related party transactions based on market value, and there is therefore no need for separate data categories of this nature.
11. The draft surveys should identify whether the information asked for in a particular question could be obtained from another source that already collects the information. That source should be identified. The public agencies agree that collection of duplicate information should be minimized, except where some duplicate identifier variables are needed (e.g. vessel ID, permit number).

12. Ownership information will need to be collected, as it is essential for determining the benefits, costs, income and distributional effects of the program
13. This program will focus on the crab fisheries with minimal information being collected for other fisheries.
14. Existing data sources should be used to the extent possible
15. Why is economic data being collected only from the crab fishery participants? Other fisheries, such as pollock, sablefish, and halibut have been rationalized but participants in those fisheries have not been required to submit comparable data. Members of the committee also questioned why the crab fishery participants have to provide revenue data from non-crab sources.
16. Ongoing communication is needed between the agencies and industry members to ensure data quality as well as proper use of the data.
17. The uses of data should be identified. The planned uses should be identified early on in the process. *(Note that a partial answer to the question is that the data are needed to address the Council's problem statement and the objective measures identified by the SSC at the request of the Council.)*
18. Industry representatives recommended that the data collection portion of the program should not hold up implementation. Representatives of the public agencies offered no specific confirmation that implementation of the program would not be delayed without the necessary data collection.
19. Trip level data would be submitted on an annual or seasonal timeframe.
20. Problems with a consistent pre and post rationalization identification of the entities on the harvester side (what is the firm?) were discussed with no final resolution. As the primary intent of the Council seems to be the determination of pre and post distribution of quasi rents and other distributional effects, this objective is complicated by the fact that the definition of a harvesting entity is going to change under rationalization. Under the present regulated access condition, the entities are (1) vessel owners, (2) CFEC permit holders and (3) owners of LLP licenses. After rationalization, the owners of QS, may no longer be LLP qualified, if they buy quota. However vessels will still need to be tracked, as will permits issued by the CFEC. A plan for tracking a single set of entities through the structural changes anticipated in the program is needed.

Finally, a list of assignments was made at the end of the meeting. Those assignments were as follows:

1. Glenn Reed would develop a list of questions for NOAA GC and the State AG regarding protection of confidential data.

2. Ron Felthoven would rework the questionnaires given the input from this meeting as well as additional comments that will be emailed. The revised questionnaires will be available the week of July 29th.
3. John Garner will develop a short discussion regarding the issue of related party transactions
4. Gary Painter will provide a blank copy of his vessel summary sheet. John Garner will try to provide similar information from the processors.

The next meeting is scheduled for August 7th at 9:00am.

DRAFT

Minutes from the August 7th Meeting of the Crab Rationalization Data Collection Workgroup.

Participation:

The following individuals were in attendance.

Glenn Reed*	Mark Fina
Kevin Kaldestad*	Darrell Brannan
John Garner*	Lew Queirolo
Arni Thompson	Ron Felthoven
Doug Wells*	Joe Terry
Margaret Hall	

The following individuals were linked to the meeting via teleconference

Dave Colpo	Jeff Passer
Tom Casey	Tom Meyer
Jeff Hartman	
Gary Painter*	

* Indicates official members of the workgroup that were appointed by the Council

Terry Cosgrove, Terry Leitzell, and Joe Plesha are also members of the workgroup but were unable to attend this meeting.

Meeting Summary:

Jeff Hartman provided several suggested changes to the minutes from the July 25th meeting of the workgroup. Those changes were accepted by the workgroup and those changes will be made to the minutes from that meeting.

Ron Felthoven provided a review of the changes that have been made to the surveys since they were reviewed at the July 25th meeting. A brief summary is as follows:

1. Costs that are collected on an annual basis were broken up into three categories, based upon the way they could be allocated: vessel-specific crab costs (those that need no prorating), vessel-specific costs (those that only need to be prorated among a vessel's crab and non-crab activities), and vessel-related costs (those that must be prorated among multiple vessels and among crab and non-crab activities). The same was done for processing plants.

2. Historic surveys were changed so that the most temporally specific information was at the "fishery" level (rather than trip- or week-level data).
3. Cost categories were added for freight and broker's fees.
4. Line-level detail was excluded from all processor surveys

The workgroup requested that in the future Ron track the changes made on the survey to aid the reviewers in understanding the exact changes that were made.

After Ron provided a brief overview of the major changes to the document, the group went over the processing sector surveys line-by-line. That review of the surveys yielded the following opinions by the members of the workgroup and others in attendance:

1. Use of the Federal Tax ID to track firms is not a good method. There was concern expressed over the usefulness of the Tax ID as well as how it would be used. The analysts indicated that it was not their intent to link the number to tax records. Instead it was considered to be an identifier that could be used to track a taxable entity. After that discussion it was recommended that the Tax ID be dropped as a means to identify entities.
2. The industry members of the workgroup suggested that the COAR be used to track dependence in other fisheries. They felt that the COAR is a verified annual census of all processors in the State of Alaska. Gaps in the COAR data that may exist in the offshore sector should be addressed instead of requiring all processors to file another survey that addresses their participation in other fisheries.
3. Members of the workgroup and agency staff members have struggled with selecting the best method for determining the value of the plants and vessels operating in the BSAI crab fisheries. Insured value has been suggested as a method, but rejected because of the different philosophies owners may use when setting the insured value. It was also suggested that the insured value might change after quota shares are issued. Estimated market value less depreciation was also suggested. That figure was also considered to be too hard to estimate consistently. Ultimately it was suggested that the government hire a surveyor to set a consistently estimated value for each of the plants and vessels.
4. The industry members of the workgroup next inquired as to the purpose for collecting workers SSNs. Agency staff indicated that the SSNs would be useful in determining the total number of people employed, as well as movement of those individuals as they change jobs. Members of industry indicated that supplying SSNs might be difficult for the historic time period. They also felt that going back in time would increase the likelihood that reporting errors will occur. Industry members also indicated that if SSNs are only going to be used to determine the total number of employees, then SSNs are not needed and a question asking for the total number of employees should be asked instead.

Going forward in time is not expected to present as much of a problem. Industry members also indicated that assigning some workers to an activity would be difficult for both historic and future surveys.

5. Members of the workgroup indicated that if the survey asks for separate information on sales to related and unrelated firms the survey should use the Council's definition of "related firms". Firms that sell crab have also indicated that they believe sales to related firms represent a fair market price. Ultimately industry recommended that we do not separate sales to related/unrelated firms.
6. It was noted that the terms of sale are important to understanding the reported sales price, but they will not be captured in the survey. Terms of the sales were considered too varied to collect in a survey.
7. The workgroup received a short presentation from Tom Meyer (NOAA GC) and Jeff Passer (NMFS Enforcement). Tom discussed, in general terms, issues relating to protecting the confidentiality of the data and changes in statute that are needed to collect the data. A list of question that was developed for NOAA GC is included under the "Other Assignments" section. That list will be forwarded on to Tom so he can provide guidance ASAP. Jeff provided a general discussion of how the program would be enforced. However, the program needs to be fleshed out before a detailed description of the enforcement program can be provided.

Considerable time was also spent going over why the detail asked for in the surveys is necessary. It was decided that Ron Felthoven would provide a short summary of why each of the data pieces are needed in the form they are requested. This will be available at the next meeting.

Several other changes to the survey were also suggested. Ron will incorporate those changes in the next draft of the surveys that should be available at the August 20th meeting of the workgroup.

Other Assignments:

John Garner volunteered to provide a short discussion on the issue of sales to related and unrelated firms.

John Garner and Glenn Reed will report back to the workgroup on whether it makes sense to ask for sales to domestic versus foreign markets. Darrell Brannan will provide information on export data that is currently being collected by the Federal government.

Ron Felthoven will provide a discussion of why detailed data (as proposed in the surveys) are needed to perform economic analyses. This discussion may also include information collected from other industries that have exclusive use rights to Federal resources (timber and land for example).

Ron Felthoven will revise the surveys based on input at this meeting. The revised surveys are expected to be available for use at the next meeting.

Darrell Brannan will provide a discussion on how entities will be tracked pre and post implementation of the crab rationalization program.

John Garner will look at the cost categories in Sections 6.1, 6.2, and 6.3 of the survey to ensure that the list includes the appropriate items.

Darrell Brannan will provide the following list of question to NOAA GC so they can provide the workgroup guidance on the issues.

1. Under what circumstances can the data collected under this program be legally protected?
2. What statutory and regulatory language would be suggested to best protect the data from being released do to FOIA or court order?
3. Can we require that SSNs be provided as part of this data collection program?
4. Can the data be better protected if they are submitted to a third party (i.e., PSMFC)?
5. Is sharing of this type of economic data covered under the current MOUs between NMFS and the State of Alaska?

DRAFT

Minutes from the August 20th Meeting of the Crab Rationalization Data Collection Workgroup.

Participation:

The following individuals were in attendance.

Terry Cosgrove *	Mark Fina
Kevin Kaldestad*	Darrell Brannan
John Garner*	Lew Queirolo
Arni Thompson	Ron Felthoven
Terry Leitzell *	Joe Terry
Margaret Hall	Jeff Hartman
Gary Painter*	Tom Casey
James Mize	

Tom Meyer of NOAA GC was linked to the meeting via teleconference.

* Indicates official members of the workgroup that were appointed by the Council. Glenn Reed, Doug Wells, and Joe Plesha are also members of the workgroup but were unable to attend this meeting.

Meeting Summary:

The meeting started with a discussion of the purpose of the workgroup and what the end product of these meetings should be. It was noted that output from this group would be given to the Council in the form of their meeting minutes. In addition, it is expected that the products of this workgroup would be incorporated into the trailing amendment that is being developed for the Council's October 2002 meeting.

Concern was once again expressed regarding the level of detail that is being asked for in the surveys. It was also noted that some of the data potentially being required may not be collected given the constraints on data collection currently in the MS Act.

One person thought that perhaps the focus of data collection should be on fisheries that are more profitable than crab (pollock was suggested). The suggestion was noted, but was thought to be outside the scope of the workgroup's assigned task and was not discussed further.

Ron Felthoven presented his discussion paper on why firm level data are being requested, the need for disaggregated data, and the importance of collecting sufficient observations to conduct research that offers information on statistical significance.

Members of the workgroup asked that the agencies represented discuss the rules for data sharing within and among their organizations. The NMFS and ADF&G data sharing agreement was distributed to the workgroup. Each agency also discussed the internal methods used to ensure data are maintained in a confidential manner. Each agency uses a slightly different method. The Council and NMFS require each employee to sign a form stating that they must prevent the release of the data except in aggregate form or they can be held liable. The methods used to protect data held by the State of Alaska likely vary by agency. However, it was indicated that members of ADF&G staff were not required to sign a special form solely to access confidential data. However, it is clearly understood that release of the data is prohibited except to approved users. It was also stated that some data may be more widely used within the agencies than others. A suggestion was then made that if the workgroup wishes to make a statement regarding who should have access to the data they should provide that to the Council as part of their report. A small working group was then formed to develop a discussion paper on confidentiality of the data. That paper will be presented to the Council's workgroup at their September 5th meeting.

Enforcement would have access to any of these data unless they were precluded through statute or regulation.

Additional questions were raised regarding whether the staffs of the Oregon Department of Fish and Wildlife and the Washington Department of Fish and Wildlife would have access to these data. It was indicated that under the current data sharing agreements they would not have access to the confidential data, but could be provided summaries that are not confidential. New agreements would be required before they could access the confidential data.

Potential advantages and disadvantages of submitting data to a third party and having them assign a unique code to identify the individuals and firms was also discussed. The purpose would be to help protect the confidentiality of the data. It was noted that even using codes for names it would still be possible (at least in some cases) to identify the firm using existing data sources.

Staff members from the agencies that would use these data thought that only having access to a code should not present substantial problems in their work, as long as the information could be linked to other data sources such as fishtickets and the COAR.

The workgroup discussed whether information to estimate profits is needed or whether information used to estimate quasi-rents (revenue less variable costs) is adequate. Because of problems assigning fixed costs across the entire operation and the inaccuracies that could be introduced, it was felt that quasi-rents may be a better indicator of changes that take place in the crab fisheries.

Ron presented a short discussion of how changes in capacity and capacity utilization can be estimated. There was some confusion in the difference between capacity and efficiency, so a discussion of those terms in an economic sense was also provided.

Members of the industry indicated that it makes more sense to collect data on a seasonal basis rather than trip-by-trip. Most firms retain data on seasonal basis. Forcing them to allocate costs to a trip could introduce inaccuracies. It was generally agreed that this would be acceptable.

A discussion of how a season might change after rationalization followed. Industry members pointed out that after rationalization trips would likely be taken to harvest multiple species of crab. Cost of harvesting a specific species of crab on a trip might then be muddled even further.

The group discussed that it may be possible to obtain information regarding harvest crew using the numbers issued to them in the crew license files and the CFEC permit file. Members of industry noted that they expect the number of crew size per vessel to decrease by about one after rationalization.

Ron provided a summary of the revised surveys. The workgroup provided input on changes to be made. Those will be incorporated into the surveys for the next meeting.

Jeff Hartman will provide his comments on where data requested in the surveys can be found in other sources to Ron. That information can then be incorporated into the revised surveys where necessary.

Tom Meyer provided two handouts to the workgroup. The first was a response to some of the questions¹ asked of NOAA GC at the last meeting. The second was a copy of NAO 216-100 regulations that define the “Protections for Confidential Fisheries Statistics”.

Tom indicated that in his opinion the “Reciprocal Data Access Agreement” between NOAA, ADF&G, and CFEC should be reviewed to ensure that data collected under this program are adequately covered by that agreement. Substantial time may be required to rework that agreement.

Assignments from the meeting

John Garner, Gary Painter, and Terry Leitzell will develop a paper related to the issue of confidentiality. That paper will be presented at the next meeting on September 5th.

Ron will redraft the surveys given input from this meeting.

Darrell Brannan will provide the following list of questions to NOAA GC so they can offer the workgroup and Council guidance on these issues.

¹ They included (1) Under what circumstances can the data collected under this program be legally protected? (2) What statutory and regulatory language would be suggested to best protect the data from being released do to FOIA or court order? And (3) Better protection of data submitted to a third party.

6. Can NMFS require the submission of cost and earnings data if the Council is precluded from requiring that information?
7. What legislative language would best protect the data submitted under this program?
8. Under what circumstances can the data collected by a third party be accessed by (a) the public or (b) NMFS or the Council?
9. Review the “Reciprocal Data Access Agreement” to ensure it covers data collected under this program.

DRAFT

Minutes from the September 5th Meeting of the Crab Rationalization Data Collection Workgroup.

Participation:

The following individuals were in attendance.

Terry Cosgrove *	James Mize
Kevin Kaldestad*	Darrell Brannan
John Garner*	Lew Queirolo
Arni Thompson	Ron Felthoven
Terry Leitzell *	Joe Terry
Margaret Hall	Tom Casey
Doug Wells*	

Gary Painter*, Jeff Hartman, Mark Fina, Kurt Schelle, and Tom Meyer of NOAA GC was linked to the meeting via teleconference.

* Indicates official members of the workgroup that were appointed by the Council.

Glenn Reed and Joe Plesha are also members of the workgroup but were unable to attend this meeting.

Meeting Summary:

The focus of the meeting was to provide the catcher vessel, catcher/processor, and processor sectors the opportunity to present their proposals regarding what data should be collected by the Council to meet the objectives outlined in the June crab rationalization motion. Representatives of the committee provided papers describing their position to the members of the workgroup prior to the meeting. Those papers served as the starting point for each sector's presentation.

Members of the industry workgroup were in general agreement that they would rather supply additional data to a third party rather than supplying less data to an agency that could be linked to existing data sets (i.e., fishtickets, vessel registration files, COAR, etc.). They felt that supplying additional data in a "blind" format would result in them incurring higher costs to meet the requirements, but it would provide greater protection for their confidential data. Given the trade off, and their concern that these sensitive data be closely held, they would prefer to spend additional money with the expectation that it would help to ensure that their confidentiality is maintained.

Representatives from the public agencies provided some initial thoughts on potential problems with the use of an independent agency for creating blind data sets.

1. Costs to the public agencies as well as industry would increase because third party suppliers would need to become experts in all State and Federal data sets, to be able to be able to supply meaningful data. Blind identifiers would need to be developed for all existing data sets that would be merged to construct a set of observations for statistical analysis.
2. Identifiers for any new data sets collected after the program was in place, that were deemed to have useful economic data, would need to be provided to the third party, and a set of blind identifiers would need to be generated.

Finally, creating a truly blind data set, might not prevent a knowledgeable analyst with access to the State vessel file, permit file, and fish ticket file from identifying entities that industry wishes to protect. Unless restrictions were placed on the use of data in this way the third party system may offer less protection than anticipated by industry.

A discussion of the need for information on the quantity of inputs purchased was also held at the meeting, since the position papers generally only referred to input costs. Agency staff indicated that quantity and cost information was needed to understand efficiency changes. Members of the industry recognized the economist's need for quantities purchased, but no consensus among all sectors of the industry was reached in terms of providing those data. That issue will likely be discussed at future meetings of the industry.

Two other types of data that were excluded from the industry proposals were expenditures by location and plant or vessel specific annual costs. Without those types of data some objective measures of the success of the crab rationalization program cannot be generated

Gary Painter was first to presented the views of the people he represents. His presentation started by indicating that in their view (his constituents) the data being requested was "proprietary, confidential, and financial in nature". Further they felt that harvesters never agreed to provide these data as part of the crab rationalization "deal". Mr. Painter also indicated that several people that he has spoken to resent being singled out for data collection. They feel that participants in other rationalized fisheries (such as pollock, halibut, and black cod) were not required to submit similar types of data when they were rationalized, and the crab fishery should not be the only group required to provide this type of information.

Mr. Painter felt that no additional economic data are needed because a binding arbitration program based on the division of first wholesale revenues will help ensure fair ex vessel crab prices. If the binding arbitration program needs to collect cost/revenue data, he suggested it should be collected by a third part and not be made available to agency personal.

In summary, Mr. Painter's paper proposed that the fishticket program continue to collect

information on crab harvests and that ownership information be collected to enforce the caps outlined in the crab rationalization program. If additional information is requested by the Council (they recommend that it not be requested), then information should be submitted to a third party and supplied to agency staff with only coded identifiers (blind data) to enhance confidentiality. They also requested that the written data sharing agreement between the Council, NMFS, and ADF&G be reviewed and updated if necessary. Finally, they felt that the standards and penalties for unauthorized release of the data should be uniform across all the agencies that are allowed to access the data.

Kevin Kaldestad present a proposal developed by the Alaska Crab Coalition (ACC). Under that proposal catcher vessels would supply variable cost data, revenue data, employment data, and ownership data, but are concerned about the level of detail being requested in the surveys that have been developed in the workgroup to date. The people represented by the ACC also requested that any new data being collected be submitted to a third party to help protect the confidentiality of the data. The ACC recommendation stated that variable costs and revenues could be used to estimate quasi-rents (variable costs - revenue), and that level of information is adequate to address the mandate of the Council. Including fixed costs in the survey would require the apportioning of fixed costs among a firms crab operations and that could introduce inconsistencies in the treatment of the data. Those inconsistencies were listed as a primary concern in the ACC proposal in terms of collecting and using fixed cost data.

Ownership data was proposed to be provided at a level similar to that used to monitor the halibut and sablefish IFQ program and the BSAI pollock fishery. The ACC proposal was in agreement with the proposal from Gary Painter in that the interagency MOU for data sharing should be revised where necessary to protect data from unauthorized release. Their proposal also stated that legislative language should be developed to further protect the confidentiality of the data.

The ACC proposal recommended that variable cost and revenue data be provided on a fishery-by-fishery basis. Employment data would also be provided and it would include the name, state of residence, and SSN of each crew member. Variable costs would be provided for (1) fuel, oil, and hydraulic fluids (2) insurance (3) crew costs (4) bait (5) fishing related taxes (6) observer costs and (7) miscellaneous costs. The ACC proposal, as written does not provide any information on the quantities of variable inputs. As stated earlier, there was a discussion with the agency staff of the need for this information to explain any observed changes in the industries' cost structure.

Finally, the ACC proposal stated that historic data would be collected for the years 1999-2001. Members of industry indicated that they would review the years to be included in the data collection program at their next meeting. Therefore, the years listed in the ACC report may be subject to change.

Doug Wells presented the catcher/processor's perspective on data collection. Mr. Wells stated that the catcher/processor data submissions would likely be a synthesis of the catcher vessel and processor requirements. Like the ACC proposal, the

catcher/processor's proposal did not provide any information on the quantities of variable inputs. He noted that about eight catcher/processors are currently operating in the crab fisheries and they are heterogeneous in their operating characteristics.

The catcher/processors indicated that they would prefer to supply data to a third party to help protect the confidentiality of the data. They would prefer providing "blind" data, even if it requires them to submit more information, rather than information that can be linked to existing data sources. They also recommended that data should only be collected to the level of variable costs. Fixed costs should not be collected as part of this program. Their statement also implied that they would be willing to supply information on vessel ownership as well as employment information. Finally, they indicated that they could "live with" the survey that has been prepared by Ron Felthoven for the previous workgroup meeting.

John Garner presented the processor's proposal. The processors felt that they faced many of the same issues that were concerns expressed by the catcher vessel representatives.

The processing sector indicated that they are willing to supply ownership data. They felt this information is appropriate and should be supplied at a level similar to that collected to monitor consolidation in the halibut, sablefish, and pollock fisheries. Employment information would also be provided. They are willing to provide wage information for direct labor associated with the processing of each crab species, including SSNs for those employees. Processors are also willing to provide revenue data by size and grade for each species (and associated information) that would allow revenue to be stated on an FOB Alaska basis. Cost data would be supplied for the direct production costs of each crab species (variable costs). They do not believe that non-variable costs are needed and cannot be allocated to various fishery activities in a uniform, consistent manner, and that therefore the data would have little use to the council. Processors also believe that there is no justification in the Council's motion to collect information beyond the crab fisheries. They also believe that redundant information should not be collected if it is available (and can be linked to the data that is being collected).

In terms of how the data will be provided, the processors felt that data should be submitted to a third party. The processors would prefer to submit aggregate data to the third party but understand that this may not allow the analysts to conduct rigorous analyses. Therefore, they would like to explore the feasibility of the third party providing only aggregated to the agencies.

Mr. Garner also indicated that the current MOU allowing data sharing among the agencies should be reviewed and updated if necessary. This process should begin immediately given the time it has taken for these types of review to be completed in the past. The agencies should also develop Federal and State regulations governing access and use of the data collected under this program. The goal of those regulations would be to allow the data to only be used to analyze the impacts of the crab rationalization program and ensure the confidentiality of the data that are collected.

The processors continue to be concerned with the enforcement of the program and the penalties that will be imposed when errors in the data are found. Their two main areas of concern are 1) what is the consequence of unintended data submission errors and 2) when must the data be submitted. Little information could be provided in terms of the consequences of data submission errors. That will need to be worked out with NMFS enforcement. However, members of the agencies present at the meeting indicated that they do not need “real time” submission of the data, and the three-month lag period proposed by the processors would allow them to conduct the analyses that would be required.

Each of the written proposals provided to the workgroup are attached to these minutes as the “Position Paper Appendix” and provide additional detail on the positions taken by member of the workgroup.

After the meeting Mr. Garner sent additional information on the kinds of data the processors are willing to provide. A summary of his statement is included at the end of the processor’s position statement in the Appendix. In general, the processors agreed to supply the location of variable input purchases, the quantity of variable input purchases, and revenue information in the format requested in Ron felthoven’s survey.

Tom Meyer, representing NOAA GC, connected to the meeting via phone and provided an update on the questions he has been asked to research. He indicated that, due to the short time between meetings, he has not been able to determine if NMFS can require data collection from the crab fishery participants if the Council does not include it as part of their FMP amendment package. He also stated that he would prefer that Congress clearly state what data may be collected under this program when they make modifications to the MS Act. He also indicated that it is too early for NOAA GC to draft language to protect the confidentiality of the data. The program needs to be more clearly defined before that can take place. Mr. Meyer also indicated that a FOIA request could reach information that is under the “control” of the government. It could be argued that data submitted to a third party is under government control and could be reached through a FOIA request. Therefore, under the existing law, the use of a third party for data collection and dissemination may be equally or more vulnerable to FOIA than the current protections provided through the agencies. It was recommended that if the objective is to prevent any release of sensitive data, then legislation would need to make this clear while simultaneously mandating its submission to a third party contractor (if a third party contractor is used to collect the data). Rules governing the release of the data to any class of individuals (public, NMFS, ADF&G, Council, etc.) could then be specified in the legislation.

Mr. Meyer also indicated that any data collection program (including data collected by a third party) would likely not be approved by the SOC if NMFS enforcement were restricted from accessing the data. Compliance monitoring is critical part of any mandatory data collection program and enforcement would play a key role in ensuring that people fulfill their commitment to supply these data.

Representatives of the crab data collection workgroup are scheduled to meet again on September 16. Members of industry will compile the results of that meeting and make them available to Council staff so they can be incorporated into the “trailing amendment” that is being prepared for the Council’s October meeting.

POSITION PAPER APPENDIX

Gary Painter's Position Paper on Crab Data Collection

Re: Data Collection from Harvesters

I have received numerous calls from those in the fleet whom I consider to be my constituents. I have thought long and hard about data collection. What I have come to is this:

The data collection being asked for by NMFS and ADF&G as representatives of the Council is proprietary, confidential, and financial in nature. **Magnuson-Stevens** specifically protects our privacy on these counts in Section 402.

There were many concerned about a 2-Pie program. The BSAI crab processors made a deal to provide their own proprietary business information, in exchange for a 2-Pie program.

We harvesters never gave our consent to that deal. But I am still for rationalization, because fleet consolidation is mandatory for our survival. I continue to stand behind and rely on our confidential protection under **MSA-96 Section 402**.

The Council declared in its **BSAI Crab Rationalization Report to Congress** that "...It may not be the appropriate model for other fisheries in the Nation...and is not intended to be a template for other fisheries..." Many of those I have spoken with resent being singled out for micro-economic scrutiny while ignoring (for instance) the successful halibut & blackcod fisheries, and the wildly successful pollock fishery.

I propose:

3. Continued **mandatory and timely** submission of traditional fish ticket information for each trip, because it is the real world basis for ADF&G conservation and management of the BSAI crab fisheries.
4. **To provide information about the ownership of vessels and quota.**
5. A strong revenue based (Not economic rent based.) binding arbitration system.
6. A third party data-collection group (Such as Pacific States Marine Fisheries Commission.) to further enhance confidentiality.
7. An updated written agreement between the Council and all agencies it works with protecting the confidentiality of any proprietary information that we submit to that third party data-collection group.
8. For ADF&G, the same standards (and penalties) of confidentiality of information that NMFS employees are currently held to.

ACC DRAFT RECOMMENDATIONS FOR THE NPFMC DATA COLLECTION COMMITTEE

September 3, 2002

CONCERNS AND RECOMMENDATIONS:

- The ACC references industry concerns about the level of detail that is being asked for in the surveys, conflicts with the MS Act in regards to the data requests, interagency agreements relative to confidentiality, the advantages of submitting data to a third party—preferably the PSMFC to protect confidentiality and other concerns including the need to restrict data collection to variable costs, as noted in the Data Collection Committee Minutes of August 20th, 2002. The ACC recommends these committee minutes be attached to the committee’s formal submission to the NPFMC to provide background information on issues of concern to the crab industry.
- At the August 20th meeting the workgroup discussed whether information to estimate profits is needed or whether information used to estimate quasi-rents (revenue less variable costs) is adequate. Because of problems assigning fixed costs across the entire operation and the inaccuracies that could be introduced, it was felt that quasi-rents may be a better indicator of changes that take place in the crab fisheries.
- The ACC expects that ownership data that is requested for the crab fisheries will be similar to that which is required to monitor the consolidation rules in the other rationalized fisheries under the jurisdiction of the NPFMC, the halibut, sablefish and pollock fisheries.
- The current MOU allowing data sharing between the NMFS and the State of Alaska may not have adequate protections to ensure data confidentiality. NOAA GC has suggested that a review of the MOU is needed and that it should be incorporated in the new data collection effort; the ACC agrees that the review should be conducted immediately, with or without this data effort. The agencies must also develop internal protocol governing the access and use of data that is reviewed and approved by the Council.
- To provide additional protection for confidentiality of data to be collected, the ACC concurs with workgroup’s interest and efforts to develop appropriate legislative language.
- With the above concerns in mind, the ACC recommends the Committee review the attached Crab Harvesting (Catcher) Vessel Variable Cost and Revenue Worksheet for submission to the NPFMC as a preferred alternative for data collection. Note that submission of data is proposed on a fishery-by-fishery seasonal basis, including provision of names, state of residence, and Social Security Numbers for crew men.

**DRAFT RECOMMENDATION FOR NPFMC DATA COLLECTION
COMMITTEE, SEPTEMBER 2, 2002
FOR PROPOSED SEASON BY SEASON REVENUE & VARIABLE COST
REPORTING FOR CRAB RATIONALIZATION PROGRAM**

Crab Harvesting Vessel

Variable Cost and Revenue Worksheet

(Recommended period for each BSAI Crab LLP fishery 1999 – 2001, and for future years to enable comparisons, open access vs. rationalization).

Vessel Name _____

Vessel Owner _____

ADF&G # _____ USCG # _____

Species (Check One) **Opilio** _____ **Bristol Bay red king crab** _____
 Bairdi _____
 Pribilofs red and blue king crab _____
 St. Matthew blue king crab _____
 Aleutians golden king crab _____

Year of Harvest _____ (one sheet for each season)

AFA qualified? Yes _____ No _____

Pounds Sold _____

Revenues _____ (total gross amount)

Variable Costs (See Notes Below For Definition):

Fuel, oil, hydraulic fluids _____

Insurance _____

Crew costs _____

Bait _____

Fisheries related taxes _____

Observer costs _____

Miscellaneous _____

NOTES:

INCLUDE VARIABLE COSTS ONLY. DO NOT INCLUDE ANY FIXED COSTS IN THE COST DATA.

Fuel should include fuel from the beginning of the voyage to its termination, regardless of the origination and destination port. It should be the same fuel expense used to calculate the net revenues for crew share calculation.

Insurance costs are included only if they are specifically for the crab fishery. If Hull and Machinery is paid on a year round basis, for example, do not include it. If it is bought month to month, and crab fishing is the only activity for the month, then include the cost. P&I should be reported here on the same basis as Hull and Machinery.

Crew costs should include crew share, airfares (if paid by the boat owner), food (if paid by the boat owner), and any gear provided for the crew (if paid by the boat owner). Also, provide names and Social Security Numbers for crew men on separate sheet.

Fisheries related taxes would be the line for any taxes deducted directly from the gross receipts of the vessel. Sales tax and ASMI tax are two examples.

Observer costs should include travel, insurance, food, etc, plus the cost of the observer.

Miscellaneous costs are any variable costs not captured by the specific categories listed. Examples might include port and harbor charges. Do not include pot storage costs, but do include the cost of transporting pots to and from storage for the season.

Crab Processors Positions Data Collection Committee

The crab processors believe the following data submissions are adequate to provide the information the Council needs to determine the efficacy of the Crab Rationalization program.

Ownership data: we believe that ownership data is appropriate to determine the degree of consolidation occurring in the processing sector and to determine the degree of vertical integration within the industry. The type of ownership data that we would expect to have to provide is similar to that which is required to monitor the consolidation rules in the halibut, sablefish and pollock fisheries.

Employment data: the processing sector is prepared to provide wage information for direct labor associated with each crab species, including SSN for each employee.

Revenue data: the processing sector is prepared to provide revenue information for each crab species, including sufficient data to state revenue on an FOB Alaska basis, production style and grade.

Cost data: the processing sector is prepared to provide the direct (variable) costs of production for each crab species. We do not believe that non-variable costs are needed and we believe that non-variable costs will necessarily be misunderstood due to the need to make subjective assumptions regarding the basis for allocating non-variable costs to various fishery activities.

See our attached draft “worksheet” setting out the specific information related to costs and revenues that we believe is appropriate.

General considerations:

Confidentiality of the data, particularly on an individual firm basis is a key concern of the processing sector. We would therefore ask that the following be considered:

- All data should be submitted to a third party entity (such as PSMC). The data may then be made available to appropriate agencies on a blind basis. Although the processors prefer that the data be made available only in an aggregated format, we do agree that it is difficult to anticipate in what format or manner Council queries will require the data be presented. We would like to explore the feasibility of a third party providing blind data aggregated specifically on request of authorized agencies.
- The agencies must develop internal protocol governing the access and use of data that is reviewed and approved by the Council. This protocol must specify the

types of data that may be accessed, the offices that will have access to the data, and whether that data may be available on an individual firm basis or not.

- The current MOU allowing data sharing between the National Marine Fisheries Service and the State of Alaska may not have adequate protections to ensure data confidentiality. Data supplied by the State of Alaska to NMFS is not necessarily subject to the confidentiality provisions of the State, and may be subject to disclosure under Federal law including FOIA requests or Federal Court Orders. Similarly, there appears to be inadequate control of access of federal data when transferred to State agencies. NOAA GC has suggested that a review of the MOU is needed and that it should be incorporated in the new data collection effort; we agree that the review is needed, with or without this data effort, and that it should be undertaken immediately.
- The National Marine Fisheries Service, Alaska Department of Fish and Game, and the Council must develop federal and state regulations governing access and use of data collected under the crab rationalization program. The objectives of the regulations should be to provide data to the Council, NMFS, and state fish and game agencies for the purpose of analyzing the impacts of the program, and to ensure the confidentiality of the data collected. Those regulations should include the following points, at a minimum:
 1. All data should be provided to a third party entity such as the Pacific States Marine Fishery Commission. The PSMFC shall provide data only to those agencies covered by the regulations either through direct application or through an MOU with NMFS. The data provided by the PSMFC shall be “blind” with no identification of the entities making submissions.
 2. Data provided by the PSFMC shall be aggregated as directed by the Council (by sector, or by size categories, etc.).
 3. Access to the data should be limited to those individuals specifically requested by the Council, NMFS or a state agency to undertake an analysis of the impacts of the crab rationalization program.
 4. All individuals shall sign a confidentiality agreement before having access to the data. That agreement shall impose liability on an individual for breach of the agreement or regulations.
 5. For data already supplied to the Council, NMFS, or a state agency, sharing of that data with another agency shall be subject to an MOU which imposes the requirements of these regulations, e.g. an individual confidentiality agreement.

The data collected should relate only to the crab fisheries included in the Council’s crab rationalization motion. There is no justification to require the submission of data related to non-crab activities of the firms.

The data should be collected from individual firms only if it is not already available to agencies through some other means, including data that substantially fulfills the data requirement. As the Council motion stated, the data effort must be sensitive to the burden imposed on individual firms. Processors already routinely provide data on

revenues, ex-vessel payments, employment and ownership, supplied to a variety of local, state and federal agencies. There should not be a duplication of that data collection effort already being made. A review should be undertaken to determine if the current data submissions are satisfactory for specific data requirements, and if not if they can be revised in some manner to be satisfactory. We are also concerned that the system of verification not be overly burdensome. Audit procedures similar to what is employed in the AFA are envisioned as appropriate for the data effort in the crab program.

Industry understands that there will be enforcement rules to ensure that data is supplied in an accurate and timely manner. The Council noted its concern that enforcement be sensitive to unintended errors in data submission, especially given the extent and complexity of the data industry is being required to submit compared to any other fishery under its jurisdiction. We are familiar with the enforcement system used in the halibut, blackcod and pollock fisheries. To the extent that this system is designed with the paramount need to enforce the harvest quotas, which is a resource conservation issue, the system of exacting time schedules and data accuracies are understood. The same principles do not necessarily apply though for the new types of data being required in the crab program. There are two aspects to this:

1. What is the consequence of unintended data submission errors.
2. When must the data be submitted.

Each of these factors should be analyzed in light of the specific data being required. By way of example:

Ownership data is needed to enforce caps. Caps are scrutinized annually and, presumably, at each transfer of quota. Ownership information should therefore be required annually, only, and upon any transfer of quota. Accuracy is critical to determining cap compliance, and therefore the enforcement standard may be higher than some other data requirements.

Revenue, ex-vessel payment, cost of production and employment data are the type of data that takes time to collect, internally verify and submit to the agency collecting it. Rigid, and “quick” time frames for submission of this data are not needed for any Council purpose. As an example, for similar data submissions, the State of Alaska typically allows at least one month from the close out date to submit the data, up to three and one half months in the case of payment of the fisheries business taxes. Requiring data within three months of the close out date should be timely enough for any agency purposes and should give the processing firms an adequate period of time to compile and internally verify the information.

Similarly, for revenue, ex-vessel payment, cost of production and employment data are data summaries by firm that are built on a myriad of detail; unintended errors can and will occur. The enforcement approach with respect to this data should take this into consideration. First, as stated above, ample time following a close out period is essential for the firms involved. Second, failure to comply with a reasonable submission deadline should be treated completely differently than minor errors in the data that is submitted. The penalties, if any, should reflect the seriousness of the offense.

Processing Costs and Revenues Worksheet

Company Name _____

Production Facility Name _____

Species and Area _____

Year of Production _____

Location of production _____

Pounds Purchased _____

Finished Pounds _____

Revenues _____ **(total dollars received)**

Variable costs (see notes for definitions):

Payments to fishermen (including retros) _____

Taxes paid by processor for raw crab purchases _____

Custom processing fees you paid _____

Direct Labor costs _____

Observer costs (including transportation) _____

Utility costs (including fuel) _____

Housing, transportation and food _____

Packaging materials and supplies _____

Freight of production _____

Storage and handling of production _____

Cost of repacking _____

Brokers fees, promotional expenses _____

DO NOT INCLUDE ANY FIXED OR OVERHEAD COSTS IN THESE COST CATEGORIES.

Notes to Cost of Production Worksheet:

Variable costs are direct costs that vary with both season length and volume of production.

If you had product custom processed by another plant, include the revenues from the sale of production and report the custom processing fees you paid on the appropriate line.

If you custom processed product for someone else, exclude the variable costs and the revenues associated with that production.

Revenues should include all receipts from the sale of finished products, including products repacked by you or for your account after initial production. Revenues should be net of any brokerage fees paid to any independent broker making the sale on your behalf. If there is a broker's allowance or promotional fee that is deducted from your reported revenues, then you will need to enter that amount in the line asking for brokers fees or promotional expenses.

Direct labor costs EXCLUDES management or salaried labor, but includes all costs of processing labor, such as employer taxes, employer paid insurance, 401k contributions of employer in addition to the wages paid. The insurance costs should include any insurance related to direct labor; health (if any) insurance, worker's compensation or Jones Act coverage, including payment of deductibles or claims if self insured. Costs of training hourly workers should be included on this line item.

Utility costs include public or privately supplied utilities, including fuel, water, power, and sewer.

Housing, transportation and food category should include any expenses incurred for processing labor not listed in the labor category. It may include for example employer supplied special clothing and airfares.

Packaging materials and supplies should include fiber, banding materials, shrink-wrap, pallets, labels and anything else required to enclose and ship the finished product. This category should also report the cost of shipping packaging to the plant. Processing expendables of any sort are included in this category.

Freight of production. This should be zero if you reported sales on an FOB plant basis. If you reported sales from a different delivery point, the cost of freight and handling to that delivery point should be reported here. For example, sales that are FOB Seattle would include the freight from the plant to Seattle, and the cost of that freight would be reported on this line.

Storage and handling of production should include cold storage and handling costs incurred by you prior to sale.

Costs of repacking should include all charges associated with repacking crab that are sold by you after repacking. Brokers fees, promotional expenses that are paid as a deduction from the revenues reported in this worksheet should be included on this line item.

THIS WORKSHEET WOULD BE REVISED AFTER A REVIEW OF INFORMATION ALREADY AVAILABLE THROUGH OTHER DATA SOURCES.

John Garner noted after the meeting that their intent in providing the worksheet (*above*) was to restate what they thought were the costs that are variable by crab species.” Mr. Garner also stated that if information on quantities or units of effort is needed to understand cost data, it would also be provided. If information on where money is spent is desired to assess community impacts, that would be provided. And finally, the processor’s intent is to provide revenue information based on the format used in the survey developed Ron Felthoven, which has detailed information with respect to pack size, information needed to determine percentage of sales to related entities, and costs needed to derive an FOB Alaska wholesale value.

DRAFT

Minutes from the October 18th Meeting of the Crab Rationalization Data Collection Workgroup.

Participation:

The following individuals were in attendance.

Terry Cosgrove *	Jeff Hartman
Kevin Kaldestad*	Darrell Brannan
John Garner*	Dave Colpo
Arni Thompson	Ron Felthoven
Terry Leitzell*	Joe Terry
Margaret Hall	Tom Casey
Doug Wells*	

Gary Painter*, Ben Muse, and Herman Savikko were linked to the meeting via teleconference.

* Indicate official members of the workgroup that were appointed by the Council.

Glenn Reed and Joe Plesha are also members of the workgroup but were unable to attend this meeting.

Meeting Summary:

The workgroup reviewed a paper, developed by staff, describing the actions taken by the Council at their October meeting. That paper indicated that the Council wished to see the workgroup complete their work on the “9/18/2002 surveys” for the December meeting. The Council also wished to have additional information presented to them in December on the need and usefulness of fixed cost data, the need and best way to collect information on location of purchases, the usefulness of a third party data collection system and how it would function, the costs of the program, the need for arms length transaction data on prices, the need for additional community data, enforcement issues, and providing additional protection for confidential data. The requested studies are expected to help the Council determine the need for collecting data beyond that already contained in the draft surveys as well as help structure the overall data collection program.

Members of the workgroup discussed the meaning of the section of the Council motion that requested a discussion of audit requirements for voluntary and mandatory data collection programs. It was indicated that the intent of that language could have been to initiate a study to determine if a mandatory data collection program can be implemented

that would allow community impact data to be collected on a periodic basis. The timeframe could be selected by the Council or be setup so that data collection would be initiated on an as needed basis. That analysis is to be completed for the December council meeting.

The workgroup then proceeded to discuss the fixed cost sections of the “9/18/2002 surveys”. Each sector’s surveys were discussed in turn, but the minutes will describe the aggregate discussion of each fixed cost category for all sectors. The discussion is structured this way because of the substantial overlap in the problems associated with utilizing fixed cost data under each category. The group also decided that the data needed to analyze community impacts would be discussed separately from other fixed cost data needed to understand the operation of the firms.

Members of the fishing industry voiced no strong objection² to supplying information on insurance and property taxes. They have noted concern in the past with using insurance information to derive proxies for the market value of vessels and plants. Agency staff noted that insurance must be accounted for in impact analyses. They also noted that changes in insurance costs could reflect safety changes in the fishery that result from rationalization.

Consensus was not reached on the need to collect data on principal and interest payments. Member of industry asked agency staff how those data would be used. Staff responded that they would be useful in conducting community impact analyses and would provide one source of understanding concentration and entry/exit in the fishery. Members of industry were concerned that relying on principle and interest payments to understand the viability of a firm may mislead the analyst for two reasons. First, it is not always easy to trace the use of a loan back to the asset that was used as collateral to borrow the money. Therefore, the principal and interest payment may not be easily assigned to the plant or vessel operating in the crab fishery. If the vessel, for example, was used as collateral for a loan servicing the needs of other vessels owned by the firm, it would make the indebtedness of that vessel seem much larger. Second, a vessel/plant could increase their debt load for a variety of reasons. If the analyst cannot identify the reason for the change in indebtedness, they may come to the wrong conclusion about a firm’s viability. Finally, a discussion was held regarding how CCF funds should be treated in this context. It was concluded that they primarily impact taxes, and, therefore should be lumped in with other principal and interest payments, if they are collected.

Expenditures on capital improvements were discussed next. It was noted that capital expenditures could be just for the crab portion of a firm’s operation, not related to a firm’s crab operation, or could be used for both crab and other species. The workgroup indicated that only capital expenditures related to a firm’s crab or crab and other species production process should be included. Therefore, investments that have no link to crab production would be excluded from the data collection process. Agency staff feels that

² Some committee members expressed strong objection to supplying fixed cost data, while others expressed strong reservations over how that data would be used by analysts.

collecting information on capital expenditures is important in understanding the use of variable input in the production process. Many committee members agreed that capital investment in crab operations may effect the variable costs of crab production, and is therefore needed to better understand changes in crab production costs that might be observed.

Repair and maintenance costs were discussed along with the problems of allocating these costs to crab operations. Industry suggested that they would likely provide an annual amount for the entire plant/vessel. A system would need to be devised by the analysts to allocate those costs to crab operations. The workgroup also discussed where the salaries of repair and maintenance employees would be assigned. Two options were discussed under the repair and maintenance or included with other salaried employees. It was suggested that all salaried labor costs would be collected and then assigned by agency staff to the crab operations of a facility. The analysts were also warned that they should be careful about how they interpret repair and maintenance variation across years. Some major repairs and maintenance items are scheduled every other year, for example. Understanding these cycles is important to explaining this cost category.

It was decided that a category for other plant or vessel fixed costs would be included in the survey. However, no one suggested a major cost category that was not otherwise covered in the fixed cost section of the survey.

A mechanism of assigning fixed costs to the crab portion of a fishing/processing operation was discussed next. Many committee members expressed reservations about developing a uniform system to allocate non-variable cost to crab operations. They reiterated that their desire was to provide accurate cost information, and that allocation systems rest upon assumptions that may not be an accurate basis to pro-rate cost to different activities. For that reason, if the agencies wish to collect this data, they should develop the system of allocation that makes sense to them.

Members of the committee had two divergent views of collecting and using these data. The first view was that the industry groups would not endorse or oppose the system the agencies develop to allocate these costs. However, a primary justification for collecting this type of information is to develop a database sufficient for a net benefit (profit) analysis. Most committee members felt that the data assigned by allocation among activities should not be used for that purpose. The second opinion expressed was that because of industry members concern with the accuracy of allocating fixed costs to crab production, they have indicated that they do not wish to recommend a specific method of allocating those costs.

Some members of the workgroup then suggested collecting the data in a stepwise fashion. Variable costs and perhaps some fixed costs, such as capital expenditures and repair and maintenance costs, would be collected first. More extensive fixed costs could be collected later if it is determined that they are needed and can be used in a meaningful way.

The data needed to conduct community impact analyses was discussed next. Jeff Hartman indicated that tracking the flow of money (expenditure, wages, and residual income) is an important part of conducting community impact analyses. He also indicated that these data perhaps could be collected using different collection mechanism than the current surveys being developed. To help the workgroup and the Council better understand the level of detail that is needed to conduct these analyses, beyond that in the current survey, staff will work with economists that specialize in this area and report back at the next meeting. Staff will also report at the next meeting on the ownership structure of the crab catcher vessel fleet. This information was requested to better understand the level of corporate ownership in the fleet. That information will provide insight into the problems that will be encountered when trying to track residual income back to the residence of the owners of a corporation.

PSMFC staff (Dave Colpo) was present at the meeting to discuss issues related to third party data collection. Dave discussed the PSMFC expertise in area of data collection, manipulation, and storage. He also indicated that, to his knowledge, persons trying to access their data have never served PSMFC with a FOIA request. He also stated that he understood that because they are not a Federal agency they are outside of the FOIA statutes. As discussed at previous meetings, NOAA GC will be asked to comment on this issue.

A discussion was held regarding whether the third party would create blind data sets linking economic survey data, fish tickets, COAR, vessel registration files, etc., and then downloading the entire file to NMFS, ADF&G, and Council staff, or if they would provide only the data needed for a specific project each time it is requested. It was decided that the most efficient system would be to provide the entire linked data sets to each agency. They could then query the data sets to conduct their analyses. If questions arise when using the data, they would need to be resolved through PSMFC. While PSMFC staff can provide this level of support Dave indicated there are reasons that a more direct interaction between analyst and industry might be useful. If analysts could contact industry directly they will get a richer understanding of the data with which they are working which will aid in their analysis. Other members of industry supported the concept of keeping the identifiers hidden from the analysts. They felt that while it may result in inefficiencies for the analysts trying to resolve questions, it could also reduce the burden on industry by limiting the questions they would be asked that are ancillary to resolving issues associated with data accuracy.

With regards to blind data sets, there is some question as to how effective this technique will be in masking the identities of industry participants when providing data to the agencies. For example, the agencies will have copies of the original fish tickets as well as those with masked identifiers. It would be a relatively simple procedure to develop a table that links the true and the blind identifiers. Still, some members of industry feel that blind data set would provide some value if staff were prohibited, through regulation or statute, from matching data sets available to them to determine the true identity of an entity.

Dave also stated that he felt PSMFC could use the data verification protocol developed for the Pollock surveys. That protocol involves using an accounting firm agreed upon by the agency and industry to conduct random review of the data provided.

PSMFC also feels that protecting the confidentiality of the data is paramount. The more specific the rules describing who has access to the data the more comfortable they feel. They are sensitive to competitors, the general public, and non-authorized agency staff accessing to these data.

Four points major points were made by PSMFC staff at the meeting that are worth highlighting.

1. PSMFC has a long history of data collection from multiple sources for multiple agency use. It is efficient in doing so and avoids the “turf” battles that might result over who collects the data and for whom.
2. Efficiencies will be lost unless they are allowed to provide “data dumps” to the agencies without using blind codes and without aggregating the data.
3. If blind data are supplied to the agencies without being aggregated, the user could, if they wanted, easily determine the identity of the firm from other sources.
4. PSFMC can easily integrate data from other sources to reduce the burden of multiple reporting requirements.

Staff from the NMFS indicated that they would encourage the use of PSFMC to collect and maintain the data required by this program. They believe that PSMFC is in a position to complete that task as cheaply and accurately as any other agency.

Jeff Hartman asked whether the use of a third party would change the cost of the data collection program. Staff will report any additional information they gather on this question at the next meeting.

The Council asked the workgroup to consider whether they feel good estimates of crew days can be developed using fish tickets combined with crew license identifiers collected under this mandatory program. The workgroup felt that fairly reliable estimates could be made under an open access system using the season start date and the landing date on the fish ticket. However, under a rationalized fishery with extended seasons, additional information would need to be collected on the survey to estimate the number of crew days by vessel.

Members of the workgroup also noted that off-season hourly wages are currently not included in the survey and would be missed if not added.

Staff’s Tasks for the Next Meeting:

1. Staff will provide a draft of the paper being developed for the Council regarding collecting no, some, or all fixed cost data.

2. Provide a discussion of whether the ownership structure of the BSAI crab fleet is different from the SE AK salmon fleet. This relates to the analysts ability to assign residual income to a specific geographic location.
3. Ask that the NOAA GC and the State AG review of the MOU include the possibility of using a third party collection agent, and that PSMFC be consulted as a likely agent for that role. Indicate that this is a very important part of the data collection program and needs to be in place at the beginning of the data collection process.
4. Provide a discussion of setting up a protocol to collect data under mandatory system on an as needed basis. This program would collect data (for community impact analysis) when it is needed, instead of every year. The idea is to reduce the burden on members of industry, by collecting these data on a less frequent basis.
5. Work with other economists to report back on the level of detail, beyond the current surveys, that is needed to conduct community impact analyses.

Next Meeting:

The next meeting has not yet been scheduled. The chairmen will notify the workgroup when the meeting day has been selected.

DRAFT

Minutes from the November 19th Meeting of the Crab Rationalization Data Collection Workgroup.

Participation:

The following individuals were in attendance.

Terry Cosgrove *	Lew Queirolo	
Kevin Kaldestad*	Darrell Brannan	
John Garner*	Jeff Passer	
Arni Thompson	Ron Felthoven	
Glenn Reed*	Joe Terry	
Margaret Hall	Tom Casey	
Doug Wells*		Herman Savikko

Gary Painter*, Tom Meyer, and Dave Colpo were linked to the meeting via teleconference.

* Indicate official members of the workgroup that were appointed by the Council.

Terry Leitzell and Joe Plesha are also members of the workgroup but were unable to attend this meeting.

Meeting Summary:

The Data Collection Workgroup met November 19th. Staff gave presentations on the five assignments made at the previous meeting. Other presentations to the Workgroup were made by Jeff Passer (regarding enforcement issues), Tom Meyer (regarding legal issues), and Dave Colpo (regarding third party data collection).

Staff's first assignment was based on the Council's October motion. Staff was directed to develop a document that discussed collecting all, none, or some of the fixed cost data elements outlined in the draft surveys presented to the Council at their October meeting. That paper was provided to the workgroup just prior to the meeting. Because members of the workgroup received the document so close to the start of the meeting, they did not have adequate time to review the paper in order to provide feedback. Instead, staff provided an overview of the paper and indicated that comments received from members of the Workgroup would be considered and perhaps incorporated into the document if they are received by noon on November 25th. The Workgroup was notified that staff intends to release the document to the Council family on November 26th.

The second assignment was to compare the ownership structure of the SE Alaskan salmon fleet to the BSAI crab to see if they are comparable in terms of the level of corporate ownership. The comparison of the two fleets showed that the vessels operating in the BSAI crab fleet were primarily comprised of partnerships, companies, and corporations. Individuals were the primary owners of the SE Alaska salmon fishing fleet. Therefore, community impact analyses that rely on tracking “residual income” to an owner’s location of residence would require more detailed ownership information than is currently being considered in the surveys. In addition to collecting information on ownership structure that is already being contemplated, questions would also need to be asked regarding how income is distributed to individual owners and if all the “residual income” is distributed each year. Those questions are not a part of the current survey, and staff concurred that they would not seek residual income (net profit) from harvesters as part of the survey. That data is not requested because estimating the flow of income to residents of specific communities is problematic for the reasons identified by the crab vessel ownership patterns.

Assignment number three requested that NOAA GC and the State AG’s office continue work on the data sharing MOU and that it be reviewed in light of PSMFC being considered as the possible agent whose role would be to collect the data.

Tom Meyer (NOAA GC) presented the progress that has been made to date on this assignment. He and Steve White (State AG’s Office) have met and discussed the need to either revise the MOU or draft a new MOU specific to this program. Because this may well be a “one way” data-sharing program, a new MOU that defines how NMFS would share the data with specific state agencies/employees and the restrictions on how those agencies/employees could use the data may be appropriate.

Assignment four directed staff to provide a discussion on the development of a protocol that would mandate the collection of data necessary to study community impacts. This discussion was folded into the first assignment. The discussion paper states that this information could be collected under a mandatory program on a timeline that is different from the current program. It is possible that the information could be collected on a less frequent basis and only from a sample of the crab harvesting and processing sectors (instead of the entire population). During past meetings it has been noted that collection of some of this information is a task to be undertaken by the Council’s committee appointed to address community issues.

The fifth assignment directed staff to work with economists that specialize in constructing community impact analyses, and report back on the level of detail needed to construct those analyses beyond that already contained in the surveys. Staff held a conference call with other agency and university economists specializing in community impact analyses. During that call several pieces of information were discussed but no specific recommendations were made. After that meeting, a paper was developed by a NMFS economist listing specific data elements that would be used to conduct community impact analysis. That paper has had little review and was only released to the workgroup for their input. Members of the workgroup and agency staff do not believe that the

Council should take action on data needed for community impact analysis at their December meeting. They feel that additional time is needed to address this issue.

Jeff Passer, from NMFS enforcement, attended the meeting and provided his view of that agencies role in the data collection process. NOAA GC will need to have access to the raw data and the person supplying the data to enforce compliance with this program. Enforcement will work closely with the agency collecting the data to ensure that the program is functioning properly. They will likely set up an annual visit, at least during the first years of the program, with the entity collecting the data to review the collection procedures. Mr. Passer also noted that enforcement is not interested in receiving a “data dump”. They anticipate requesting only the data needed for a specific action.

Enforcement will only become involved in a case when they are notified of a problem (outside of information collected on the annual review of the program). If the data are collected using a third party and the data are issued to the agencies in a blind format, then it will be the responsibility of the group collecting the data to notify enforcement of problems as they arise. However, it is the hope of everyone that problems with the data can be rectified before enforcement has to become involved.

Members of the workgroup asked if enforcement could use the data for any enforcement action. They were told that if the data were available it could be used to verify other sources of information.

Enforcement also noted that for criminal prosecution of a case to occur, the government would need to prove that they intended to misreport information. Criminal trials make up a very small percentage of the cases. Most cases are civil trials that would result in fines being imposed.

Finally, members of the Data Collection Workgroup discussed the possibility of the third party providing analysts only aggregated data. Some industry members of the workgroup expressed interest in pursuing such a format while others did not. Members of the workgroup and other industry attendees held a vote during the meeting to request 1) that the Council require harvest vessel data to be aggregated by vessel length at 25’ increments; and 2) that all vessels greater than 150’ would be placed in the same size category, as would all vessels under a specific size. Agency economists did not participate in the vote. The industry vote ended in a tie, four in favor and four opposed, and therefore failed. However, members of the workgroup that voted for aggregation remain interested in the concept of releasing only aggregated data. They also felt that more information would need to be available before they could make a decision on this issue.

Next Meeting:

The next Data Collection Workgroup is scheduled for December 17 at 9:30am in the PSPA conference room. If the December Council meeting results in tasks that must be taken up by the workgroup, the meeting will include both industry and agency

representatives. If the Council does not take action on issues affecting the workgroup, the meeting may only be for members of the fishing industry.

DRAFT

Minutes from the January 14, 2003 Meeting of the Crab Rationalization Data Collection Workgroup.

Participation:

The following individuals were in attendance.

Gary Painter*	Tom Casey
Kevin Kaldestad*	Darrell Brannan
John Garner*	Joe Terry
Arni Thompson	Ron Felthoven
Terry Leitzell*	

Terry Cosgrove*, Tom Meyer, and Herman Savikko were linked to the meeting via teleconference.

* Indicate official members of the workgroup that were appointed by the Council.

Glenn Reed, Doug Wells, and Joe Plesha are also members of the workgroup but were unable to attend this meeting.

Meeting Summary:

John Garner called the meeting to order. Committee members that were present then approved the minutes from the November 19, 2002 meeting.

Members of the Workgroup then worked to finalize their positions for the report to be available at the Council's February meeting. The first issue discussed was what data should be collected under this program. All members of the workgroup agreed that only information from the crab portion of a vessel's/plant's fishing season should be included in the data collection program. The majority of the harvesters, that are members of the workgroup, indicated that they would prefer that only variable cost data be collected from vessels operating in the BSAI crab fisheries. Members of the catcher/processor fleet and the processing sector indicated that they would be willing to provide fixed cost data that are necessary to explain changes in variable costs in addition to variable cost data. One member of the harvesting sector felt that all fixed cost data should be included in the program. The workgroup was unable to reach a consensus position on this issue.

Aggregation of data was the second issue discussed by the workgroup. Members of the harvest sector stated that their position was that the data should be aggregated into groups

of 10-15 vessels before it is released, by the collecting agency, to the staff analysts at ADF&G, NMFS, or the NPFMC. The workgroup members did not provide a rationale for selecting aggregations of 10-15 vessels. Members of the catcher/processor and processing sectors indicated that aggregation of four plants or vessels would be adequate.

Agency staff members present at the meeting indicated that they still feel the data should not be aggregated before being released to the analysts. They have agreed that the data could be submitted to them in a “blind” format. They also agree that the data must be aggregated before being released to the general public. Staff members noted that if the data are to be aggregated it would be best for the agency staff to determine which plants/vessels would go in each aggregation. Members of the committee agreed that it would be appropriate for staff to define the aggregation methods, and that those methods could be changed as necessary. A suggestion was also made that in some cases it may be appropriate for the agency with access to the raw data to run models provided to them using the disaggregated data. Models could be developed and provided by staff members of the agencies that do not have access to the raw data.

John Garner notified the group that Tom Meyer (NOAA GC) had stated that it is legal to collect identifiers for members of the harvesting crew. This clarified a question raised at the last Council meeting regarding whether the NPFMC/NMFS had the authority to mandate the collection of SSNs or other individual identifiers of crewmembers. Members of the Workgroup had agreed at a previous meeting that they would supply these data, and they continue to hold that position. It was also agreed that the AP had requested crew information to help the public better understand the impacts of the crab rationalization program on persons working as crab harvesting crew. Staff also clarified that the surveys are currently only asking for crew SSNs, residence information, and aggregate crew wages for the vessel. Wages are not being requested for each individual member of the crew.

Use of the data to be collected was the next issue discussed. The general focus of the discussion was who would have access to the raw data, how they would gain access to the data, and for what purposes the data could be used. It was pointed out that if only aggregated data are released to agency staff, this issue becomes less important. Under that scenario, staff members within ADF&G, NMFS, and the NPFMC would not have access to confidential data. Therefore, the rules for use and release of the data could potentially be relaxed³. In any case, legal counsel for the agencies involved will develop an MOU that will require staff to sign an agreement in order to access the data. The MOU will also define the terms for using the data as well as penalties for its misuse.

Members of the workgroup requested that language in the enforcement document prepared by staff be changed to better reflect previous discussions on the issue. Staff agreed that they would change the language leading to the penalty phase of the program

³ Because the data are not confidential the same data used by the analysts could potentially be released or used by anyone.

from “intentional” submission of incorrect data to “willful and intentional” submission of incorrect data.

Tom Meyer provided a paper that discusses how data collected under this program could be made available to the arbitrator. The conclusion of that paper is that members of the fishing industry would need to sign a waiver, absent any changes to the current laws and regulations, for an arbitrator to access the data. Changes to the laws and regulations that would be needed were also discussed in the paper.

Tom Meyer also stated that a regulatory package that defines the data that will be collected is likely needed before changes can be made to protect the confidentiality of the data under the MSA. He also stated that confidentiality standards must be linked to the MSA if standalone legislation is developed for the crab rationalization program.

Members of the Workgroup noted that they did not think it would be helpful to separate fixed costs into recoverable and non-recoverable (“sunk” cost) categories. This addresses the Council’s request to consider collecting “sunk” costs as a subcategory of fixed costs. Members of the Workgroup were given a copy of a journal article that defined variable, fixed, and sunk costs.

Darrell Brannan was requested to follow-up with Mark Fina on whether the data collected under this program, in addition to other data that will be available, is adequate to meet the data needs for community impact analyses envisioned by the Community Protection Committee.

Appendix 3-6

09-09-02

Catcher Vessel Survey

This survey is intended to gather information principally on BSAI crab operations (including CDQ fisheries). The definition of terms used in each question/category in the survey is included in an Appendix at the end of this document. Using the Appendix will help to improve the clarity of the both the questions and your responses. You can tear off these last few pages and use them as you proceed through the survey.

Person Completing the Survey

Name: _____

Title: _____

Telephone Number: _____ FAX _____

E-mail address: _____

Vessel Information

Vessel name: _____

Owner: _____

USCG vessel ID: _____

ADF&G vessel ID: _____

Homeport: _____

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4.1 Vessel-Specific BSAI Crab Costs Record the costs incurred for this vessel only for the year's crab fisheries for each item in the TOTAL column.

COST CATEGORY	TOTAL
a. Insurance (hull, P&I and pollution)	
Season: _____	\$
b. Pot purchases	
City/Port and State: _____ Quantity _____	\$
City/Port and State: _____ Quantity _____	\$
City/Port and State: _____ Quantity _____	\$
c. Other crabbing gear and line purchases:	
City/Port and State: _____	\$
City/Port and State: _____	\$
City/Port and State: _____	\$
d. Bait	
Season: _____ City/Port: _____ Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$

e. <u>Fuel</u>	
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
f. <u>Lubrication and hydraulic fluids</u>	
Location: 1) City/Port: _____	\$
2) City/Port: _____	\$
3) City/Port: _____	\$
g. Other crew costs (food and provisions, transportation and housing, P&I claims, benefits, recruitment, training and education)	\$
h. Freight	\$
i. <u>Observer Costs</u>	
Season: _____	\$
j. Other crab-specific costs; specify: _____	\$

4.2 Vessel-Specific Costs Record the annual costs **for this vessel only** for each item in the TOTAL column. If the reported total should not be attributed solely to BSAI crab operations, please record the TOTAL and place an “X” in the “PRORATE OVER ALL ACTIVITIES?” column.

COST CATEGORY	TOTAL	PRORATE OVER ALL ACTIVITIES?
a. Principal payments	\$	
b. Interest payments	\$	
c. <u>Capital improvements in vessel and gear</u>		
1) City/Port and State: _____	\$	
2) City/Port and State: _____	\$	
3) City/Port and State: _____	\$	

COST CATEGORY	TOTAL	PRORATE OVER ALL ACTIVITIES?
d. <u>Maintenance and repair expenses for vessel and gear</u>		
1) City/Port and State: _____	\$	
2) City/Port and State: _____	\$	
3) City/Port and State: _____	\$	
e. Other vessel-specific costs; specify: _____ _____	\$	

5. BSAI Crab Crew Payment Details

5.1 Which of the following expenses were subtracted from total revenues (gross stock) before calculating the crew share? (Circle one number for each)

	DEDUCTED	NOT DEDUCTED
a. Fuel and lube _____	1	2
b. Food and provisions _____	1	2
c. Observer costs _____	1	2
d. Gear loss _____	1	2
e. Other (specify) _____	1	2

5.2 What percentage of the net share (gross stock minus the expenses indicated above in 5.1) went to:

- a. Boat Share _____%
- b. Crew Share (including skipper)..... _____%

5.3 Approximate the percentage of crew payments paid to persons who live in the following regions:

- a. Alaska _____%
- b. Oregon _____%
- c. Washington _____%
- d. Another US state..... _____%
- e. Foreign country..... _____%

Appendix: Survey Question Details

1. **SEASON:** record the name of one of the following management/quota areas: BS snow (opilio), Bristol Bay red king, Western AI brown, Eastern AI brown, Western AI red, BS Tanner (bairdi), Pribilof red and blue, St. Matthew blue.

OF DAYS AT SEA: record the total number of days you spent at sea during the specified season.

AVERAGE CREW SIZE: record the average number of crewmembers onboard for each trip taken in each of the BSAI crab fisheries.

2. **GRADE:** record the grade of the crab caught during the season using one of the following grades: #1, #2, #3. If multiple grades were caught, record the information for each grade on separate lines.

REVENUE: record the total payment you received (less any taxes paid to the buyer) for each species and grade/size landed. Include any post-seasonal adjustments you received.

3.1 **# OF CREW EARNING SHARES:** record the number of crewmembers who were paid according to a share system (as opposed to an hourly, daily, or trip wage).

TOTAL CREW SHARE PAYMENT: record the total payment made to all crewmembers paid on the share system, including the captain. Do not include other crew-related expenses (such as benefits, food and provisions, etc.) in the payment columns.

TOTAL CREW SHARE PAYMENT MINUS CAPTAIN’S SHARE: subtract the captain’s share payment off of the total share payment and record this value.

OF CREW EARNING WAGES: record the number of crewmembers who were paid a wage (as opposed to a share system).

TOTAL CREW WAGE PAYMENT: record the total payment made to all wage-earning crewmembers. Do not include other crew-related expenses in the payment column.

4.1 **a. INSURANCE (HULL, P&I AND POLLUTION):** the annual insurance premiums for this vessel for

the year, by crab season. If some insurance costs cannot be attributed to each crab season, enter these costs in Section 4.2.a.

b. POT PURCHASES: the total quantity and cost of pots purchased for the year, by location of purchase.

c. OTHER CRABBING GEAR AND LINE PURCHASES: the total expense on line, floats, and other fishing gear other than pots used in BSAI crab fishing, by location of purchase.

d. BAIT: the total quantity and cost of bait (by species) purchased in each season for the year, by location of purchase. If you caught a portion of your bait, do not list the location and estimate the cost of catching the bait, by species. If you received bait from a processor and this cost is already reflected in your reported catch revenues (i.e., you were paid less to reflect the bait given to you), do not record this as a bait cost here.

e. FUEL: the total quantity and cost of fuel used in crab fishing in each season, by location of purchase.

f. LUBRICATION AND HYDRAULIC FLUIDS: the total cost of lubrication & hydraulic fluids used in BSAI crab fisheries for the year.

g. OTHER CREW COSTS (FOOD AND PROVISIONS TRANSPORTATION AND HOUSING, P&I CLAIMS, BENEFITS, RECRUITMENT, TRAINING AND EDUCATION): record the resulting costs for these items that were borne solely by you. For example, if crew was charged to offset the cost of certain items, do not include these costs here.

h. FREIGHT: total expenses for having equipment/items used on this vessel (for BSAI crab only) shipped and stored on your behalf.

i. OBSERVER COSTS: record the sum of all expenditures incurred as a result of having observers onboard in each BSAI crab season for the year.

j. OTHER CRAB-SPECIFIC COSTS; SPECIFY: other costs specific to BSAI crab harvesting that are not included in the categories above (such as crab gear storage and transport expenses). Please specify the nature of the expense(s) and do not list costs to be recorded in Section 4.2 or the costs of permits, licenses, or IFQ fees (these costs can be determined internally by state and federal agencies).

4.2

a. PRINCIPAL PAYMENTS: the total annual payment made this year on the principal for outstanding debt related to this vessel.

b. INTEREST PAYMENTS: the total interest expense paid this year on outstanding debt related to this vessel.

c. CAPITAL IMPROVEMENTS IN VESSEL AND GEAR: the total annual expenditure on new equipment related to fishing, by location of purchase. Include improvements but exclude standard repairs and purchases that are necessary to conduct fishing operations. Exclude the pot and crabbing gear and line purchases listed above.

d. MAINTENANCE AND REPAIR EXPENSES FOR VESSEL AND GEAR: the total expenses for maintaining this vessel and repairing mechanical and physical problems with the vessel or (exclude improvements).

e. OTHER VESSEL-SPECIFIC COSTS; SPECIFY: record any other vessel-specific cost(s) that was not included in the categories above and not reported in the crab season-specific table (Section 4.1), such as port and harbor charges, or other insurance expenses. Please specify the nature of the expense(s) and do not list costs of permits, licenses, or IFQ fees (these costs can be determined internally by state and federal agencies).

Appendix 3-6

09-09-02

Shoreside Processor Survey

This survey is intended to gather information principally on BSAI crab operations (including CDQ fisheries). The definition of terms used in each question/category in the survey is included in an Appendix at the end of this document. Using the Appendix will help to improve the clarity of the both the questions and your responses. You can tear off these last few pages and use them as you proceed through the survey.

Person Completing the Survey

Name: _____

Title: _____

Telephone Number: _____ FAX _____

E-mail address: _____

Current Company and Plant Information

Plant Name: _____

Owner: _____

ADF&G processor ID: _____

Federal Plant ID: _____

Year Built: _____

Assessed Value (\$): _____

6.1 Plant-Specific BSAI Crab Costs Record the costs incurred for this plant only in the year's crab processing for each item in the TOTAL COST column.

COST CATEGORY	TOTAL COST
a. Total of fishery resource landing taxes, processing taxes, fisheries business taxes, borough and city taxes, where applicable (exclude property taxes)	\$
b. Fuel, electricity, lubrication, hydraulic fluids	\$
c. <u>Packaging materials and supplies</u>	
Location 1) City/Port and State: _____	\$
2) City/Port and State: _____	\$
3) City/Port and State: _____	\$
d. Other costs for direct crab labor (food and provisions, transportation and housing, P&I claims, benefits, recruitment, training and education)	\$
e. Re-packing costs	\$
f. <u>Broker fees and promotions for BSAI crab</u>	
Season: _____ Species: _____	\$
g. <u>Observer costs</u>	
Season: _____	\$
h. Freight	\$
i. Product storage, handling	\$
j. Water, sewer, waste and disposal	\$
k. Other crab-specific costs; specify: _____ _____	\$

6.2 Plant-Specific Costs Record the annual costs **for this plant only** for each item in the TOTAL column. If the reported total should not be attributed solely to BSAI crab processing, please record the TOTAL and place an “X” in the “PRORATE OVER ALL ACTIVITIES?” column.

COST CATEGORY	TOTAL	PRORATE OVER ALL ACTIVITIES?
a. Insurance	\$	
b. Property taxes	\$	
c. Principal payments for plant and equipment	\$	
d. Interest payments for plant and equipment	\$	
e. <u>Capital improvements in plant and equipment</u>		
Location 1) City/Port and State: _____	\$	
2) City/Port and State: _____	\$	
3) City/Port and State: _____	\$	
f. Maintenance and repair for existing plant and equipment	\$	
g. Salaries for foremen, plant managers and other plant-level employees in support of crab processing that are not included in the direct labor costs reported in Section 2.1 NUMBER OF EMPLOYEES: _____	\$	
h. Other plant-specific costs; specify: _____	\$	

7. BSAI Crab Custom Processing Revenue

PRODUCT INFORMATION	REVENUE
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$

8. Labor Payment Details

Approximately what percentage of total employee wages for BSAI crab processing were paid to persons who live in the following regions:

- f. Alaska _____%
- g. Oregon _____%
- h. Washington _____%
- i. Another US state _____%
- j. Foreign country _____%

Appendix: Survey Question Details

- 1.** **SEASON:** record the name of one of the following management/quota areas: BS snow (opilio), Bristol Bay red king, Western AI brown, Eastern AI brown, Western AI red, BS Tanner (bairdi), Pribilof red and blue, St. Matthew blue.

OF CRAB PROCESSING DAYS: record the total number of days spent processing BSAI crab in each season.

SPECIES: record the name of each species processed during the season. If multiple species were processed, record each species on a separate line.

PRODUCT: record the name of each product produced from the reported species, by season. If multiple products were produced from a given species, record the total for each on a separate line.

SIZE/GRADE: record the size and grade of each product produced from the reported species, by season. If different sizes or grades of a product were produced in a season, record the total for each on a separate line.

BOX SIZE: record the box size associated with each product. If different box sizes were produced, record the total amount for each box size on separate lines.

RAW POUNDS: record the number of raw pounds used in processing the specified products.

FINISHED POUNDS: record the number of finished pounds produced for each specified product.

CUSTOM PROCESSED (Y OR N)?: record custom and non-custom processing activities on separate lines. If the recorded production was custom work, enter a “Y” – otherwise enter a “N”.
- 2.1** **# OF CRAB POSITIONS:** record an estimate of the total number of employees engaged in, and in support of, crab processing in each 24 hour period, during each season. For example, if you typically had two shifts of 15 crab-designated laborers, you would record 30 crab positions.

TOTAL MAN-HOURS: record the sum of all hours worked by processing workers during the season.

TOTAL LABOR PAYMENT: record the total direct payment made to direct crab laborers. Exclude benefits and indirect expenses made on their behalf.
- 3.** **RAW POUNDS SUPPLIED:** record the number of raw pounds supplied to the custom processor for processing on your behalf.

FINISHED POUNDS: record the number of finished pounds of the specified product processed on your behalf.

PROCESSING FEE: record the total payment you made to custom processors for their BSAI crab processing services, by species and product.
- 4.** **GRADE/SIZE:** record the sizes/grades of the raw fish purchased each season, by species. If you purchased different sizes/grades of a particular species, record the total purchases for each on a separate line.

RAW POUNDS PURCHASED: record the total pounds of raw fish purchased in each season, by grade.

GROSS PAYMENT: record the total cost of the raw fish purchased in each season, by species and grade/size. Include any post-seasonal adjustments in the totals.
- 5.** **FINISHED POUNDS SOLD:** record the total pounds of each product sold in the year.

GROSS REVENUE (FOB ALASKA): record the total FOB Alaska revenue received for each product sold in the year.
- 6.1** **a. TOTAL OF FISHERY RESOURCE LANDING TAXES, FISHERIES BUSINESS TAXES, BOROUGH AND CITY TAXES, WHERE APPLICABLE:** the sum of all direct tax payments you made to a borough or the state of Alaska as a result of landing or processing BSAI crab for the year.

b. FUEL, ELECTRICITY, LUBRICATION & HYDRAULIC FLUIDS: the total annual cost of fuel, electricity, lubrication & hydraulic fluids used in BSAI crab processing, by location.

c. PACKAGING MATERIALS & SUPPLIES: the total cost of all materials used to package BSAI crab products processed by this plant.

d. OTHER COSTS FOR DIRECT CRAB LABOR (FOOD & PROVISIONS TRANSPORTATION AND HOUSING, P&I CLAIMS, BENEFITS, RECRUITMENT, TRAINING AND EDUCATION): record the resulting costs for these items that were borne solely by you. For example, if labor was charged to offset the cost of certain items, do not include these costs.

e. RE-PACKING COSTS: record the total cost of re-packing BSAI crab products processed by this plant.

6.1 (continued)

f. BROKER FEES AND PROMOTIONS FOR BSAI CRAB SALES: record the sum of all fees paid to brokers for sales and promotion of BSAI crab in the year.

g. OBSERVER COSTS: record all costs for having observers in your plant during BSAI crab processing.

h. FREIGHT: total expenses for having equipment/items used in this plant (for BSAI crab only) shipped and stored on your behalf. Do not include freight costs for product sales, as the sales revenues are to be reported on a FOB Alaska basis.

i. PRODUCT STORAGE, HANDLING: record the total amount paid to store and handle processed BSAI crab products during the year.

k. OTHER CRAB-SPECIFIC COSTS; SPECIFY: list the total cost of other expenditures incurred this year that were specific to BSAI crab processing not included in any of the other categories. Please specify the nature of the expense(s) and do not list costs to be recorded in Sections 6.2 or the costs of permits, licenses, or IFQ fees (these costs can be determined internally by state and federal agencies).

6.2

a. INSURANCE: the annual insurance premiums for this plant for the year.

b. PROPERTY TAXES: the sum of all property taxes levied on this plant for the year.

c. PRINCIPAL PAYMENTS FOR PLANT & EQUIPMENT: the total annual payments made for the year on the principal of outstanding debt related to this plant and its equipment.

d. INTEREST PAYMENTS FOR PLANT & EQUIPMENT: the total annual payments made for the year for interest on outstanding debt related to this plant and its equipment.

e. CAPITAL IMPROVEMENTS IN PLANT AND EQUIPMENT: the total annual capital expenditures on new equipment and improvements related to processing or storage, by location of purchase. Exclude standard repairs and purchases that are necessary to conduct operations.

f. MAINTENANCE & REPAIR EXPENSES FOR EXISTING PLANT AND EQUIPMENT: the total annual expenses for maintaining or repairing this plant and its equipment (exclude improvements) for the year.

h. OTHER PLANT-SPECIFIC COSTS; SPECIFY: list the total cost of all other plant-specific expenditures incurred this year that were not included in any of the other categories. Please specify the nature of the expense(s) and do not list costs recorded in Sections 6.1.

Appendix 3-6

09-09-02

Floating Processor Survey

This survey is intended to gather information principally on BSAI crab operations (including CDQ fisheries). The definition of terms used in each question/category in the survey is included in an Appendix at the end of this document. Using the Appendix will help to improve the clarity of the both the questions and your responses. You can tear off these last few pages and use them as you proceed through the survey.

Person Completing the Survey

Name: _____

Title: _____

Telephone Number: _____ FAX _____

E-mail address: _____

Plant Information

Plant name: _____

Owner: _____

USCG vessel ID: _____

ADF&G vessel ID: _____

3. BSAI Crab Custom Processing Costs

<u>CUSTOM BSAI CRAB PROCESSING DONE FOR YOU</u>					
SEASON	SPECIES	PRODUCT	RAW POUNDS SUPPLIED	FINISHED POUNDS	PROCESSING FEE

4. BSAI Crab Costs (include CDQ crab purchases)

SEASON	SPECIES	GRADE / SIZE	RAW POUNDS PURCHASED	GROSS PAYMENT

6.1 Plant-Specific BSAI Crab Costs Record the costs incurred for this plant only in the year's crab harvesting and processing for each item in the TOTAL COST column.

COST CATEGORY	TOTAL COST
a. Total of fishery resource landing taxes, fisheries business taxes, processing taxes, borough and city taxes, where applicable	\$
b. Fuel, electricity, lubrication, hydraulic fluids	\$
c. <u>Packaging materials and supplies</u>	
Location 1) City/Port and State: _____	\$
2) City/Port and State: _____	\$
3) City/Port and State: _____	\$
d. Other crew costs (food and provisions, transportation and housing, P&I claims, benefits, recruitment, training and education)	\$
e. Re-packing costs	\$
f. <u>Broker fees and promotions for BSAI crab sales</u>	
Season: _____ Species: _____	\$
g. <u>Observer Costs</u>	
Season: _____	\$
h. Freight	\$
i. Product storage, handling	\$
j. Waste and disposal	\$
k. Other crab-specific costs; specify: _____	\$

6.2 Vessel-Specific Costs Record the annual costs **for this vessel only** for each item in the TOTAL column. If the reported total should not be attributed solely to BSAI crab, please record the TOTAL and place an “X” in the “PRORATE OVER ALL ACTIVITIES?” column.

COST CATEGORY	TOTAL	PRORATE OVER ALL ACTIVITIES?
a. Insurance	\$	
b. Principal payments	\$	
c. Interest payments	\$	
d. <u>Capital improvements in vessel, gear and equipment</u>		
1) City/Port and State: _____	\$	
2) City/Port and State: _____	\$	
3) City/Port and State: _____	\$	
e. Maintenance and repair expenses for vessel, gear and equipment	\$	
f. Salaries for foremen, managers and other vessel-level employees not included in direct labor costs reported in 2.1 # OF EMPLOYEES: _____	\$	
g. Other vessel-specific costs; specify _____	\$	

7. BSAI Crab Custom Processing Revenue

PRODUCT INFORMATION	REVENUE
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$

8. Labor Payment Details

Approximately what percentage of total employee wages for BSAI crab processing were paid to persons who live in the following regions:

- k. Alaska _____%
- l. Oregon _____%
- m. Washington _____%
- n. Another US state _____%
- o. Foreign country _____%

Appendix: Survey Question Details

- 1.** **SEASON:** record the name of one of the following management/quota areas: BS snow (opilio), Bristol Bay red king, Western AI brown, Eastern AI brown, Western AI red, BS Tanner (bairdi), Pribilof red and blue, St. Matthew blue.

OF CRAB PROCESSING DAYS: record the total number of days spent processing BSAI crab in each season.

SPECIES: record the name of each species processed during the season. If multiple species were processed, record each species on a separate line.

PRODUCT: record the name of each product produced from the reported species, by season. If multiple products were produced from a given species, record the total for each on a separate line.

SIZE/GRADE: record the size and grade of each product produced from the reported species, by season. If different sizes or grades of a product were produced in a season, record the total for each on a separate line.

BOX SIZE: record the box size associated with each product. If different box sizes were produced, record the total amount for each box size on separate lines.

RAW POUNDS: record the number of raw pounds used in processing the specified products.

FINISHED POUNDS: record the number of finished pounds produced for each specified product.

CUSTOM PROCESSED (Y OR N)?: record custom and non-custom processing activities on separate lines. If the recorded production was custom work, enter a “Y” – otherwise enter a “N”.
- 2.1** **# OF CRAB POSITIONS:** record an estimate of the total number of employees engaged in, and in support of, crab processing in each 24 hour period, during each season. For example, if you typically had two shifts of 15 crab-designated laborers, you would record 30 crab positions.

TOTAL MAN-HOURS: record the sum of all hours worked by processing workers during the season.

TOTAL LABOR PAYMENT: record the total direct payment made to direct crab laborers. Exclude benefits and indirect expenses made on their behalf.
- 4.** **RAW POUNDS SUPPLIED:** record the number of raw pounds supplied to the custom processor for processing on your behalf.

FINISHED POUNDS: record the number of finished pounds of the specified product processed on your behalf.

PROCESSING FEE: record the total payment you made to custom processors for their BSAI crab processing services, by species and product.
- 4.** **GRADE/SIZE:** record the sizes/grades of the raw fish purchased each season, by species. If you purchased different sizes/grades of a particular species, record the total purchases for each on a separate line.

RAW POUNDS PURCHASED: record the total pounds of raw fish purchased in each season, by grade.

GROSS PAYMENT: record the total cost of the raw fish purchased in each season, by species and grade/size. Include any post-seasonal adjustments in the totals.
- 5.** **FINISHED POUNDS SOLD:** record the total pounds of each product sold in the year.

GROSS REVENUE (FOB ALASKA): record the total FOB Alaska revenue received for each product sold in the year.
- 6.1** **a. TOTAL OF FISHERY RESOURCE LANDING TAXES, FISHERIES BUSINESS TAXES, BOROUGH AND CITY TAXES, WHERE APPLICABLE:** the sum of all direct tax payments you made to a borough or the state of Alaska as a result of landing or processing BSAI crab for the year.

b. FUEL, ELECTRICITY, LUBRICATION & HYDRAULIC FLUIDS: the total annual cost of fuel, electricity, lubrication & hydraulic fluids used in BSAI crab processing, by location.

c. PACKAGING MATERIALS & SUPPLIES: the total cost of all materials used to package BSAI crab products processed by this plant.

d. OTHER COSTS FOR DIRECT CRAB LABOR (FOOD & PROVISIONS TRANSPORTATION AND HOUSING, P&I CLAIMS, BENEFITS, RECRUITMENT, TRAINING AND EDUCATION): record the resulting costs for these items that were borne solely by you. For example, if labor was charged to offset the cost of certain items, do not include these costs.

e. RE-PACKING COSTS: record the total cost of re-packing BSAI crab products processed by this plant.

6.1 (continued)

f. BROKER FEES AND PROMOTIONS FOR BSAI CRAB SALES: record the sum of all fees paid to brokers for sales and promotion of BSAI crab in the year.

g. OBSERVER COSTS: record all costs for having observers in your plant during BSAI crab processing.

h. FREIGHT: total expenses for having equipment/items used in this plant (for BSAI crab only) shipped and stored on your behalf. Do not include freight costs for product sales, as the sales revenues are to be reported on a FOB Alaska basis.

i. PRODUCT STORAGE, HANDLING: record the total amount paid to store and handle processed BSAI crab products during the year.

k. OTHER CRAB-SPECIFIC COSTS; SPECIFY: list the total cost of other expenditures incurred this year that were specific to BSAI crab processing not included in any of the other categories. Please specify the nature of the expense(s) and do not list costs to be recorded in Sections 6.2 or the costs of permits, licenses, or IFQ fees (these costs can be determined internally by state and federal agencies).

6.2

a. INSURANCE: the annual insurance premiums for this plant for the year.

b. PRINCIPAL PAYMENTS FOR PLANT & EQUIPMENT: the total annual payments made for the year on the principal of outstanding debt related to this plant and its equipment.

c. INTEREST PAYMENTS FOR PLANT & EQUIPMENT: the total annual payments made for the year for interest on outstanding debt related to this plant and its equipment.

d. CAPITAL IMPROVEMENTS IN PLANT AND EQUIPMENT: the total annual capital expenditures on new equipment and improvements related to processing or storage, by location of purchase. Exclude standard repairs and purchases that are necessary to conduct operations.

e. MAINTENANCE & REPAIR EXPENSES FOR EXISTING PLANT AND EQUIPMENT: the total annual expenses for maintaining or repairing this plant and its equipment (exclude improvements) for the year.

g. OTHER PLANT-SPECIFIC COSTS; SPECIFY: list the total cost of all other plant-specific expenditures incurred this year that were not included in any of the other categories. Please specify the nature of the expense(s) and do not list costs recorded in Section 6.1.

Appendix 3-6

09-09-02

Catcher-Processor Survey

This survey is intended to gather information principally on BSAI crab operations (including CDQ fisheries). The definition of terms used in each question/category in the survey is included in an Appendix at the end of this document. Using the Appendix will help to improve the clarity of the both the questions and your responses. You can tear off these last few pages and use them as you proceed through the survey.

Person Completing the Survey

Name: _____

Title: _____

Telephone Number: _____ FAX _____

E-mail address: _____

Vessel Information

Vessel name: _____

Owner: _____

USCG vessel ID: _____

ADF&G vessel ID: _____

Homeport: _____

2.1 BSAI Crab Labor Costs

Harvesting Labor:

SEASON	# OF CREW EARNING SHARES	TOTAL CREW SHARE PAYMENT	TOTAL CREW SHARE PAYMENT MINUS CAPTAIN'S SHARE

SEASON	# OF CREW EARNING WAGES	TOTAL CREW WAGE PAYMENT

Processing Labor: note: if some employees harvest and process crab, and are paid according to a share system and included in the payment above, do not include them in the following.

SEASON	# OF EMPLOYEES WITH PAY DETERMINED BY PROCESSING WORK	# OF CRAB PROCESSING POSITIONS	TOTAL MAN-HOURS	TOTAL PROCESSING LABOR PAYMENT

--	--	--	--	--	--

6.1 Vessel-Specific BSAI Crab Costs Record the costs incurred for this vessel only for the year's crab harvesting and processing for each item in the TOTAL COST column.

COST CATEGORY	TOTAL COST
a. <u>Insurance (hull, P&I and pollution)</u>	
Season: _____	\$
b. Total of fishery resource landing taxes, fisheries business taxes, processing taxes, borough and city taxes, where applicable	\$
c. <u>Pot purchases</u>	
City/Port and State: _____ Quantity _____	\$
City/Port and State: _____ Quantity _____	\$
City/Port and State: _____ Quantity _____	\$
d. <u>Other crabbing gear and line purchases:</u>	
City/Port and State: _____	\$
City/Port and State: _____	\$
City/Port and State: _____	\$
e. <u>Bait</u>	
Season: _____ City/Port: _____ Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Season: _____ City/Port: _____ Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$
Species: _____ Quantity: _____	\$

COST CATEGORY	TOTAL COST
f. <u>Fuel</u>	
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
Season: _____ City/Port: _____ Qty: _____	\$
g. <u>Lubrication and hydraulic fluids</u>	
Location: 1) City/Port: _____	\$
2) City/Port: _____	\$
3) City/Port: _____	\$
h. Other crew costs (food and provisions, transportation and housing, P&I claims, benefits, recruitment, training and education)	
i. <u>Packaging materials and supplies</u>	
Location 1) City/Port and State: _____	\$
2) City/Port and State: _____	\$
3) City/Port and State: _____	\$
j. Re-packing costs	\$
k. <u>Broker fees and promotions for BSAI crab sales</u>	
Season: _____ Species: _____	\$
l. <u>Observer Costs</u>	\$
Season: _____	\$

COST CATEGORY	TOTAL COST
m. Freight	\$
n. Product storage, handling	\$
o. Waste and disposal	
p. Other crab-specific costs; specify: _____ _____	\$

6.2 Vessel-Specific Costs Record the annual costs for this vessel only for each item in the TOTAL column. If the reported total should not be attributed solely to BSAI crab, please record the TOTAL and place an “X” in the “PRORATE OVER ALL ACTIVITIES?” column.

COST CATEGORY	TOTAL	PRORATE OVER ALL ACTIVITIES?
a. Principal payments	\$	
b. Interest payments	\$	
c. <u>Capital improvements in vessel, gear and equipment</u>		
1) City/Port and State: _____	\$	
2) City/Port and State: _____	\$	
3) City/Port and State: _____	\$	
d. <u>Maintenance and repair expenses for vessel, gear and equipment</u>		
1) City/Port and State: _____	\$	
2) City/Port and State: _____	\$	
3) City/Port and State: _____	\$	
e. Salaries for foremen, managers and other vessel-level employees not included in direct labor costs reported in 2.1 # OF EMPLOYEES: _____	\$	
f. Other vessel-specific costs; specify _____ _____	\$	

7. BSAI Crab Custom Processing Revenue

PRODUCT INFORMATION	REVENUE
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$
Species: _____ Product Form: _____	\$

8. Labor Payment Details

8.1 Which of the following expenses were subtracted from total revenues (gross stock) before calculating the crew share? (Circle one number for each)

	DEDUCTED	NOT DEDUCTED
a. Fuel and lube _____	1	2
b. Food and provisions _____	1	2
c. Observer costs _____	1	2
d. Gear loss _____	1	2
e. Other (specify) _____	1	2

8.2 What percentage of the net share (gross stock minus the expenses indicated above in 8.1) went to:

- a. Boat Share _____%
- b. Crew Share (including skipper)..... _____%

8.3 Approximate the percentage of crew payments paid to persons who live in the following regions:

- p. Alaska _____%
- q. Oregon _____%
- r. Washington _____%
- s. Another US state..... _____%
- t. Foreign country..... _____%

Appendix: Survey Question Details

1.1 SEASON: record the name of one of the following management/quota areas: BS snow (opilio), Bristol Bay red king, Western AI brown, Eastern AI brown, Western AI red, BS Tanner (bairdi), Pribilof red and blue, St. Matthew blue.

OF DAYS AT SEA: record the total number of days you spent at sea during the specified season.

AVERAGE CREW SIZE: record the average number of crewmembers onboard for each trip taken in each of the BSAI crab fisheries.

1.2 # OF CRAB PROCESSING DAYS: record the total number of days spent processing BSAI crab in each season.

SPECIES: record the name of each species processed during the season. If multiple species were processed, record each species on a separate line.

PRODUCT: record the name of each product produced from the reported species, by season. If multiple products were produced from a given species, record the total for each on a separate line.

SIZE/GRADE: record the size and grade of each product produced from the reported species, by season. If different sizes or grades of a product were produced in a season, record the total for each on a separate line.

BOX SIZE: record the box size associated with each product. If different box sizes were produced, record the total amount for each box size on separate lines.

RAW POUNDS: record the number of raw pounds used in processing the specified products.

FINISHED POUNDS: record the number of finished pounds produced for each specified product.

CUSTOM PROCESSED (Y OR N)?: record custom and non-custom processing activities on separate lines. If the recorded production was custom work, enter a “Y” – otherwise enter a “N.”

2.1

OF CREW EARNING SHARES: record the number of crewmembers who were paid according to a share system (as opposed to an hourly, daily, or trip wage).

TOTAL CREW SHARE PAYMENT: record the total payment made to all crewmembers paid on the share system, including the captain. Do not include other crew-related expenses (such as benefits, food and provisions, etc.) in the payment columns.

TOTAL CREW SHARE PAYMENT MINUS CAPTAIN’S SHARE: subtract the captain’s share payment off of the total share payment and record the value.

OF CREW EARNING WAGES: record the number of crewmembers who were paid a wage (as opposed to a share system).

TOTAL CREW WAGE PAYMENT: record the total payment made to all wage-earning crewmembers. Do not include other crew-related expenses in the payment column.

OF EMPLOYEES WITH PAY DETERMINED BY PROCESSING WORK: record the total number of employees whose pay was determined by their processing activities.

OF CRAB POSITIONS: record an estimate of the total number of employees engaged in, and in support of, crab processing in each 24 hour period, during each season. For example, if you typically had two shifts of 15 crab-designated laborers, you would record 30 crab positions.

TOTAL MAN-HOURS: record the sum of all hours worked by processing workers during the season.

TOTAL PROCESSING LABOR PAYMENT: record the total direct payment made to direct crab laborers engaged in processing. Exclude benefits and indirect expenses made on their behalf.

5.

RAW POUNDS SUPPLIED: record the number of raw pounds supplied to the custom processor for processing on your behalf.

FINISHED POUNDS: record the number of finished pounds of the specified product processed on your behalf.

PROCESSING FEE: record the total payment you made to custom processors for their BSAI crab processing services, by species and product.

4.

GRADE/SIZE: record the sizes/grades of the raw fish purchased each season, by species. If you purchased different sizes/grades of a particular species, record the total purchases for each on a separate line.

RAW POUNDS PURCHASED: record the total pounds of raw crab purchased in each season, by grade.

GROSS PAYMENT: record the total cost of the raw crab purchased in each season, by species and grade/size. Include any post-seasonal adjustments in the totals.

5.

FINISHED POUNDS: record the total pounds of each product sold in the year.

GROSS REVENUE (FOB ALASKA): record the total FOB Alaska revenue received for each product sold in the year.

6.1

a. INSURANCE (HULL, P&I AND POLLUTION): the annual insurance premiums for the year for this vessel, by crab season. If some insurance costs cannot be attributed to each crab season, enter these costs in Section 6.2.

b. TOTAL OF FISHERY RESOURCE LANDING TAXES, FISHERIES BUSINESS TAXES, BOROUGH AND CITY TAXES, WHERE APPLICABLE: the sum of all tax payments you made directly to a borough or the state of Alaska as a result of landing or processing BSAI crab for the year.

c. POT PURCHASES: the total quantity and cost of pots purchased for the year, by location of purchase.

d. OTHER CRABBING GEAR AND LINE PURCHASES: the total expense on line, floats, and other fishing gear other than pots used in BSAI crab fishing, by location of purchase.

e. BAIT: the total quantity and cost of bait (by species) purchased in each season for the year, by location of purchase. If you caught a portion of your bait, do not list the location and estimate the cost of catching the bait, by species. If you received bait from a processor and this cost is already reflected in your reported catch revenues (i.e., you were paid less to reflect the bait given to you), do not record this as a bait cost here.

f. FUEL: the total quantity and cost of fuel used in crab fishing for the year, by location of purchase.

g. LUBRICATION AND HYDRAULIC FLUIDS: the total cost of lubrication & hydraulic fluids used in BSAI crab fisheries for the year.

6.1 (continued)

h. OTHER CREW COSTS (FOOD AND PROVISIONS TRANSPORTATION AND HOUSING, P&I CLAIMS, BENEFITS, RECRUITMENT, TRAINING AND EDUCATION): record the resulting costs for these items that were borne solely by you. For example, if labor was charged to offset the cost of certain items, do not include these costs.

i. PACKAGING MATERIALS & SUPPLIES: the total cost of all materials used to package BSAI crab products processed by this vessel.

j. RE-PACKING COSTS: record the total cost of re-packing BSAI crab products processed by this vessel.

k. BROKER FEES AND PROMOTIONS FOR BSAI CRAB SALES: record the sum of all fees paid to brokers for sales and promotion of BSAI crab in the year.

l. OBSERVER COSTS: record all costs for having observers on your vessel during BSAI crab processing.

m. FREIGHT: total expenses for having equipment/items used on this vessel (for BSAI crab only) shipped and stored on your behalf. Do not include freight costs for product sales, as the sales revenues are to be reported on a FOB Alaska basis.

n. PRODUCT STORAGE, HANDLING: record the total cost of storing processed BSAI crab products during the year.

p. OTHER CRAB-SPECIFIC COSTS; SPECIFY: list the total cost of other expenditures incurred this year that were specific to BSAI crab processing not included in any of the other categories. Please specify the nature of the expense(s) and do not list costs to be recorded in Section 6.2 or the costs of permits, licenses, or IFQ fees (these costs can be determined internally by state and federal agencies).

6.2 a. PRINCIPAL PAYMENTS: the total annual payment made this year on the principal for outstanding debt related to this vessel.

b. INTEREST PAYMENTS: the total interest expense paid this year on outstanding debt related to this vessel.

c. VESSEL AND GEAR IMPROVEMENTS: the total annual expenditure on new equipment related to fishing, by location of purchase. Include improvements but exclude standard repairs and purchases that are necessary to conduct fishing operations. Exclude the pot and crabbing gear and line purchases listed above.

d. VESSEL AND GEAR MAINTENANCE AND REPAIR EXPENSES: the total expenses for maintaining this vessel for fishing, and for repairing mechanical and physical problems with the vessel or equipment (exclude improvements).

f. OTHER VESSEL-SPECIFIC COSTS; SPECIFY: record any other vessel-specific cost(s) that was not included in the categories above and not reported in the crab season-specific table (Section 4.1), such as port and harbor charges, or other insurance expenses.

Appendix 3-6

Sections 7 and 8

Section 7: Potential uses of the industry's September 5th data proposal

This section of the appendix provides a discussion of some specific questions that are likely to be of interest to the Council and of the analysts' ability to answer those questions given the industry's September 5th data collection proposal (see Appendix 3-6, Section 6 for the submitted documents). As will be shown in more detail below (in Table 3-7.7.1), some of the questions can be addressed adequately and some cannot. Presumably in response to the limited analyses that could be performed with the data provided in the September proposals, in October the Council moved to evaluate three alternatives that mandate the collection of all variable cost data and varying degrees of fixed cost data. In all fairness to industry, they had submitted their proposals before the direction was provided at the October Council meeting, and again have agreed to provide whatever data the Council deems appropriate.

Without information on all input costs and revenues a firm's profitability cannot be estimated. Therefore, based on the September proposal, the profitability of the industry, sectors within the industry, or firms within each sector, cannot be estimated. Quasi-rents could be estimated, but just for the BSAI crab operations of a firm, and the role of rationalization in any observed cost changes could not be distinguished with confidence. Technical efficiency and productivity of firms within the industry cannot be accurately estimated without measures of all the inputs used in harvesting and processing crab. Cost efficiency of firms cannot be estimated without accompanying measures of the quantity (or price) of the inputs used. Community impact analysis cannot be undertaken without information on the location, price, and quantity of input purchases. Finally, with the data that industry has proposed to provide, it will not be possible to provide accurate estimates of net benefits¹ to the Council for use in RIRs.

Questions that could be answered with the data in the September 5th proposal are those regarding the number of employees (direct labor only) in the crab fishery, the cost of employing those individuals, changes in ownership patterns and structure, changes in vertical integration, quasi-rents earned solely in the BSAI crab portion of a firm's business, and the value of QS transfers. The ability to quantify changes in these areas would, however, represent an improvement over our current state of knowledge.

The following table shows issues that the Council may wish to see addressed in their reports, the information that would be available given the September 5th industry proposals and existing data bases, how well that information can address the issues, and the additional data that would be required to perform a satisfactory analysis². The measures to be estimated were taken from Section 2 in Appendix 3-6.

¹Recall that net benefit analyses compute producer surplus (total revenue minus total costs excluding transfer payments [e.g., taxes, grants, etc.]) and consumer surplus within the US economy.

² The "additional data needed" is that which is generally accepted as a required element of the model(s) typically used by economists to construct each objective measure. Other data elements may be incorporated to enhance one's confidence in the estimate, but these elements are omitted here.

Table 3-7.7.1 Economic measures, data, and confidence in estimate

Measures	Data Collected (<i>italics</i> indicate industry proposed data)	Additional Data Needed from Industry	Confidence in Estimate without this Additional Data
<i>Issue: Excess Harvesting and Processing Capacity and Low Economic Returns</i>			
Harvesting capacity and capacity utilization (CU)	Harvest levels per vessel, time spent fishing, number of active vessels, <i>some variable input costs</i>	Complete variable input costs and quantities, "fixed costs" related to capital (R&M and new purchases) and salaried employees	Fishery participation and activity can be monitored, but standard CU measures cannot be adequately constructed.
Processing capacity and capacity utilization	Processing levels per plant, time spent processing, number of active plants, <i>variable input costs and quantities</i>	"Fixed costs" related to capital (R&M and new purchases) and salaried employees	Processing activity can be monitored, and <i>technical</i> capacity and CU measures can be constructed with some caveats ³ .
Harvesting sector profit for BSAI crab only (total revenue - total cost)	A firm's revenue and <i>some variable input costs from the BSAI crab fishery only</i>	Complete fixed and variable cost data	Cannot be estimated because some variable costs and all fixed costs would not be provided.
Harvesting sector quasi rent for BSAI crab only (total revenue - total variable cost)	A firm's revenue and <i>some variable input costs from the BSAI crab fishery only</i>	Complete variable input costs and quantities, "fixed costs" related to capital (R&M and new purchases) and salaried employees	Rough estimates for the BSAI crab portion of a firm's operation could be provided.
Processing sector profit for BSAI crab only	A firm's revenue and <i>some variable input costs (and quantities) from BSAI crab processing only</i>	Complete fixed and variable cost data	Cannot be estimated because fixed costs would not be provided.
Processing sector quasi rent for BSAI crab only	A firm's revenue and <i>variable input costs (and quantities) from BSAI crab processing only</i>	"Fixed costs" related to capital (R&M and new purchases) and salaried employees	Estimates for the BSAI crab portion of a firm's operation could be provided
Harvesting sector productivity and efficiency	Catch levels, fishing weeks, pot lifts, <i>some variable input cost data</i>	Complete variable input costs and quantities, "fixed costs" related to capital (R&M and new purchases) and salaried employees	Reliable estimates of productivity, technical efficiency, and allocative cost efficiency cannot be developed without measures of input use to accompany the cost data

³A distinction is drawn here between *technical* and *economic* capacity (and CU) estimates. As discussed earlier, economic capacity estimates reflect the extent to which costs are minimized through utilization of capacity, and thus provide a richer interpretation. Technical capacity (and CU) estimates indicate the extent to which a firm is producing near their maximum physical output level, regardless of cost.

Table 3-7.7.1(Cont.) Economic measures, data, and confidence in estimate

Measures	Data Collected (<i>italics</i> indicate industry proposed data)	Additional Data Needed from Industry	Confidence in Estimate without this Additional Data
Processing sector productivity and efficiency	Production levels, <i>crab purchases</i> , weeks processing crab, <i>variable input cost and quantity data</i>	Costs related to capital (R&M and new purchases) and salaried employees	Estimates of productivity, technical efficiency, and allocative cost efficiency can be developed; data on capital expenditures/value are required for good estimates
Management costs	Will not rely on data collected from industry	None	Good estimates can be provided by agencies.
<i>Issue: Lack of Economic Stability for Harvesters, Processors and Coastal Communities</i>			
Distribution of catch and ex-vessel revenue by vessel class (e.g., length class and type), port of landing, and residence	Revenue, fish tickets, <i>ownership, and employment data (for direct labor)</i>	None	Good estimates can be made with the data sources listed
Distribution of processed product revenue by community and processor or processor category (size, ownership, location)	Revenue, fish tickets/RAM landings, <i>ownership, and employment data (for direct labor)</i>	None	Good estimates can be made with the data sources listed
Distribution of profits and quasi rents within and between the harvesting and processing sectors	Revenue, <i>some BSAI crab variable costs</i> , and plant/owner location data	Complete variable and fixed costs	Profits cannot be estimated. Quasi rents in BSAI crab (with caveats) could be assigned to plant/ vessel
Distribution of harvester use rights by vessel class	RAM QS data	None	Good estimates can be made
Distributions of harvester and processor use rights by processor or processor category	RAM QS data	None	Good estimates can be made
Seasonality of catch and ex-vessel revenue by vessel class, port of landing, and residence	Fish tickets/RAM <i>landings data, revenue, ownership data</i>	None	Good estimates can be made
Processor ownership interest in BSAI crab catcher vessels and harvester QS/catch history	<i>Ownership data</i> , RAM QS data	None	Good estimates can be made
Catcher vessel ownership interest in BSAI crab processors and processing QS/catch history	<i>Ownership data</i> , RAM QS data	None	Good estimates can be made

Table 3-7.7.1(Cont.) Economic measures, data, and confidence in estimate

Measures	Data Collected (<i>italics</i> indicate industry proposed data)	Additional Data Needed from Industry	Confidence in Estimate without this Additional Data
Concentration of domestic and foreign ownership in the BSAI crab harvesting and processing sectors	<i>Ownership data/MARAD data.</i>	None. Assumes information that links companies to parent companies will be collected	Would need to collect as part of the ownership data or be allowed to access MARAD data.
Level and distribution of harvesting and processing sector employment and payments to labor (number of individuals, hours/days worked, and income)	<i>Aggregate employment data for direct labor</i>	Need estimates of hours/days worked, labor cost estimates need to be separated into payments to labor and other labor costs (benefits, training, etc.)	Estimates of labor costs (not wages) and the number of individuals employed would be provided. Hours/days worked would be problematic, and labor payments would have to be imputed from total labor costs
Degree of involvement of BSAI crab harvesters and processors in other AK fisheries	RAM QS data, fishtickets, NMFS Blend data, COAR	None	Good estimates can be made with the listed data sources
Value of use right	RAM Transfer data	None, assuming RAM tracks transfer prices	Reasonable estimates could be made if RAM tracks the value of transfers
Regional economic impacts (employment and income) of the BSAI crab fisheries	<i>No data is currently available with industry proposals</i>	Location, quantity, and cost of all purchases made by crab harvesters and processors	Cannot be estimated
<i>Issue: High Levels of Loss of Life and Injury</i>			
Vessel safety	USCG vessel safety statistics and NIOSH data	None	Reasonable estimates can be made
Number of days at sea by weather risk level	Fish tickets and weather service data	Information on specific days at sea	Difficult to estimate because we cannot determine the specific days at sea
Pots carried or fished per trip by vessel class	Only pot limit and buoy tag data are available	Information on the number of pots fished	Could not estimate the number of pot fished - especially under an IFQ system

Some members of industry have expressed concern that the data collection elements proposed by agency economists will be used to study the profits of individual firms, and that the information might be used in the future to redistribute harvest rights. While it may be possible for that to occur⁴, the questions agency economists are tasked with addressing are rarely concerned with the profits of a single firm. Economic analyses generally focus on “*exploring the ins and outs of how society’s pool of scarce resources (.natural resources, technology, labor, capital goods, managerial talents) can be utilized to produce a stream of goods and services that produce the greatest consumer and societal fulfillment*” (Thompson, 1985).

In producing RIRs for the Council and SOC, analysts are required to estimate the action’s impact on net benefits to the Nation, which does not elicit information in individual plants, vessels, or firms. The Council has also asked for periodic reports on the success of the crab rationalization program. The estimates contained in such reports also do not require the release of individual records. Therefore, none of the information gathered as part of this process would be presented in public documents or reports that would identify the profitability of a vessel/processor/firm. All information would be presented in aggregate to preserve the confidentiality of the participants in the fishery.

⁴The Council may begin an FMP amendment for a fishery when problems are brought to their attention that they feel warrant action on their part.

Section 8: Effects of aggregation in economic analyses

It is clear that aggregating the results of analyses based upon confidential data is a prudent step, as it protects the identities of all parties involved, yet allows for public discussion of the results. Furthermore, aggregating results obtained from analyses in no way compromises the quality of work, types of methods that can be used, or one's confidence in the results. The same cannot be said, however, when the underlying data used to construct analyses is aggregated. Aggregating data prior to analyses gives rise to several problems that limit analysts' ability to understand the effects of rationalization.

Diminished Ability to Verify the Accuracy of Data

When data is only examined at an aggregate level, one is unable to spot data anomalies that may lie within particular observations. Data anomalies would only be obvious if the underlying error is quite large, and would likely go unobserved in other cases. Even in cases where the suspected error were sufficiently large to raise questions, the analyst would be unaware of the specific source that gave rise to the anomaly, which would make it more difficult to track down. Finally, observations which contain outliers (i.e., those which are reported correctly, yet differ greatly from other observations within the sample) cannot be distinguished, interpreted, or handled differently from more representative data points when constructing models or providing descriptive statistics.

Inability to Discern Distributional Impacts

The use of aggregate data does not allow the analyst to describe the number of firms that "gained" or "lost" according to a particular metric (e.g., quasi-rents, profits, productivity, efficiency) – only the net outcome can be expressed. Therefore, it is not possible to determine with certainty whether a majority of firms are better or worse off because of a particular policy action. An obvious result of not being able to discern the number of firms that gained and the number that lost is an inability to explain why that pattern came about. This would make it difficult to adapt policies in response to unintended effects (effects which may be immeasurable, coincidentally, if analysis relies upon aggregated data) .

Furthermore, when data is aggregated according to a particular rationale (say, by size class), it is not possible to restructure the data according to other groupings that may be of interest to the Council. Only if all vessels within the aggregated groups share the characteristics of the other groupings can one change the point of reference for the analysis.

Limited Ability to Conduct Statistical Analyses

While aggregate data might provide some useful information for tracking the economic performance (e.g., total quasi-rents for each group or averages across groups) it would not be very useful for policy analysis. With access to only a limited number of observations, one cannot estimate the statistical models that allow analysts to isolate the effects of policies from other external effects (such as market or stock effects). In order to clarify the role of observations within statistical models, the following discussion is provided.

Economic theory is concerned with explaining the relationships among economic variables and using that information to explain, evaluate, and/or predict production, allocation, and distribution decisions. The economic variables typically considered when analyzing production decisions are the inputs used, the output obtained, and the prices paid or received for the inputs and outputs, respectively. This process typically involves specifying a "model" that characterizes the salient aspects of a particular process or decision. The model defines the general relationships to be examined, and relies upon data on observed choices and factors affecting those choices to provide information on relationships of interest.

One motivation for constructing models, as opposed to merely observing each factor in a production or decision making process in isolation, is that several influential factors may change simultaneously and one

cannot distinguish the role (or the relative importance) each may have played on the observed outcome. In such cases, one is unable to give a qualitative or anecdotal description of why the observed result came about. One may be able to use *a priori* judgement about the effect of each factor in isolation, but the collective effect of simultaneous factors that may each have different and/or offsetting impacts cannot be deciphered.

Fortunately, a statistical model allows one to incorporate several important factors (or “variables”) that collectively determine an outcome, and structure the roles of these variables to reflect the nuances of the situation being examined. The basic structure chosen to characterize these relationships is called the “specification”, which may be thought of as a definition of the variables that affect the decision being examined and the way in which they are involved.

The primary role of the data used in a model is to contribute information to estimate and quantify the role or effect of each variable on the decision. This information then allows one to estimate the overall effects that would arise when multiple variables change simultaneously, or predict the outcome that is likely to occur when the variables take on particular values. Because each data point used in the model represents an observed outcome and gives the corresponding value of the variables that affect that outcome, having more data points generates more evidence to characterize the role and relative magnitude of each variable in the relationship under study. Thus, the quality of the information obtained from the model depends crucially upon the number of observations one has to rely upon.

Once the relationship between outcomes and each influential variable has been estimated, one can construct estimates of the likely outcome that would occur if particular values of the influential variables were to arise. For example, if one has a good estimate of the way (direction and magnitude) in which fishing costs are affected by input prices and stock conditions, and a mechanism to monitor changes in those variables, one can identify the costs changes that arise from other impacts such as a changes in the management of the fishery (e.g., rationalization). One can isolate these external impacts because one is simultaneously accounting for any changes in the other salient variables that affect harvesting costs.

The role of each variable in the model is identified by examining statistical correlations between its value and the associated outcome. The benefit of estimating the relationships in this way is that the strength of the correlations can be quantified in order to assess one’s confidence in the estimated relationships, or define a range of values in which the estimates are very likely to lie (“confidence intervals”). However, the precision of the estimated relationships is dependent on the number of data points (outcomes and their influential variables) one observes, and the confidence in, and precision of, estimates diminishes with fewer observations. In this way, it is typically the number of observations available to the analyst that limits the complexity and realism of a model, and one’s confidence in the conclusions that may be drawn.

As a result, by aggregating data on production decisions over one or more firms, one immediately diminishes a model’s ability to accurately characterize the relationships of interest as well as the certainty and precision of one’s estimates. Furthermore, restrictions not associated with the loss of observations are also imposed through aggregation. Specifically, rather than looking at individual decisions and the state of the factors that effect them, one looks at the net outcome of a multitude of decisions and states of nature. Reliance on a “representative” data set therefore masks reality, requires one to assume that all firms are affected identically by changes in the influential variables, and necessitates that large costs incurred by one firm and benefits gained by another go unaccounted.

It is worth emphasizing, however, that the benefits of firm-level data in models (increased precision, robustness, and confidence in the estimated relationships) need not be offset by concerns regarding the release of the confidential data when the results of the model are reported. One can present results of a

models at various levels of aggregation (focusing on groups of interest) -- as though the firm-level detail was never there. The essential difference, however, is that much more information (based on actual decisions) went into establishing the relationships described by the model, even though the level of sensitive detail shown in the model results is identical.

Bias Arising from Incorrect Aggregation

Up to this point, the discussion has centered on the limited analyses that can be conducted with aggregate data, and has not focused on issues related to the way in which data are aggregated. These issues have their roots in economic theory, and are therefore more difficult to convey without use of mathematics, but can be summarized as follows. There are assumptions implicitly made when one groups together multiple vessels or plants, which, if incorrect, can severely bias the results of the economic model one is constructing. Typical assumptions that must hold, for example, are that all plants/vessels and decision making entities are “identical” (in terms of their costs, risk preferences, the type of technology they use, etc.). When such assumptions are not valid, the aggregation leads to erroneous results.

The economics literature provides a vast discussion of the problems associated with aggregating over firms or individuals. Two well-written books on production theory provide complete chapters on issues related to aggregation bias (Chambers 1988, and Cornes 1992). Many journal articles have also been written on this topic. Examples include Crown (1990), DeBeaumont and Singell (1999), Derrick and Wolken (1985), De Serres, Scarpetta and de la Maisonneuve (2001), Fortin (1991), Gupta (1971), Kymn (1990), Lai (1991), May Lee (1997), Lee, Pesaran and Pierse (1990), Lewbel (1992), Lovell (1973), Lovell *et al.* (1988), Mittelhammer *et al.* (1996), Mozayeni (1998), Olsen (2000), Pesaran *et al.* (1994), Shumway and Davis (2001), Teulings (2000), and Thomas and Tauer (1994).

An Empirical Example of Aggregation Bias

The literature cited above contains many examples of aggregation bias, but in an attempt to provide an example directly related to the fishing industry (and crab in particular), we provide the following. In October 2002, the Alaska Fisheries Science Center compiled a report that provided quantitative estimates of fishing capacity for the vessels that participated in federally managed Alaskan fisheries in 2001 (NMFS, 2002). The estimates computed in the report used vessel-level data to estimate what each vessel could have caught, by species, if they targeted the same species as in 2001, but fished the maximum number of weeks they had ever fished (over the 1990-2001 period). Once estimates were computed for each vessel, vessels were categorized according to vessel type, gear and other factors (e.g., target species, vessel length, license type). Table 3-7.8.1 below shows the capacity estimates for the group of catcher vessels using pot gear for Pacific Cod and crab. Estimates in the “Disaggregated Data” column were computed with individual vessel observations, using the methodology described above. Estimates in the “Aggregate Data” column were computed by taking the means for each of the variables used in the former calculations to create an aggregate capacity estimate for each species.

Table 3-6.8.1 Capacity estimates based on aggregated and disaggregated data

Species	Aggregate Data	Disaggregated Data	% Difference
Pacific Cod	25,869.4	27,781.0	-6.9%
Golden King Crab	3,656.3	4,930.0	-25.8%
Red King Crab	4,623.8	12,104.0	-61.8%
Lanner Crab	13,691.3	35,495.0	-61.4%

As can be seen in the third column, the capacity estimates based on aggregated and disaggregated data are substantially different (especially for each crab species). Although the potential bias that may arise in a model is dependent upon the degree of heterogeneity in the fleet under study (which is masked by only examining means or totals), it is evident that the crab fleet has enough heterogeneity to be affected. With that in mind, the potential for creating such biases through aggregation represents a significant concern that should be considered when designing and implementing the mandatory data collection.

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The following incorporates the preferred Bering Sea Crab Rationalization Program Alternatives – established at the Council’s June 2002, October 2002, December 2003, January/February 2003, April 2003, February 2004, and June 2004 meetings. Unless otherwise noted, the provisions were adopted at the June 2003 meeting. This motion advances a VOLUNTARY THREE PIE COOPERATIVE, designed to recognize the prior economic interests and importance of the partnership between harvesters, processors and communities.

BSAI Crab Rationalization Problem Statement

Vessel owners, processors and coastal communities have all made investments in the crab fisheries, and capacity in these fisheries far exceeds available fishery resources. The BSAI crab stocks have also been highly variable and have suffered significant declines. Although three of these stocks are presently under rebuilding plans, the continuing race for fish frustrates conservation efforts. Additionally, the ability of crab harvesters and processors to diversify into other fisheries is severely limited and the economic viability of the crab industry is in jeopardy. Harvesting and processing capacity has expanded to accommodate highly abbreviated seasons, and presently, significant portions of that capacity operate in an economically inefficient manner or are idle between seasons. Many of the concerns identified by the NPFMC at the beginning of the comprehensive rationalization process in 1992 still exist for the BSAI crab fisheries. Problems facing the fishery include:

Resource conservation, utilization and management problems;
Bycatch and its' associated mortalities, and potential landing deadloss;
Excess harvesting and processing capacity, as well as low economic returns;
Lack of economic stability for harvesters, processors and coastal communities; and
High levels of occupational loss of life and injury.

The problem facing the Council, in the continuing process of comprehensive rationalization, is to develop a management program which slows the race for fish, reduces bycatch and its associated mortalities, provides for conservation to increase the efficacy of crab rebuilding strategies, addresses the social and economic concerns of communities, maintains healthy harvesting and processing sectors and promotes efficiency and safety in the harvesting sector. Any such system should seek to achieve equity between the harvesting and processing sectors, including healthy, stable and competitive markets.

Elements of the Crab Rationalization Program

Harvesting Sector Elements

Harvester shares shall be considered a privilege and not a property right.

1.1 Crab fisheries included in the program are the following fisheries subject to the Federal FMP for BSAI crab:

Bristol Bay red king crab
Brown king (AI Golden king) crab
Adak (WAI) red king crab – West of 179° W
Pribilof Islands blue and red king crab
St. Matthew blue king crab
Opilio (EBS snow) crab
Bairdi (EBS Tanner) crab

3. Exclude the EAI Tanner, WAI Tanner, Dutch Harbor (EAI) red king crab, and Adak (WAI) red king crab east of 179° West longitude.
- 1.2 Persons eligible to receive an initial allocation of QS must be:
 - Option 1. Any person that holds a valid, permanent, fully transferable LLP license.
 - 1.3 Categories of QS/IFQs
 - 1.3.1 Crab Fishery Categories - QS/IFQs will be assigned to each of the crab fisheries included in the program as identified in paragraph 1.1 except Dutch Harbor red king, EAI Tanner, and WAI Tanner and WAI red king crab east of 179° West longitude.
 - 1.3.1.1 Brown king crab (AI golden king crab) option.
 - Option 1. Split into two categories: Dutch Harbor (EAI) brown king crab (east of 174° W long.) and Western Aleutian Islands brown king crab (west of 174° W long.).
 - 1.3.2 Harvesting sector categories - QS/IFQs will be assigned to one of the following harvesting sector categories:
 - a. catcher vessel (CV), or
 - b. catcher/processor (CP)

QS-IFQ for the Catcher/Processor sector is calculated from the crab that were both harvested and processed onboard the vessel. This shall confer the right to harvest and process crab aboard a catcher processor in accordance with section 1.7.2.
 - 1.3.3 Processor delivery categories - QS/IFQs for the CV sector shall be assigned to the following two processor delivery categories (the percentage split between class A/B shares is defined under the Processing Sector Elements, 2.4):
 - (a) Class A – allow deliveries only to processors with unused PQs
 - (b) Class B – allow deliveries to any processor, except catcher processors
 - 1.3.4 Regional Categories - QS/IFQs for the CV sector is assigned to regional categories. The two regions are defined as follows (see Regionalization Elements for a more detailed description of the regions):

North Region - All areas on the Bering Sea north of 56° 20' N. Latitude.

South Region - All areas not included in the North Region.
 - 1.4 Initial allocation of QS
 - 1.4.1. Calculation of initial QS distribution will be based on legal landings excluding deadloss.
 - (a) Calculation of QS distribution. The calculation is to be done, on a vessel-by-vessel basis, as a percent of the total catch, year-by-year during the qualifying period. Then the sum of the yearly percentages, on a fishery-by-fishery basis, is to be divided by the number of qualifying years included in the qualifying period on a fishery-by-fishery basis to derive a vessel's QS.

For each of the fisheries for which such a vessel holds valid endorsement for any years between the sinking of the vessel and the entry of the Amendment 10 replacement vessel to the fishery and was active as of June 10, 2002, allocate QS according to 50% of the vessel's average history for the qualifying years unaffected by the sinking.

Additional Sunken Vessel Provision (from December 2002 motion)

The following provision would apply to persons whose eligibility to replace their vessel was initially denied under PL 106-554. The sunken vessel must have been replaced with a newly constructed vessel and have been under construction by June 10, 2002, and participated in a Bering Sea crab fishery by October 31, 2002 for a person to receive a benefit under this provision.

For each of the fisheries for which such a vessel holds a valid endorsement, for all seasons between the sinking of the vessel and the entry of the replacement vessel to the fishery within the IRS replacement period (as extended by the IRS, if applicable) allocate QS according to 50 percent of the vessel's average history for the qualifying years unaffected by the sinking. Construction means the keel has been laid.

(b) Basis for QS distribution.

Option 1. For eligibility criteria in paragraph 1.2, the distribution of QS to the LLP license holder shall be based on the catch history of the vessel on which the LLP license is based and shall be on a fishery-by-fishery basis. The underlying principle of this program is one history per vessel.

(Option 1) Persons who have purchased an LLP, with GQP, EQP and RPP qualifications to remain in a fishery may obtain a distribution of QS on the history of either the vessel on which the LLP is based or on which the LLP is used, NOT both. License transfers for purposes of combining LLPs must have occurred by January 1, 2002.

(Old Option 3) In cases where the fishing privileges (i.e. moratorium qualification or LLP license) of an LLP qualifying (i.e. GQP, EQP, RPP and Amendment 10 combination) vessel have been transferred, the distribution of QS to the LLP shall be based on the aggregate catch histories of (1) the vessel on which LLP license was based up to the date of transfer, and (2) the vessel owned or controlled by the LLP license holder and identified by the license holder as having been operated under the fishing privileges of the LLP qualifying vessel after the date of transfer. Only one catch history per LLP license. The only catch histories that may be credited by transfer under this suboption are the individual catch histories of vessels that generate a valid permanent fully transferable LLP license.

1.4.2. Qualifying Periods for Determination of the QS Distribution:

1.4.2.1 Opilio (EBS snow crab)

Option 4. 1996 - 2000 (5 seasons)
a. Best 4 seasons

1.4.2.2 Bristol Bay red king crab

Option 3. 1996 - 2000 (5 seasons)
a. Best 4 seasons

1.4.2.3 Bairdi (EBS Tanner crab)

Option 2. 91/92 - 1996 (best 4 of 6 seasons)

1.4.2.4 and 1.4.2.5 Pribilof red and blue king crab

Option 2. 1994 - 1998
b. Drop one season

1.4.2.6 St. Matthew blue king crab

Option 2. 1994 - 1998
b. Drop one season

1.4.2.7 Brown king crab (based on biological seasons)
(Options apply to both Dutch Harbor (EAI) and Adak western Aleutian Island brown king crab)

Option 4. 96/97 2000/01 (all 5 seasons)

Suboption: Award each initial recipient QS based on:
b. historical participation in each region.

1.4.2.8 Adak (WAI) red king crab - west of 179° west long.

Option 1. 1992/1993 – 1995/1996 (4 seasons)
d. Best 3 seasons

1.5 Annual allocation of IFQs:

1.5.1 Basis for calculating IFQs:

Option 2. Convert GHL to a TAC and use the TAC as the basis.

1.6 Transferability and Restrictions on Ownership of QS/IFQs:

1.6.1 Persons eligible to receive QS/IFQs by transfer:

Option 2. US citizens who have had at least:
(b). 150 days of sea time

Option 3. Entities that have a U. S. citizen with 20% or more ownership and at least:
(b). 150 days of sea time

Suboption: Initial recipients of harvesting quota share grandfathered
*Definition of sea time

Option 1. Sea time in any of the U.S. commercial fisheries in a harvesting capacity.

Option 4. Allow a CDQ organization to be exempted from the restriction for the 150 days of sea time requirement under 1.6 Transferability and Restrictions on Ownership of QS/IFQs.

1.6.2 Leasing of QS (leasing is equivalent to the sale of IFQs without the accompanying QS.)
Leasing is defined as the use of IFQ on vessel which QS owner holds less than 10% ownership of vessel or on a vessel on which the owner of the underlying QS is present:

Option 1. Leasing QS is allowed with no restrictions during the first five years after program implementation.

1.6.3 Separate and distinct QS Ownership Caps - apply to all harvesting QS categories pertaining to a given crab fishery with the following provisions:

- a. Initial issues that exceed the ownership cap are grandfathered at their current level as of June 10, 2002; including transfers by contract entered into as of that date.
- b. Apply individually and collectively to all QS holders in each crab fishery;
- c. Percentage-cap options for the Bristol Bay red king crab, Opilio, Bairdi, Pribilof red and blue king crab and St. Matthew blue king crab fisheries (a different percentage cap may be chosen for each fishery):

Option 4. 1.0% of the total QS pool for Bristol Bay red king crab.

- Option 5. 1.0% of the total QS pool for Opilio crab.
- Option 6. 1.0% of the total QS pool for Bairdi crab.
- Option 7. 2.0% of the total QS pool for Pribilof red and blue king crab.
- Option 8. 2.0% of the total QS pool for St. Matthew blue king crab.

- d. A percentage-cap of 10% is adopted for the Dutch Harbor (EAI) brown king crab, and a 10% cap for western Aleutian Island (Adak) brown king crab.
- e. A percentage-cap of 10% is adopted for WAI (Adak) red king crab west of 179° West longitude.

Harvest Share Ownership Caps for CDQ Groups (from the February 2003)

The following ownership caps shall apply to CDQ ownership of crab QS

Bristol Bay red king crab	5%
Bering Sea opilio crab	5%
Bering Sea bairdi crab	5%
Pribilof red and blue king crab	10%
St. Matthew blue king crab	10%
EAI brown king crab	20%
WAI red king crab	20%
WAI brown king crab	20%

In addition, the Council shall apply the individual and collective rule for calculation of the CDQ ownership caps, under which the holder of an interest in an entity will be credited with holdings in proportion to its interest in the entity.

1.6.4 Controls on vertical integration (ownership of harvester QS by processors):

Option 2: A cap of 5% with grandfathering of initial allocations as of June 10, 2002, including transfers by contract entered into as of that date.

Option 3: Vertical integration ownership caps on processors shall be implemented using both the individual and collective rule using 10% minimum ownership standards for inclusion in calculating the cap. PQS ownership caps are at the company level.

Processor Holdings of Harvest Shares (A/B Share Issue) (from the April 2003 motion)

Crab harvester QS held by IPQ processors and persons affiliated with IPQ processors will only generate class A annual IFQ, so long as such QS is held by the IPQ processor or processor affiliate.

IPQ processors and affiliates will receive class A IFQ at the full poundage appropriate to their harvesters QS percentage.

Independent (non-affiliated) harvesters will receive class B IFQ pro rata, such that the full class B QS percentage is allocated to them in the aggregate.

“Affiliation” will be determined based on an annual affidavit submitted by each QS holder. A person will be considered affiliated, if an IPQ processor controls delivery of a QS holder’s IFQ.

Catcher Processor Elements

1.7.2.1.1 Catcher/Processors shall be granted CP-QS in the same manner as catcher vessels.

1.7.2.3 Allowance for Catcher/Processors:

Option 2. Catcher/Processors are allowed to purchase additional PQS from shore based processors as well as PQS from other Catcher/Processors as long as the crab is processed within 3 miles of shore in the designated region.

Option 4. Catcher/Processors may sell unprocessed crab to any processor

Option 5. Only catcher processors that both caught and processed crab onboard their qualifying vessels in any BSAI crab fishery during 1998 or 1999 will be eligible for any CP QS in any IFQ or Coop program.

Option 6. CP-QS initially issued to a catcher/processor shall not be regionally or community designated.

Option 8. The CP sector is capped at the aggregate level of initial sector-wide allocation.

1.7.2.4 Transfers to shore-based processors:

c. Catcher/Processors shall be allowed to sell CP/QS as separate Catcher Vessel QS and PQS. The shares shall be regionally designated when sold (both shares to same region).

Other Harvester Options

1.7.3 Catch accounting under IFQs - All landings including deadloss will be counted against IFQs. Options for treatment of incidental catch are as follows:

Option 4. Discards of incidentally caught crab will be allowed

Option 5. Request ADF&G & BOF & BOF/NPFMC Joint Protocol Committee to address concerns of discard, highgrading, incidental catch and need for bycatch reduction and improved retention in season with monitoring to coincide with implementation of a crab rationalization program.

1.7.4 Use caps on IFQs harvested on any given vessel are provided for those vessels not participating in a voluntary cooperative described under section 6.1.:

Option 1.

c. Two times the ownership cap:

2.0% for BS Opilio crab

2.0% BB red king crab

2.0% BS bairdi crab

4.0% for Pribilof red and blue king crab

4.0% for St. Matthew blue king crab

20% for EAI (Dutch Harbor) brown king crab

20% for Adak (WAI) brown king crab

20% for Adak (WAI) red king crab west of 179° West longitude

1.8.1 Options for captain and crews members (from December 2002 motion):

1.8.1.2 Percentage to Captain:

1. Initial allocation of 3% shall be awarded to qualified captains as C shares.

a. Allocation from QS pool

1.8.1.3 Species specific:

1. As with vessels.

1.8.1.4 Eligibility:

Option 1

1. A qualified captain is determined on a fishery by fishery basis by
 - 1) having at least one landing in 3 of the qualifying years used by the vessels and
 - 2) having recent participation in the fishery as defined by at least one landing per season in the fishery in two of the last three seasons prior to June 10, 2002.

Suboption: For recency in the Adak red king, Pribilof, St. Matthew, and bairdi fisheries a qualified captain must have at least one landing per season in the opilio, BBRKC, or AI brown crab fisheries in two of the last three seasons prior to June 10, 2002 (operators of vessels under 60 feet are exempt from this requirement for the Pribilof red and blue king crab fishery).

2. A captain is defined as the individual named on the Commercial Fishery Entry Permit.

For captains who died from fishing related incidents, recency requirements shall be waived and the allocation shall be made to the estate of that captain. All ownership, use, and transfer requirements would apply to C shares awarded to the estate.

1.8.1.5 Qualification period:

1. As with vessels.

1.8.1.6 Distribution per captain:

1. C QS based on landings (personal catch history based on ADF&G fish tickets) using harvest share calculation rule.

Regionalization and Class A/B Designation

- Option 2: C shares shall be a separate class of shares not subject to the Class A share delivery requirements during the first three years. But, at the end of three years, C shares shall be subject to A/B designations with regionalization unless the Council determines (after review) not to impose these designation.

Initial Allocation Regionalization

If C shares are regionalized, at the initial allocation regional designations shall be made based on the captain's history, with an adjustment to the allocation to match the PQS regional ratio made based on the same scheme used for regional adjustment of harvest shares.

1.8.1.7 Transferability criteria:

1. Purchase of C QS.
 - a. C QS may be purchased only by persons who are
 - Option 1. US citizens who have had at least 150 days of sea time in any of the US commercial fisheries in a harvesting capacity and
 - Option 2. active participants

An “active participant” is defined by participation as captain or crew in at least one delivery in a crab fishery included in the rationalization program in the last 365 days as evidenced by ADF&G fish ticket, affidavit from the vessel owner, or evidence from other verifiable sources.

2. C share leasing
 - a. C QS are leasable for the first three seasons a fishery is prosecuted after program implementation.
 - b. In cases of hardship (injury, medical incapacity, loss of vessel, etc.) a holder of C shares may lease C QS, upon documentation and approval, (similar to CFEC medical transfers) for the term of the hardship/disability for a maximum of 2 years over a 10 year period.

1.8.1.8 Loan program for crab QS

A low-interest rate loan program consistent with MSA provisions, for skipper and crew purchases of QS, shall be established for QS purchases by captains and crew members using 25% of the Crab IFQ fee program funds collected. These funds can be used to purchase A, B, or C shares.

Loan funds shall be accessible by active participants only.

Any A or B shares purchased under the loan program shall be subject to any use and leasing restrictions applicable to C shares (during the period of the loan).

National Marine Fisheries Service (NOAA Fisheries) is directed to explore options for obtaining seed money for the program in the amount of \$250,000 to be available at commencement of the program to leverage additional loan funds.

1.8.1.9 Captain/Crew on Board requirements

- 1) Holders of captain QS or qualified lease recipients are required to be onboard vessel when harvesting IFQ.
- 2) C QS ownership caps for each species are
Option 2. the same as the vessel use caps for each species

C share ownership caps are calculated based on the C QS pool (i.e. section 1.7.4). Initial allocations shall be grandfathered.

- 3) Use caps on IFQs harvested on any given vessel shall not include C shares in the calculation.

1.8.1.10 C/P Captains

Captains with C/P history shall receive C/P C QS at initial issuance. C/P C shares shall carry a harvest and processing privilege.

Option 3. C/P C shares may be harvested and processed on C/Ps or harvested on catcher vessels and delivered to shore based processors.

1.8.1.11 Cooperatives

C share holders shall be eligible to join cooperatives.

C shares shall be included in the IFQ fee program.

1.8.2 Overage Provisions for the Harvesting Sector:
Allowances for overages during last trip:

Option 2. Overages up to 3% will be forfeited. Overages above 3% results in a violation and forfeiture of all overage.

1.8.3 AFA Vessel Option. Eliminate harvester sideboard caps.

1.8.5 Sideboards (from December 2002 motion as revised in the June 2004 motion).

Option 1 (a): Non-AFA vessels that qualify for QS in the rationalized opilio crab fisheries would be limited to their GOA groundfish catch history excluding sablefish. The sideboards would be based on the history of vessels subject to the caps, applied in aggregate, on an area specific basis, and apply jointly to both the vessel and the license.

Combine options 2 and 3: Vessels with less than 100,000lbs total opilio history during the qualifying years and more than 500MT of total cod history during the qualifying years would be exempt from the sideboard cap.

Option 4: Vessels with less than 50MT total groundfish landings in the qualifying period would be prohibited from participating in the GOA cod fishery.

Sideboards will expire on rationalization of the Gulf of Alaska.

2. Processing Sector Elements

Processor shares shall be considered a privilege and not a property right.

2.1 Eligible Processors - processors (including catcher-processors) eligible to receive an initial allocation of processing quota shares (PQs) are defined as follows:

(a.)U.S. corporation or partnership (not individual facilities) that processed crab during 1998 or 1999, for any crab fishery included in the IFQ program.

Hardship provisions for processors that did not process crab in 1998 or 1999 but meet the following provisions:

- A processor (not Catcher/Processor) that processed opilio crab in each season between 1988 and 1997 and
- Invested significant capital in the processing platform after 1995, will be determined to be a qualified processor.
- Significant capital is defined as a direct investment in processing equipment and processing vessel improvements in excess of \$1 million.

2.2 Categories of Processing Quota Shares

2.2.1 Crab fishery categories - processing quota shares shall be issued for the same crab species identified in Section 1.1

2.2.2 Regional categories - processing quota shares will be categorized into two regions (see Regionalization Elements for description of regions):

Northern Region - All areas on the Bering Sea north of 56° 20' N. latitude

Southern Region - All areas not in the Northern region

2.3 Initial allocation of processing quota shares

Option 1. Processing quota shares shall be initially issued to Eligible Processors based on three-year average processing history¹ for each fishery, determined by the buyer of record listed on ADF&G fish tickets, as follows:

- (a) 1997 - 1999 for Bristol Bay red king crab
- (b) 1996 - 1998 for Pribilof red and blue king crab,
- (c) 1996 - 1998 for St. Matthew blue crab
- (d) 1997 - 1999 for opilio crab
- (e) EBS bairdi crab based on 50/50 combination of processing history for BBRKC and opilio
- (f) 1996/97 - 1999/00 seasons for brown king crab
- (g) The qualifying years for issuance of IPQ in the Adak (WAI) red king crab fishery west of 179° West longitude will be:

Option B. Based on Western Aleutian Islands brown king crab IPQ

Option 4. If the buyer can be determined, by NMFS using the State of Alaska Commercial Operators Annual Report, fish tax records, or evidence of direct payment to fishermen, to be an entity other than the entity on the fish ticket, then the IPQ shall be issued to that buyer.

2.4 Percentage of season's GHL or TAC for which IPQs are distributed:

2.4.1 IPQs will be issued for a portion of the season's GHL or TAC for each species to provide open delivery processing as a means to enhance price competition:

Option 3. 90% of GHL (or TAC) would be issued as IPQs - the remaining 10% would be considered open delivery.

2.5 Implementation of the open delivery-processing portion of the fishery:

Catcher vessel QS/IPQs are categorized into Class A and Class B shares. Purchases of crab caught with Class A shares would count against IPQs while purchases of crab caught with Class B shares would not. Crab caught with Class B shares may be purchased by any processor on an open delivery basis.

2.6 Transferability of processing shares - provisions for transferability include the following:

- a. Processing quota shares and IPQs would be freely transferable, including leasing
- b. IPQs may be used by any facility of the eligible processor (without transferring or leasing)
- c. Processing quota shares and IPQs categorized for one region cannot be transferred to a processor for use in a different region.
- d. New processors may enter the fishery by purchasing IPQ or by purchasing Class B Share crab or by processing CDQ crab.

2.7 Ownership and use caps –

2.7.1 Ownership caps

Option 4. No ownership to exceed 30% of the total PQS pool on a fishery by fishery basis with initial issuees grandfathered.

PQS ownership caps should be applied using the individual and collective rule using 10% minimum ownership standards for inclusion in calculating the cap. PQS ownership caps are at the company level.

2.7.2 Use Caps.

Option 3. In the Northern Region annual use caps will be at 60% for the opilio crab fishery.

¹The three-year average shall be the three-year aggregate pounds purchased by each Eligible Processor in a fishery divided by the three-year aggregate pounds purchased by all Eligible Processors in that fishery.

2.8 Other Optional Provisions:

The crab processing caps enacted by Section 211(c)(2)(A) of the AFA would be terminated

Binding Arbitration System (from February 2003 motion, revised by the June 2004 motion)

The Council adopts the following elements for a system of binding arbitration to resolve failed price negotiations.

1. The Standard for Arbitration

The primary role of the arbitrator shall be to establish a price that preserves the historical division of revenues in the fisheries while considering relevant factors including the following:

- a. Current ex vessel prices (including prices for Class A, Class B, and Class C shares recognizing the different nature of the different share classes)
- b. Consumer and wholesale product prices for the processing sector and the participants in the arbitration (recognizing the impact of sales to affiliates on wholesale pricing)
- c. Innovations and developments of the different sectors and the participants in the arbitration (including new product forms)
- d. Efficiency and productivity of the different sectors (recognizing the limitations on efficiency and productivity arising out of the management program structure)
- e. Quality (including quality standards of markets served by the fishery and recognizing the influence of harvest strategies on the quality of landings)
- f. The interest of maintaining financially healthy and stable harvesting and processing sectors
- g. Safety
- h. Timing and location of deliveries
- i. Reasonable underages to avoid penalties for overharvesting quota and reasonable deadloss

2. Market Report

An independent market analyst selected by the mutual agreement of the sectors will present to both sectors and all designated arbitrators an analysis of the market for products of that fishery.

3. Selection of the Arbitrator(s) and Market Analyst

The market analyst and arbitrator(s) will be selected by mutual agreement of the PQS holders and the QS holders. PQS holders collectively must agree and QS holders collectively must agree. Processors may participate collectively in the selection process. The details of the selection will be decided at a later time.

4. Shares subject to binding arbitration

This binding arbitration system shall address price disputes between holders of delivery restricted IFQ (including Class A IFQ and Class C IFQ when subject to delivery restrictions) and holders of IPQ. Binding arbitration does not apply to the negotiation of price for deliveries under the class B IFQ and Class C IFQ when not subject to delivery restrictions. C share holders, however, may elect to participate in the arbitration process prior to delivery restrictions taking effect.

5. Shares of processor affiliates

Participation of processor affiliates in binding arbitration as IFQ holders will be determined by any applicable rules governing anti-trust. Any parties eligible for collective bargaining under the Fishermen's Cooperative Marketing Act of 1934 (FCMA) will be eligible to participate collectively as a member of that FCMA co-op in binding arbitration. No antitrust exemption should be made to enable processor affiliated IFQ holders to participate in arbitration.

6. Payment of the arbitration and market analysis

The payment for the market analysis and the arbitrators will be shared by the two sectors. Cost shall be shared by all participants in all fisheries.

For shared costs, the payment of those costs shall be advanced by IPQ holders. The IPQ holders will collect the IFQ holders' portion of the shared costs by adding a pro rated surcharge to all deliveries of Class A crab.

7. Quality dispute resolution

In cases where the fisherman and the processor cannot come to agreement on quality and thus price for crab, two mechanisms are suggested for resolving the price dispute-after the processor has processed the crab (to avoid waste from dumping the load at sea): (1) In cases where fishermen and processors have agreed to a formula based price, the two parties would take their normal shares of the price, after the disputed load is sold. (2) This type of dispute would most likely apply in cases where fishermen desire to stay with fixed dockside prices and there is disagreement on quality and therefore price. These cases could be referred to an independent quality specialist firm. The two parties in dispute would decide which firm to hire.

8. Data used in arbitration

Under any arbitration structure, the arbitrator must have access to comprehensive product information from the fishery (including first wholesale prices and any information necessary to verify those prices).

Subject to limitations of antitrust laws and the need for proprietary confidentiality, all parties to an arbitration shall have access only to information provided to the arbitrator(s) or panel for that arbitration directly by the parties to that arbitration. Access to information by a harvester participating in an arbitration will be limited to information submitted by itself and the processor. All participants to an arbitration shall sign a confidentiality agreement stating they will not disclose any information received from the arbitrator.

Data collected in the data collection program may be used to verify the accuracy of data provided to the arbitrator(s) in an arbitration proceeding. Any data verification will be undertaken only if the confidentiality protections of the data collection program will not be compromised.

9. Enforcement of the Arbitration Decision

The decision of the arbitrator will be enforced by civil damages

10. Oversight and administration of the Binding Arbitration system.

Oversight and administration of the binding arbitration should be conducted in a manner similar to the AFA cooperative administration and oversight. System reporting requirements and administrative rules should be developed in conjunction with the Council and NOAA Fisheries after selection of the preferred program.

The structure for the system of Binding Arbitration system shall be as described below:

LAST BEST OFFER BINDING ARBITRATION

GENERAL

The Last Best Offer Model provides a mechanism to resolve failed price and delivery negotiations efficiently in a short period before the opening of the season. The Model includes the following specific characteristics:

1. Processor-by-processor. Processors will participate individually and not collectively, except in the choice of the market analyst and the arbitrator/arbitration panel.
2. Processor-affiliated shares. Participation of processor-affiliated shares will be limited by the current rules governing antitrust matters.
3. Arbitration standard. The standard for the arbitrator is the historic division of revenues between harvesters and processors in the aggregate (across the entire sectors), based on arm's-length first wholesale prices and ex-vessel prices (Option 4 under "Standard for Arbitration" in the staff analysis). The arbitrator shall consider several factors including those specified in the staff analysis, such as current ex vessel prices for both A, B and C Shares, innovations, efficiency, safety, delivery location and timing, etc.
4. Opt-in. An IFQ holder may opt in to any contract resulting from a completed arbitration for an IPQ holder with available IPQ by giving notice to the IPQ holder of the intent to opt in, specifying the amount of IFQ shares involved, and acceptance of all terms of the contract. Once exercised, an Opt-in is binding on both the IPQ holder and the IFQ holder.
5. Performance Disputes. Performance and enforcement disputes (e.g. quality, delivery time, etc.) initially will be settled through normal commercial contract dispute remedies. If those procedures are unsuccessful, the dispute will be submitted for arbitration before the arbitrator(s). If those procedures are unsuccessful and in cases where time is of the essence, the dispute will be submitted for arbitration before the arbitrator(s). The costs of arbitration shall be paid from the fees collected, although the arbitrator(s) will have the right to assign fees to any party for frivolous or strategic complaints.
6. Lengthy Season Approach. For a lengthy season, an IPQ holder and an IFQ holder (or group of IFQ holders) may agree to revise the entire time schedule below and could agree to arbitration(s) during the season. That approach may also be arbitrated pre-season if the holders cannot agree.

PROCESS

1. Negotiations and Voluntary Share Matching.

At any time prior to the season opening date, any IFQ holders may negotiate with any IPQ holder on price and delivery terms for that season (price/price formula; time of delivery; place of delivery, etc.). If agreement is reached, a binding contract will result for those IFQ and IPQ shares. IPQ holders will always act individually and never collectively, except in the choice of the market analyst (which may occur at any time pre-season) and the arbitrator/arbitration panel for which all IFQ and IPQ holders will consult and agree.

2. Required Share-Matching and Arbitration.

Beginning at the 25-day pre-season point, IFQ holders may match up IFQ shares not already subject to contracts with any IPQ shares not under contract, either as collectively as part of an FCMA cooperative or as individual IFQ holders (the offered IFQ Shares must be a substantial amount of the IFQ Holder(s)' uncontracted shares). The IPQ holder must accept all proposed matches up to its non-contracted IPQ share amount. All IFQ holders "matched" with an IPQ holder will jointly choose an arbitrator with that IPQ holder. The matched share holders are committed to the arbitration once the arbitrator is chosen (if the parties wish, the arbitrator may initially act as a mediator to reach an agreement quickly). Arbitration must begin no later than 15 days before the season opening date.

3. Data.

The Arbitrator will gather relevant data independently and from the parties to determine the historical distribution of first wholesale crab product revenues (at FOB point of production in Alaska) between harvesters and processors in the aggregate (across the entire sectors). For a vertically integrated IPQ holder (and in other situations in which a back-calculation is needed), the arbitrator will work with that

IPQ holder and the IFQ holders to determine a method for back-calculating an accurate first wholesale price for that processor. The Arbitrator will receive a pre-season market report from the market analyst, and may gather additional data on the market and on completed arbitrations. The Arbitrator will also receive and consider all data submitted by the IFQ holders and the IPQ holder. The Arbitrator will not have subpoena power.

4. Arbitration Decisions.

Arbitration will be based on a “last best offer” system, with the Arbitrator choosing one of the last best offers made by the parties. The Arbitrator will work with the IPQ and IFQ holders to determine the matters that must be included in the offer (e.g. price, delivery time & place, etc.) and will set the date on which “last best offers” must be submitted. The last best offers may also include a price over a specified time period, a method for smoothing prices over a season, and an advance price paid at the time of delivery.

If several groups or individual IFQ Holders have “matched” with that IPQ Holder, each of them may make a last best offer. Prior to submission of the last-best offers, the Arbitrator may meet with parties, schedule joint meetings, or take any actions aimed at reaching agreement. The Arbitrator will notify the IPQ holder and the IFQ holders of the Arbitration Decision no later than 10 days before the season opening date. The Arbitration Decision may be on a formula or ex-vessel price basis. The Arbitration Decision will result in a contract for the IPQ holder and the IFQ holders who participated in arbitration with that IPQ holder.

5. Post-Arbitration Opt-In.

Any IFQ holder with shares not under contract may opt in to any contract resulting from an Arbitration Decision for an IPQ holder with IPQ that is not under contract, on all of the same contract conditions (price, time of delivery, etc.). If there is a dispute regarding whether the “opt in” offer is consistent with the contract, that dispute may be decided by the arbitrator who will decide only whether the Opt-in is consistent with the contract.

6. (deleted)

7. Non-Binding Price Arbitration (from the April 2003 motion)

There will be a single annual fleet-wide arbitration to establish a non-binding formula under which a fraction of the weighted average first wholesale prices for the crab products from each fishery may be used to set an ex-vessel price. The formula is to be based on the historical distribution of first wholesale revenues between fishermen and processors, taking into consideration the size of the harvest in each year. The formula shall also include identification of various factors such as product form, delivery time and delivery location. The non-binding arbitration shall be based upon the Standard for Arbitration set out in the February 2003 Council motion, Item 1 including a. through i. As a part of this process, the arbitrator will review all of the arbitration decisions for the previous season and select the highest arbitrated prices for a minimum of at least 7% of the market share of the PQS. This provision allows for the aggregation of up to 3 arbitration findings that collectively equal a minimum of 7 percent of the PQS, to be considered for the highest price for purposes of this provision. If arbitration findings are aggregated with two or more entities, then the lesser of the arbitrated prices of the aggregated entities included to attain the 7 percent minimum market share of PQS shall be considered for purposes of developing the benchmark price. The arbitrator in the non-binding arbitration shall not be an arbitrator in the last best offer binding arbitration(s). This formula shall inform price negotiations between the parties, as well as the Last Best Offer arbitration in the event of failed price negotiations.

8. Public Disclosure of Arbitration Results

The result of each arbitration will be announced as it occurs to the processors and harvesters in that arbitration and non-vertically integrated harvesters that have not committed to a processor.

3. Regionalization Elements

3.1 Two regions are proposed:

a. Northern Region - All areas on the Bering Sea north of 56° 20' N. latitude. (This region includes the Pribilof islands and all other Bering Sea Islands lying to the north. The region also includes all communities on Bristol Bay including Port Heiden but excludes Port Moller and all communities lying westward of Port Moller.)

b. Southern Region - All areas not in the Northern Region.

Suboption: Regional categories for deliveries of Aleutian Islands brown king crab are split into a "Western" (west of 174° West longitude) and "Eastern" (east of 174° West longitude) area. 50% of the WAI IPQ brown king crab QS shall be processed in the W AI region.

3.2 Regional categorization of processing and/or harvesting quota shares

3.2.1 Categorization will be based on all historical landings. Periods used to determine regional percentages are the same as in Section 3.2.5.

There shall be no regional designation of the bairdi fishery shares. When there is a harvestable surplus of bairdi, an open season, and the vessel has bairdi quota, bairdi will be retained and delivered as incidental catch in the red /blue king crab and opilio fisheries.

3.2.2 Options for the harvesting sector:

Option 2. Only Class A CV quota shares are categorized by region (applies to point of delivery and not point of harvest).

3.2.3 Options for the processor sector:

Option 1. Processing quota shares and IPQs are categorized by region

3.2.4 Once assigned to a region, processing and/or harvesting quota shares cannot be reassigned to a different region.

3.2.5 Options for addressing any remaining mismatch of harvesting and processing shares within the region.

1. The base years for determining processing shares and the base period for determining the share assigned to each region shall be the same.
2. If the cumulative harvester quota associated with each region differs from the total regional share, by species, the harvester share, by species, shall be adjusted, up or down, in the following manner:
 - a. The adjustment shall apply only to harvesters with share in both regions.
 - b. The adjustment shall be made on a pro rata basis to each harvester, so that the total share among those harvesters, by region, equals the total share assigned to each region.
3. The adjustment shall only be on shares that carry a regional designation; Class B quota would be excluded from the adjustment.

3.3 Delivery and processing restrictions - the following provisions apply to the delivery and processing of crab with IFQs or IPQs that are categorized by region:

- a. Crab harvested with catcher vessel IFQs categorized for a region must be delivered for processing within the designated region
- b. Crab purchased with IPQs categorized for a region must be processed within the designated region.

3.4 Alternative Regionalization/Community Protection Option

IPQ Caps (from the February 2003 meeting)

The amount of IPQ in any year shall not exceed the percentage of the TAC for crab as follows:

For opilio, IPQ percentage times a TAC (after CDQ allocations) of 175 million pounds.

For Bristol Bay red king crab, IPQ percentage times a TAC (after CDQ allocations) of 20 million pounds.

IFQ (that would have been A shares but for the cap) issued in excess of IPQ limit shall be subject to regional landing requirements.

Cool Down Period (from the December 2002 motion and February 2003 motion)

A cooling off period of 2 years shall be established during which processing quota earned in a community may not be used outside that community. (from December 2002 motion)

During the Cool Down Period the following elements will apply (from the February 2003 motion):

1. The method to determine the shares associated with a community will be the same method used for allocating processing quota as established by the Council.
2. Community shall be defined as the boundaries of the Borough or, if no Borough exists, the first class or second class city, as defined by applicable state statute. A community must have at least 3 percent of the initial PQS allocation in any fishery based on history in the community to require continued use of the IPQs in the community during the cool down period.
3. 10% of the IPQs, on a fishery by fishery basis, may leave a community on annual basis, or up to 500,000 pounds, whichever is less. The amount that can leave will be implemented on a pro rata basis to all PQS holders in a community.
4. Exempt the Bairdi, Adak red crab and Western Aleutian Islands brown crab fishery from the cool down provision.
5. There should be an exemption from the requirement to process in the community if an act of God prevents crab processing in the community. This provision will not exempt a processor from any regional processing requirements, if there is processing capacity in the region.

Regionalization of the Bairdi Fishery (from the February 2003 motion)

If biological information indicates that the bairdi fishery is likely to become a directed fishery, the Council would consider the following management, along with other alternatives for management of that fishery:

If the bairdi fishery becomes a directed fishery, it shall be allocated according to the original distribution of the BBRKC and shall not be subject to the regionalization provisions of the Council Crab Rationalization program.

Community Purchase and Right of First Refusal Options (from April 2003 motion)

1. General Right of First Refusal

For communities with at least three percent of the initial PQS allocation in any BSAI crab fishery based on history in the community except for those communities that receive a direct allocation of any crab species (currently only Adak), allow CDQ groups or community groups representing qualified communities a first right of refusal to purchase processing shares that are based on history from the community which are being proposed to be sold for processing outside the boundaries of the community of original processing history in accordance with the provisions below.

Entity Granted the Right of First Refusal

The right of refusal shall be established by a contract entered into prior to the initial allocation of PQS which will contain all of the terms specified in paragraphs A through I below. The contract will be between the recipient of the initial allocation of the PQS and:

- 1) the CDQ group in CDQ communities
- 2) the entity identified by the community in non-CDQ communities.

In non-CDQ communities, the community must designate the entity that will represent the community at least 90 days prior to the deadline for submission of applications for initial allocations of PQS.

Contract Terms

- A. The right of first refusal will apply to sales of the following processing shares:
 1. PQS and
 2. IPQs, if more than 20 percent of a PQS holder's community based IPQs (on a fishery by fishery basis) has been processed outside the community of origin by another company in 3 of the preceding 5 years.
- B. Any right of first refusal must be on the same terms and conditions of the underlying agreement and will include all processing shares and other goods included in that agreement.
- C. Intra-company transfers within a region are exempt from this provision. To be exempt from the first right of refusal, IPQs must be used by the same company. In the event that a company uses IPQs outside of the community of origin for a period of 3 consecutive years the right of first refusal on those processing shares (the IPQs and the underlying PQS) shall lapse. With respect to those processing shares, the right of first refusal will not exist in any community thereafter.
- D. Any sale of PQS for continued use in the community of origin will be exempt from the right of first refusal. A sale will be considered to be for use in the community of origin if the purchaser contracts with the community to:
 1. use at least 80 percent of the annual IPQ allocation in the community for 2 of the following 5 years (on a fishery by fishery basis), and
 2. grant the community a right of first refusal on the PQS subject to the same terms and conditions required of the processor receiving the initial allocation of the PQS.
- E. All terms of any right of first refusal and contract entered into related to the right of first refusal will be enforced through civil contract law.
- F. A community group or CDQ group can waive any right of first refusal.
- G. The right of first refusal will be exercised by the CDQ group or community group by providing the seller within 60 days of receipt of a copy of the contract for sale of the processing shares:
 1. notice of the intent to exercise and
 2. earnest money in the amount of 10 percent of the contract amount or \$500,000 whichever is less.

The CDQ group or community group must perform all of the terms of the contract of sale within the longer of:

1. 120 days of receipt of the contract or
2. in the time specified in the contract.

H. The right of first refusal applies only to the community within which the processing history was earned. If the community of origin chooses not to exercise the right of first refusal on the sale of PQS that is not exempt under paragraph D, that PQS will no longer be subject to a right of first refusal.

I. Any due diligence review conducted related to the exercise of a right of first refusal will be undertaken by a third party bound by a confidentiality agreement that protects any proprietary information from being released or made public.

2. GOA First Right of Refusal

For communities with at least three percent of the initial PQS allocation of any BSAI crab fishery based on history in the community that are in the area on the Gulf of Alaska north of 56°20'N latitude, groups representing qualified communities will have a first right of refusal to purchase processing quota shares which are being proposed to be transferred from unqualified communities in the identified Gulf of Alaska area.

The entity granted the right of first refusal and terms and method of establishing the right of first refusal will be the same as specified in the general right of first refusal.

3. Community Purchase Option

Allow for a community organization in those communities that have at least 3 percent of the initial PQS allocation of any BSAI crab fishery based on history in the community to be exempted from the restriction for the 150 days of sea time requirement under 1.6 Transferability and Restrictions on Ownership of QS.

4. Identification of Community Groups and Oversight

For CDQ communities, CDQ groups would be the entity eligible to exercise any right of first refusal or purchase shares on behalf of the community. Ownership and management of harvest and processing shares by CDQ groups will be subject to CDQ regulations.

For non-CDQ communities, the entity eligible to exercise the right of first refusal or purchase shares on behalf of a community will be identified by the qualified city or borough, except if a qualified city is in a borough, in which case the qualified city and borough must agree on the entity. Ownership and management of harvest and processing shares by community entities in non-CDQ communities will be subject to rules established by the halibut and sablefish community purchase program.

5. Right of First Refusal is Non-assignable.

The community right of first refusal is not assignable by the community group granted the right.

6. Fisheries Exempt from the Community Right of First Refusal.

The bairdi, Western Aleutian brown king crab and Adak red king crab fisheries are exempt from the right of first refusal.

4. Community Development Allocation (based on existing CDQ program):

Option 2. Expand existing program to all crab fisheries approved under the rationalization program with the exception of the Western AI brown king crab.

Option 3. Increase for all species of crab to 10%. A minimum of 25% of the total CDQ allocation must be delivered on shore.

Option 5. For the WAI brown king crab fishery, the percentage of resource not utilized (difference between the actual catch and GHL) during the base period is allocated to the community of Adak. In any year, that sufficient processing exists at that location, the percentage of the difference between the GHL and actual catch, that was not harvested in these 4 years is not to exceed 10%.

Additional Provisions Concerning the Adak Allocation (from December 2002 motion)

Criteria for Selection of Community Entity to Receive Shares: A non-profit entity representing the community of Adak, with a board of directors elected by the community (residents of Adak) in a manner similar to the CDQ program. As a suboption, the shares given to this entity may be held in trust in the interim by the Aleut Enterprise Corporation and administered by it.

A set of use procedures, investment policies and procedures, auditing procedures, and a city or state oversight mechanism will be developed. Funds collected under the allocation will be placed in a separate trust until the above procedures and a plan for utilizing the funds for fisheries related purposes are fully developed. Funds will be held in trust for a maximum of 2 years, after which the Council will reassess the allocation for further action.

Performance standards for management of the allocation to facilitate oversight of the allocation and assess whether it achieves the goals. Use CDQ type management and oversight to provide assurance that the Council's goals are met. Continued receipt of the allocation will be contingent upon an implementation review conducted by the State of Alaska to ensure that the benefits derived from the allocation accrue to the community and achieve the goals of the fisheries development plan.

5. Program Elements

RAM Division in conjunction with State of Alaska will produce annual reports regarding data being gathered with a preliminary review of the program at 3 years.

Option 2. Formal program review at the first Council Meeting in the 5th year after implementation to objectively measure the success of the program, including benefits and impacts to harvesters (including vessel owners, skippers and crew), processors and communities by addressing concerns, goals and objectives identified in the Crab Rationalization problem statement and the Magnuson Stevens Act standards. This review shall include analysis of post-rationalization impacts to coastal communities, harvesters and processors in terms of economic impacts and options for mitigating those impacts. Subsequent reviews are required every 5 years.

Option 5. A proportional share of fees charged to the harvesting sectors and processing sectors for management and enforcement of the IFQ/IPQ program shall be forwarded to the State of Alaska for use in management and observer programs for BSAI crab fisheries.

(from the February 2004 and June 2004 motions)

The Council directs staff to prepare an analysis for delivery to the Council 18 months after fishing begins under the program. The analysis is to examine the effects of the 90/10 A share/B share split and the binding arbitration program on the distribution of benefits between harvesters and processors. After receiving the analysis, the Council will consider whether the A share/B share split and the arbitration program are having their intended effects and, if not, whether some other A share/B share split is appropriate. In addition, staff shall the prepare an analysis of captain and crew share (C share) landings for consideration by the Council 18 months after fishing begins under the program. The analysis is to examine landings patterns of C shares to determine whether the distribution of landings among processors and communities of C shares differs from the distribution of landings of the general harvest share pool. After receiving the analysis, the Council

will consider whether to remove the 90/10 Class A/Class B split from C shares, which is scheduled to take effect three years after the beginning of fishing under the program.

6. Cooperative model options:

6.1 Coop model with the following elements and options:

1) Individual harvesting and processing histories are issued to both catcher and processors. (Harvesters under Section 1.3.2 a) which meet program qualifications. Processors under Section 2.1, 2.3, and 2.4 (Options 1-4) which meet qualifications of the program).

2) Cooperatives may be formed through contractual agreements among fishermen who wish to join into a cooperative associated with one or more processors holding processor history for one or more species of crab. Fleet consolidation within this cooperative may occur either by internal history leasing and vessel retirement or by history trading within the original cooperative or to a different cooperative. A coop agreement would be filed annually with the Secretary of Commerce, after review by the Council, before a coop's catch history would be set aside for their exclusive use.

3.) Suboption only : There must be at least 4 or more unique harvester quota share holders engaged in one or more crab fisheries to form a coop associated with a processor. Vessels are not restricted to deliver to a particular plant or processing company.

4. New processors may enter the fishery by purchasing IPQ or by purchase of crab caught with B share landings or by processing CDQ crab. New processors entering the fishery may associate with cooperatives.

5. Custom processing would continue to be allowed within this rationalization proposal.

7. Regional Categories: As adopted earlier

8. Duration of coop agreements.

Option 4. A harvester quota shareholder may exit the cooperative at any time after one season. One season shall mean the season established by the Alaska Board of Fisheries for the fishery associated with the quota shares held by the harvester.

10. Observer requirements: Defer observer requirements to the Alaska Board of Fisheries.

11. Length of program: Same as earlier in Section 5.

12. Option for skipper and crew members: Same as developed earlier.

13. Catch Accounting - All landings including deadloss will be counted against a vessel's quota. Options for treatment of incidental catch are as follows: Same as developed earlier.

14. The North Pacific Fishery Management Council and the National Marine Fisheries Service shall have the authority to implement a mandatory data collection program of cost, revenue, ownership and employment data upon members of the BSAI crab fishing industry harvesting or processing fish under the Council's authority. Data collected under this authority will be maintained in a confidential manner and may not be released to any party other than staffs of federal and state agencies directly involved in the management of the fisheries under the Council's authority and their contractors.

A mandatory data collection program shall be developed and implemented as part of the crab rationalization program and continued through the life of the program. Cost, revenue, ownership and employment data will be collected on a periodic basis (based on scientific requirements) to provide the information necessary to study the impacts of the crab rationalization program as well as collecting data that could be used to analyze the economic and social impacts of future FMP amendments on industry,

regions, and localities. This data collection effort is also required to fulfill the Council problem statement requiring a crab rationalization program that would achieve “equity between the harvesting and processing sectors” and to monitor the “...economic stability for harvesters, processors and coastal communities”. Both statutory and regulatory language shall be developed to ensure the confidentiality of these data.

Any mandatory data collection program shall include:

A comprehensive discussion of the enforcement of such a program, including enforcement actions that would be taken if inaccuracies in the data are found. The intent of this action would be to ensure that accurate data are collected without being overly burdensome on industry for unintended errors.

The mandatory data collection program shall have the following elements (from the February 2003 motion):

- A. Purpose. The purpose of the data program is as set out in the June 2002 motion. The Council will require the production of data needed to assess the efficacy of the crab rationalization program and to determine its relative impact on fishery participants and communities.
- B. Type of data to be collected. The data collected shall be that needed to achieve the Council’s purpose, with the following general guidelines:
 1. The information will be specific to the crab fisheries included in the crab rationalization plan.
 2. The data shall include information on costs of fishing and processing, revenues for harvesters and processors, and employment data
 3. The general guide for information requirements will be as set out in the draft surveys prepared by National Marine Fisheries Service dated 9/18/02, except
 - a) Non-variable costs shall be collected only as needed to explain and analyze variable cost data.
 - b) Collect a unique identifier for harvesting and processing crew members to explain changes in participation patterns as requested by the AP
 4. Historical information will be required as recommended by the Data Collection Committee.
- C. Method of Collection. Data shall be submitted to an independent third party agent such as the Pacific States Marine Fisheries Commission.
- D. Use of data. Data will be used following these general guidelines:
 1. Data shall be supplied to Agency users in a blind and unaggregated form.
 2. The agencies will develop a protocol for the use of data, including controls on access to the data, rules for aggregation of data for release to the public, penalties for release of confidential data, and penalties for unauthorized use.
 3. The agencies will revise the current Memorandum of Understanding governing the sharing of data between the State of Alaska and National Marine Fisheries Service, and will address in this MOU the role of the third party data collection agent.
 4. The Agency and Council will promote development of additional legislative and regulatory protection for these data as needed.
- E. Verification of Data. The third party collection agent shall verify the data in a manner that assures accuracy of the information supplied by private parties.
- F. Enforcement of the data requirements. The Council endorses the approach to enforcing the data requirements developed by the staff and the Data Collection Committee, as set out on page 3.17-20 in the February, 2003 document entitled “BSAI Crab Rationalization Program, Trailing Amendments”, which provides:

Anticipated Enforcement of the Data Collection Program The analysts anticipate that enforcement of the data collection program will be different from enforcement programs used to ensure that accurate landings are reported. It is critical that landings data are reported in an accurate and timely manner, especially under an IFQ system, to properly monitor catch and remaining quota. However, because it is unlikely that the economic data will be used for in-season management, it is anticipated that persons submitting the data will have an opportunity to correct omissions and errors³⁷ before any enforcement action would be taken. Giving the person submitting data a chance to correct problems is considered important because of the complexities associated with generating these data. Only if the agency and the person submitting the data cannot reach a solution would the enforcement agency³⁸ be contacted. The intent of this program is to ensure that accurate data are collected without being overly burdensome on industry for unintended errors.

A discussion of four scenarios will be presented to reflect the analysts understanding of how the enforcement program would function. The four scenarios are 1) a case where no information is provided on a survey; 2) a case where partial information is provided; 3) a case where the agency has questions regarding the accuracy of the data that has been submitted; and 4) a case where a random “audit” to verify the data does not agree with data submitted in the survey.

In the first case, the person required to fill out the survey does not do so. In the second case, the person fills out some of the requested information, but the survey is incomplete. Under either case that person would be contacted by the agency collecting the data and asked to fulfill their obligation to provide the required information. If the problem is resolved and the requested data are provided, no other action would be taken. If that person does not comply with the request, the collecting agency would notify enforcement that the person is not complying with the requirement to provide the data. Enforcement would then use their discretion regarding the best method to achieve compliance. Those methods would likely include fines or loss of quota and could include criminal prosecution.

In the third case the person fills out all of the requested information, but the agency collecting the data, or the analysts using the data, have questions regarding some of the information provided. For example, this may occur when information provided by one company is much different than that provided by similar companies. These data would only be called into question when obvious differences are encountered. Should these cases arise, the agency collecting the data would request that the person providing the data double check the information. Any reporting errors could be corrected at that time. If the person submitting the data indicates that the data are accurate and the agency still has questions regarding the data, that firm’s data could be “audited”. It is anticipated that the review of data would be conducted by an accounting firm selected jointly by the agency and members of industry. Only when that firm refuses to comply with the collecting agencies attempts to verify the accuracy of the data would enforcement be contacted. Once contacted, enforcement would once again use their discretion on how to achieve compliance.

The fourth case would result when the “audit”³⁹ reports different information than the survey. The “audit” procedure being contemplated is a verification protocol similar to that which was envisioned for use in the pollock data collection program developed by NMFS and PSMFC. During the design of this process, input from certified public accountants was solicited in order to develop a verification process that is less costly and cumbersome than a typical “audit” procedure. That protocol involves using an accounting firm, agreed upon by the agency and industry, to conduct a random review of certain elements of the data provided⁴⁰.

³⁷The intent of the program is to have enforcement actions triggered by the willful and intentional submission of incorrect data or noncompliance with the requirements to submit data.

³⁸The term enforcement agency in this case may or may not include the RAM Division and the Office of Administrative Appeals (in addition to NMFS Enforcement). Those details are still under discussion within NOAA.

³⁹This “audit” could be the result of either the random review process that is contemplated or an “audit” triggered under scenario three.

⁴⁰However, in cases of non-compliance in which enforcement has to be notified, the data verification process is likely be more comprehensive.

Since some of the information requested in the surveys may not be maintained by companies and must be calculated, it is possible that differences between the “audited” data from financial statements and survey data may arise. In that case the person filling out the survey would be asked to show how their numbers were derived⁴¹. If their explanation resolves the problem, there would be no further action needed. If questions remained, the agency would continue to work with the providers of the data. Only when an impasse is reached would enforcement be called upon to resolve the issue. It is hoped that this system would help to prevent abuse of the verification and enforcement authority.

In summary, members of the crab industry will be contacted and given the opportunity to explain and/or correct any problems with the data, that are not willful and intentional attempts to mislead, before enforcement actions are taken. Agency staff does not view enforcement of this program as they would a quota monitoring program. Because these data are not being collected in “real” time, there is the opportunity to resolve occasional problems as part of the data collection system. Development of a program that collects the best information possible to conduct analyses of the crab rationalization program, minimizes the burden on industry, and minimizes the need for enforcement actions are the goals of the data collection initiative.

Clarifications and Expressions of Council Intent

At its October 2002 meeting the Council clarified several issues in the June 10, 2002 motion identifying a preferred alternative for rationalizing the Bering Sea/Aleutian Islands crab fisheries. Since the Council motion of June was not a final action, the Chairman suspended the rule which would require a super majority to alter the motion. Decisions were by a simple majority of the Council. In addition, Hazel Nelson, who joined the Council since the June meeting, was permitted to participate in all votes. The following clarifications of the June motion were made:

1. A cutoff date of June 10, 2002 was established for the processor shares ownership cap grandfather provision - The ownership cap on processing shares to prevent persons from acquiring shares in excess of specific caps would be applied as of June 10, 2002. This cutoff date would prevent persons from acquiring interests in processing history in excess of the specified cap after the cutoff date.
2. Ownership/use cap distinction - The current council motion contains several provisions that limit ownership and use of the harvest and processing shares. These provisions include the following:
 - 1.6.3 contains provisions limiting the ownership of QS
 - 1.6.4 contains provisions limiting processor ownership of QS
 - 1.7.4 contains provisions limiting a vessels use of IFQs
 - 2.7.1 contains provisions limiting ownership of the PQS pool
 - 2.7.2 contains a use cap of 60 percent for the Northern region opilio crab fishery

The Council confirmed that the ownership caps limit ownership of the QS and PQS, which carry a long-term privilege, and IFQs and IPQs, which are annual allocations. Application of the caps to both types of shares is consistent with interpretation of caps in the halibut and sablefish IFQ program, in which use caps are interpreted as limiting IFQ use and the ownership of both QS and IFQs. This broad interpretation has two primary effects. First, this interpretation prevents individuals from accumulating shares in excess of the cap through leasing arrangements. Long term leasing, unlimited under a narrow interpretation of the caps, could allow a person to effectively control shares well in excess of cap. Second, under the broad interpretation the caps operate as a individual use cap since IFQ and IPQ holdings determine use. The IPQ use cap in the

⁴¹Any time a number must be derived, the survey will provide direction on how to calculate the information requested. This direction should help minimize differences. However, when discrepancies do arise, the firm will be given an opportunity to show how they derived their figures, and correct the information if necessary.

North region *C. opilio* fishery also operates as both a cap on ownership of PQS and IPQs in that region and as a use cap on IPQs in that region. The vessel use caps would limit the use of shares on a vessel but would not impose any limit on share ownership.

Although custom processing is permitted by the Council motion, the Council established that limits on ownership and use would count any crab custom processed by a plant toward the cap of the plant owner. The application of the cap to custom processing is intended to prevent consolidation, which could occur if custom processing is not considered.

3. Norton Sound red king crab fishery CDQ allocation - The Council clarified that the increase of CDQ allocations does not apply to the Norton Sound red king crab fishery. The Norton Sound fishery was excluded from the CDQ allocation increase because its currently regulated under a super exclusive permit program that prohibits its participants from participating in any of the other BSAI crab fisheries. The Norton Sound permit rules are for the benefit local, small vessel participants in that fishery.
4. Adak allocation in the WAI(Adak) golden king crab fishery - The Council motion provides for the allocation of unused resource (up to 10 percent) in the WAI (Adak) golden king crab fishery to the community of Adak. The Council asked for additional information for determining the entity to receive this allocation (see Additional Issues, below).
5. Regionalization of the initial allocation in the WAI (Adak) golden king crab fishery - In the Council's motion, the WAI golden king crab fishery is regionalized by designation of 50 percent of A shares (and corresponding processor shares) as west shares and by the remaining 50 percent of A shares (and corresponding processor shares) being undesignated. The Council clarified that individual processing share allocations would be made with the 50 percent west shares to participants with processing facilities in the west. If the allocations of processors with facilities in the west does not equal 50 percent, the remaining west allocation could be allocated on a pro rated basis to participants without facilities in the west. These remaining west shares could be pro rated so that each shareholder with west facilities would get the same portion of its initial allocation as west shares.

For harvesters, individual harvesters share allocations would made with each harvester with west history allocated west shares. If the allocations of vessels with west history exceed 50 percent of the fishery, share allocations would be pro rated so that each shareholder with west history receives the same portion of its allocation as west shares.

6. Catcher/processor definition for purposes of processing crab harvested with Class B harvest shares² - A catcher/processor must be defined for purposes of applying the restriction on deliveries of B shares to catcher/processors (Section 1.3.3(b)). In a share based program, definition of this sector can be problematic because vessels used as catcher/processors are also used as floating processors. The Council clarified that for purposes of implementing this provision, a vessel that takes deliveries of crab harvested with Class B shares would be considered a floating processor for the duration of the season and would be prohibited from operating as a catcher/processor during that season. Likewise, a vessel that operates as a catcher/processor during a season would be prohibited from taking delivery of crab harvested with Class B shares during that season.
7. Sector cap on catcher/processors - Catcher/processors are permitted to purchase PQS from shore based facilities for use within 3 miles of shore (Section 1.7.2.3, Option 2). The "catcher/processor sector" also is capped at "the aggregate level of the initial sector-wide allocation" (Section 1.7.2.3, Option 8). The Council clarified the following effects of these provisions:
 - A) The catcher/processor sector-wide cap applies only to catcher/processor shares and not to the use or ownership of processing shares by catcher/processors.

² This clarification pertains only to processing of crab harvested with Class B harvest shares and does not pertain to processing of crab harvested with Class A IFQs or the harvesting of crab.

- B) Catcher/processor shares cannot be created by combining the processing privilege of PQS or IPQs with the harvest privilege of Class A QS or IFQs.
 - C) The catcher/processor sector-wide cap applies only to catcher/processor shares and not to the use or ownership of catcher vessel harvest shares by catcher/processors.
8. Regionalization of PQS allocations to catcher/processors - Processing shares allocated to catcher/processors would be regionally designated based on the historic area of processing. State records of processing activity should be adequate for determining the location of processing activity.
9. Definition of a lease - the word “not” was inadvertently omitted from the definition of a lease. The definition was revised to read:
- Leasing is defined as the use of IFQs on a vessel that the QS owner holds less than 10% ownership of vessel or on a vessel on which the owner of the underlying QS is not present (Section 1.6.2).
10. Grandfathering vessel use allocations in excess of the cap - The Council clarified that a vessel the activity of which is the basis for an allocation in excess of the vessel use cap would be grandfathered with respect to that allocation.
11. Cost recovery definition - The Council clarified that cost recovery funds would be collected in accordance with the current cost recovery program, which allows for the collection of actual costs up to 3 percent of ex vessel gross revenues. The Council provided that costs would be paid in equal shares by the harvesting and processing sectors (on all landings including landings of crab harvested with Class B IFQs). Catcher/processors would pay the entire 3 percent since catcher/processors participate in both sectors. A loan program for share purchases would be established with 25 percent of the fees collected. The motion authorized the collection of 133 percent of actual costs of management under the new program, which would provide for 100 percent of management costs after allocation of 25 percent of the cost recovery to the loan program.
12. Regionalization of the WAI (Adak) red king crab fishery - The processor share allocation in the WAI (Adak) red king crab fishery would be based on the historical landings in the WAI (Adak) golden king crab fishery. No landings in the golden king crab fishery were in the North during the qualifying years. The Adak red king crab fishery would therefore be entirely South. The South designation will be made despite the landing of a portion of the harvests in the Adak red king crab fishery in the North region during the qualifying years for vessels.
13. Rules governing cooperatives - The Council clarified the following rules for governing cooperatives:
- A) Exemption from use caps - Cooperative members would not be subject to either the individual or vessel use caps, which would apply to IFQ holders that are not cooperative members.
 - B) Application of ownership caps - To effectively limit ownership, the number of shares (IFQs and QS) that each cooperative member could bring to a cooperative would be subject to the ownership caps (with initial allocations grandfathered).
 - C) IFQ allocations to cooperatives - The annual allocations of IFQs of cooperative members would be made to the cooperative, with use of those shares governed by the cooperative agreement.
 - D) Leasing - Leasing among cooperative members would be unlimited. For IFQ holders that are not cooperative members, leasing would be allowed for the first 5 years of the program.

- E) Inter-cooperative transfers - Transfers between cooperatives would be undertaken by the members individually, subject to ownership caps. Requiring the inter-cooperative transfers to occur through members is necessary for the application of the ownership caps.
- F) Four entities are required for a cooperative - The requirement for four owners to create a cooperative would require four unique entities to form a cooperative. Independent entities must be less than 10 percent common ownership without common control (similar to the AFA common ownership standard used to implement ownership caps).
- G) Monitoring and enforcement at the cooperative level - The monitoring and enforcement of harvest allocations would be at the cooperative level (rather than the individual level). Cooperative members would be jointly and severally liable for the actions of the cooperative.

Vertical Integration Caps (from the February 2003 motion)

The Council clarified that the 5 percent cap on QS holdings by processors shall exempt only the primary corporate processing entity from more restrictive generally applicable caps on QS holdings. All individuals and subsidiaries will be subject to the general caps on QS holdings.

A/B Share Linkage (from the April 2003 meeting)

At its April 2003 meeting:

The Council clarified that the A/B share component of QS will be linked for purposes of transfers.

APPENDIX 1

REGULATORY IMPACT REVIEW/ INITIAL REGULATORY FLEXIBILITY ANALYSIS VOLUNTARY THREE-PIE COOPERATIVE PROGRAM FOR THE BERING SEA AND ALEUTIAN ISLANDS CRAB FISHERIES

Prepared by:

North Pacific Fishery Management Council/
National Marine Fisheries Service

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ACRONYMS

ADF&G	Alaska Department of Fish and Game
AEB	Aleutians East Borough
AEC	Aleut Enterprise Corporation
AFA	American Fisheries Act
ANCSA	Alaska Native Claims Settlement Act
APICDA	Aleutian Pribilof Islands Development Association
ARC	Adak Reuse Corporation
BBEDC	Bristol Bay Economic Development Corporation
BINMIC	Ballard Interbay Northern Manufacturing Industrial Center
BSAI	Bering Sea/Aleutian Islands
CBSFA	Central Bering Sea Fisherman's Association
CDQ	Community Development Quota
CFEC	Commercial Fisheries Entry Commission
CMSA	Consolidated Metropolitan Statistical Area
CVRF	Coastal Villages Region Fund
DCED	Department of Community and Economic Development
DOD	Department of Defense
EAI	Eastern Aleutian Islands
EEZ	Exclusive Economic Zone
EIS	Environmental Impact Statement
FAO	Food and Agriculture Organization of the United Nations
FBT	Fishery Business Tax
FMP	Fishery Management Plan
GHL	guideline harvest level
IFQ	Individual Fishing Quota
KIB	Kodiak Island Borough
LRA	Local Reuse Authority
mph	miles per hour
MSA	Magnuson-Stevens Act
NAF	Naval Air Facility
NAVFAC	Naval Facility
NMFS	National Marine Fisheries Service
NPFMC	North Pacific Fishery Management Council
NSEDC	Norton Sound Economic Development Corporation
NSGA	Naval Security Group Activity
NWR	National Wildlife Refuge
PIP	Pribilof Island Processors
PMA	Proposed Management Alternatives
QS	quota share
REIS	Regional Economic Information System
SEIS	Supplemental Environmental Impact Statement
SIA	Social Impact Assessment
TAC	total allowable catch
USDOI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
VFW	Veterans of Foreign Wars
WAI	Western Aleutian Islands
YDFDA	Yukon Delta Fisheries Development Association

Executive Summary

Introduction (Section 1)

At its June 2001 meeting, the North Pacific Fishery Management Council (Council) adopted a suite of alternatives, elements, and options for analysis of a rationalization program for the Bering Sea and Aleutian Islands (BSAI) crab fisheries. After a status reports and reviewing draft analyses at its December 2001, February 2002, and April 2002 meeting, the Council defined most provisions of a preferred alternative for the proposed rationalization of the BSAI crab fisheries at its June 2002 Council meeting. At its October 2002, December 2002, February 2003, and April 2003 meetings, the Council completed the identification of a preferred alternative, a “three-pie voluntary cooperative” program.¹

The proposed action would develop a rationalization program to manage the BSAI crab fisheries. A change in management from the current License Limitation Program (LLP) may be necessary to alleviate problems of resource conservation, bycatch and handling mortality, excessive harvesting capacity, lack of economic stability, and safety that have arisen under the race to fish. The current LLP management program and its predecessor, the vessel moratorium, may have limited the exacerbation of these problems. Despite these limits on entry, problems with excess capacity, lack of economic stability, and safety persist.

This analysis considers three overriding alternative management structures for the BSAI crab fisheries; status quo (or continued management under the LLP), an Individual Fishing Quota (IFQ) program, and a cooperative program. The IFQ program alternative includes options defining either a one-pie, harvester only IFQ program or a two-pie program, which would include both harvester shares and processor shares. Two cooperative program alternatives are analyzed. The Voluntary Cooperative alternative is a program that would allocate shares to harvesters and processors and allow each harvester to join a cooperative, with one or more other harvesters, associated with one or more processors. The Plurality Assignment Cooperative alternative is a program that would allow each harvester to join a cooperative associated with the processor that it delivered the most crab to during a specified qualifying period. Harvesters that join a cooperative would receive an allocation based on qualifying catch history. Harvesters that elect not to join a cooperative would be limited to participating in an open access fishery. This program alternative includes several different options that would protect processor interests to varying degrees and that would define terms of permissible movement between cooperatives. The analysis examines several different aspects of the proposed programs and their impacts on the fisheries.

Background (Section 2)

As a foundation for the analysis of alternatives, this section provides extensive background that describes the current conditions in the different fisheries under consideration for rationalization. The section includes subsections describing the affected environment, fishery biology, fishery management, the harvesting sector,

¹ The structure of this analysis and the alternatives analyzed in this document differ from those of the Environmental Impact Statement (EIS) because preliminary drafts of this analysis were used to narrow alternatives for EIS analysis. The plurality cooperative analyzed in this document is of similar structure to the cooperative alternative analyzed in the EIS.

the processing sector, community and social impacts, ex- vessel prices, and various market and economic conditions. **Table E1** shows the maximum Guideline Harvest Levels (GHL), the minimum GHL, and closure years (if any) for the fisheries under consideration for rationalization.

Table E1: Maximum and Minimum GHLs for various crab fisheries and years the fishery was closed

Fishery	Maximum GHL (millions of pounds)	Minimum GHL (millions of pounds)	Closures (Years/Season)
Bering Sea Snow Crab (<i>C. opilio</i>)	333 (1992)	25.3 (2001)	None
Bristol Bay Red King Crab	18 (1991)	5 (1996)	1994, 1995
Bering Sea Tanner (<i>C. bairdi</i>)	39.2 (1991/92)	2.2 (1996)	1997, 1998, 1999, 2000, 2001
Pribilof Islands Red King Crab	3.4 (1993)	1.25 ^a (1998)	1991/92 & 1999, 2000, 2001
Pribilof Islands Blue King Crab	2.5 ^a (1995)	1.25 ^a (1998)	1991/92, 1993, 1994, 1999, 2000, 2001
St. Matthew Blue King Crab	5 (1997)	2.4 (1995)	1999, 2000, 2001
Western Aleutian Islands (Dutch Harbor)	3.2	3.0	
Golden (Brown) King Crab	(1996, 1997, 1998)	(1998, 1999, 2000, 2001)	None
Eastern Aleutian Islands (Adak) Golden (Brown) King Crab	2.7 (1996, 1997, 1998)		None
Eastern Aleutian Islands (Adak) Red King Crab			1996/97, 1997/98, 1999/2000, & 2000/2001

^aCombined red and blue king crab.

Table E2 reports the weighted average annual ex-vessel price of the various crab fisheries under consideration. These data were derived from Alaska Department of Fish and Game (ADF&G) fishtickets. The data in the report generally show that the mid-1990's were strong years for ex-vessel prices. Ex-vessel prices also increased in 1999 and 2000 (relative to the 1997 and 1998), except in the Bristol Bay red king crab fishery.

Table E2: Weighted average annual ex-vessel prices from ADF&G fishtickets (prices have not been adjusted for inflation)

Year (Fishing Season)	WAI golden king ¹	Adak red ¹	Bristol Bay red king ³	BS <i>C. opilio</i> ³	BS <i>C. bairdi</i> ²	EAI golden king crab ²	Pribilof blue king ³	Pribilof red king ³	St. Matthew blue king ³
1998-1999	\$ 2.04	closed	\$ 6.26	\$ 0.56	closed	\$ 1.87	\$ 2.34	\$ 2.39	\$ 1.87
1999-2000	\$ 3.14	closed	\$ 4.81	\$ 0.88	closed	\$ 3.22	closed	closed	closed
2000-2001	\$ 3.15	closed	\$ 4.14	\$ 1.85	closed	\$ 3.50	closed	closed	closed

1) Fishing seasons span two years

2) The fishing seasons that took place in one calendar year are identified by the first year listed in the year column.

BS - Bering Sea

WAI - Western Aleutian Islands

EAI - Eastern Aleutian Islands

Table E3 is a summary of the first wholesale prices derived from Commercial Operator Annual Report data. These prices were calculated by dividing the total first wholesale value reported by the processor by the total pounds of the product form produced.

Table E3: First Wholesale Crab Price per pound by Species and Product Form, 1991-2000 (prices have not been adjusted for inflation)

Species	Product	1998	1999	2000
Red King Crab	Shellfish Sections	\$ 5.52	\$11.25	\$ 9.11
	Whole	\$ 3.83	\$10.69	\$ 7.74
Blue King Crab	Shellfish Sections	\$ 4.80	Conf.	Conf.
Golden King Crab	Shellfish Sections	\$ 4.24	\$ 6.90	\$ 7.22
	Whole	\$ 4.90	\$ 3.79	\$ 4.60
C. bairdi	Shellfish Sections	\$ 4.81	\$ 4.23	\$ 5.83
	Whole	\$ 2.95	\$ 3.71	\$ 3.33
C. opilio	Shellfish Sections	\$ 2.03	\$ 2.92	\$ 4.16
	Whole	\$ 2.05	\$ 1.06	

Source: Commercial Operator's Annual Reports (1998-2000)

Analysis of the Alternatives (Section 3)

Section 3 presents the analysis of the alternatives. The section begins with a brief discussion of the status quo, which draws from the extensive background analysis in Section 2.

Biology, Management, Environmental, and Safety Implications of Rationalization (Section 3.2)

This section presents an analysis of the biological, management, environmental, and safety impacts of rationalization of the BSAI crab fisheries. This section examines the appropriateness of the different fisheries for rationalization, potential changes in deadloss, size limits, incidental catch, seasons, pot limits, the potential impacts of overlapping seasons of different species, and the effects of rationalization on rebuilding programs. The section also examines the environmental factors, including the impacts of rationalization on endangered species and marine mammals. The section concludes with discussions of the division of management authority between State and federal managers, and the impacts of rationalization on safety in the fishery. The analysis in this section was provided to Council staff by representatives of ADF&G and the National Marine Fisheries Service (NMFS).

The analysis suggests that the Bering Sea *C. opilio*, Bristol Bay red king crab, Bering Sea *C. bairdi*, Pribilof blue king crab, Pribilof red king crab, St. Matthew blue king crab, and the two Aleutian Islands golden king crab be included in the rationalization program. The Aleutian Islands red king crab, the Aleutian Islands *C. bairdi*, the Pribilof golden king crab, and Bering Sea Tanneri fisheries are suggested for exclusion from rationalization.

Rationalization should have environmentally-friendly impacts on the crab stocks and their habitat as long as concerns over highgrading and ghost fishing from lost pots do not evolve. Managers are concerned that highgrading may occur when the time pressures are removed from the fishery. Fishermen will be more likely to keep only the highest valued catch, since any catch landed will be counted against their quota. Therefore, keeping second quality crab (especially when there are large differences in ex-vessel price) might not maximize profits. Under the current low GHs and race-for-fish management system all marketable crab are currently being retained. The State of Alaska feels that new regulations will likely need to be developed to protect the biological integrity of the stock. They also indicate that onboard observer coverage and dockside sampling are needed to determine if changes in fishery selectivity occur and, if so, the mechanisms that cause those changes. Pot limits may be relaxed in a rationalized fishery. For pot limits to be changed the Board of

Fish (BOF) would need to be petitioned, or a proposal would need to be submitted to the BOF requesting that pot limits be modified.

Seasons for the different species proposed for inclusion in the rationalization program are considered. The primary biological objective in scheduling seasons is avoidance of periods of crab mating and molting, to the extent possible. Table E4 shows the molting and mating seasons for the different species being considered for rationalization. The analysis also considers the use of concurrent seasons for species included in the rationalization program. A potential advantage of multispecies fisheries may be a decrease in mortality of discards. As crab fishing seasons are lengthened the possibility of gear conflicts with trawl and longline vessels increase. Those conflicts would need to be monitored to ensure that they were not increasing to an unacceptable level.

Table E4: Bering Sea Crab Fishery Molting/mating time periods as determined by the Crab Plan Team in September 2001

Species	Molting/mating time period
C. opilio	May 15 to July 31
C. bairdi	April 1 to July 31
blue king crab	February 1 to July 31
red king crab	January 15 to June 30
red king crab (Norton Sound)	September 15 to October 31
golden king crab	January 1 to December 31

The analysis also supports provisions which would create no allowance for overages or underages on the principle that overages and underages should be fully avoidable in a rationalized fishery. The analysis also supports full accounting of deadloss. The analysis suggests that the slower pace of a rationalized fishery will improve sorting of crab by gear, thereby decreasing handling mortality and deadloss.

The analysis provides that the rationalized fisheries would need to be managed with Total Allowable Catch (TACs) instead of the current GHM management. TAC management would provide certainty of allocations necessary to realize the full benefits of rationalization. The allocation of a minor open access fishery, as proposed in the Plurality Assignment cooperative program alternative, could also be problematic for managers that are required to monitor a small GHM in an open access fishery. The more precise management under a TAC (without provision for overages) could also aid rebuilding efforts in the fisheries, assuming adequate observer monitoring.

Monitoring participants in a rationalized fishery would be challenging due, in part, to the extended seasons. The analysis supports the use of Vessel Monitoring Systems (VMS). VMS would not only improve monitoring activities of participants but also would improve data collection and vessel safety. ADF&G has suggested that the costs of this system could be borne by either participants in the fisheries or the federal government. Additional monitoring of landings may also be required. Observer requirements and the disbursement of costs of those requirements will also need to be assessed in a rationalized fishery.

The analysis assesses the need to maintain a minimum fleet size to ensure that harvests reach an optimum level. Caps on ownership could be used to ensure that fleets are maintained at a size necessary to maintain harvests in the event excessive stocks require additional harvesting power.

The section includes a discussion of the interaction of State and federal management and monitoring of the fisheries. Limitations of deferral of management authority by the federal government may require that NMFS assume responsibility for allocations of quota in the fisheries. Setting of TACs (or GHs), regulating fishing activity, and collecting harvest data for monitoring harvest limits and enforcement of regulations are currently conducted by the State and could, for the most part, continue to be subject to State management in a rationalized fishery. Further detail on the joint management of the fisheries is provided in this section.

The section also presents an analysis of the environmental impacts of rationalization. Potential changes in stewardship and biological conservation, and the effects of rationalization on habitat are discussed. The section also examines the effects of rationalization on endangered species. A history of crab Fishery Management Plan (FMP) consultations is presented, as well as a discussion of the implications of the Marine Mammal Protection Act.

The section concludes with a discussion of the potential implications of rationalization on safety in the fisheries.

The Allocation of Harvest Shares (Section 3.3)

This section of the analysis examines the different alternatives for allocating harvest shares. The analysis examines the rules that define eligibility to receive an initial allocation and the calculation of those allocations. Both proposed options would base eligibility on whether a vessel has met the requirements for an LLP license. Table E5 shows the number of endorsed LLP licenses in the fisheries and the estimated number of vessels that would qualify for a crab endorsed LLP license and hence an initial allocation in each fishery being considered for rationalization.

Table E5: LLP licenses and the Estimated Number of Vessels that Qualify for LLP licenses endorsed for BSAI Crab Fisheries

Fishery	Number of Permanent LLP Licenses	Number of Interim LLP Licenses	Estimated Number of Vessels Eligible for an Allocation
WAI (Adak) Golden King Crab	27	14	23
WAI (Adak) Red King Crab	24	22	28
Bristol Bay Red King Crab	260	89	266
Bering Sea <i>C. Opilio</i>	260	93	256
Bering Sea <i>C. Bairdi</i>	260	93	266
EAI (Dutch Harbor) Golden King Crab	27	14	20
Pribilof Blue King Crab	110	48	84
Pribilof Red King Crab	110	48	122
St. Matthew Blue King Crab	154	59	180

Source: NMFS Alaska Region RAM Office and State of Alaska ADF&G Fish ticket files.

WAI - Western Aleutian Islands

EAI - Eastern Aleutian Islands

The sum of permanent and interim licenses is the maximum number of vessels that could qualify. The “estimated number of vessels eligible for an allocation” is the minimum number that would qualify, as that does not include vessels that rely on Amendment 10 exemptions for qualification, which define limited exemptions and circumstances when activities from multiple vessels may be combined to meet the qualification criteria. The consistency of the different allocation options with the current LLP management is discussed. The section also includes quantitative analysis of the allocations under the different qualifying year options for each fishery. The analysis shows that the allocations in the Bering Sea *C. opilio*, Bristol Bay red king crab, Bering Sea *C. bairdi*, Pribilof blue king crab, St. Matthew blue king crab, and Western Aleutian Islands (Adak) red king crab are very similar under all of the qualifying year options. In the Pribilof red king crab fishery, the allocation to the leading four vessels varies somewhat under the different options. In the two Aleutian Islands golden king crab fisheries (particularly in the Western subdistrict), the allocations under the various options show greater variation. Graphical representations of the allocations and descriptive statistics appear in the section. Graphs included in this section show groupings of four vessels to protect confidential data. The same vessels are not always in the same groups for the different allocation options. The portion of the total allocation to catcher/processors in each fishery under each option is also shown.

The IFQ Program Elements (Section 3.4)

This section analyzes the options for development of an IFQ program. The section includes analyses of the various measures that define the rights to own, purchase, and use harvest shares in the different fisheries. The section includes an analysis of the two-pie IFQ alternative, including the initial allocation, transfer rights, ownership and use caps on processor shares, and limits on vertical integration.

Harvest Shares

The analysis examines use and ownership caps on harvest shares in the different fisheries at the initial allocation. These caps are intended to limit consolidation of harvest shares, in part, to ensure competition in the harvest sector. This analysis is limited by the poor availability of vessel and LLP license ownership information. Based on available data, no person would exceed a 5 percent ownership cap in the Bering Sea *C. opilio*, Bristol Bay red king crab, Bering Sea *C. bairdi*, or St. Matthew blue king crab fisheries. Four persons would exceed the 5 percent cap in the Pribilof blue king crab fishery. Data concerning the number of persons exceeding an 8 percent or 5 percent cap in the Pribilof red king crab fishery cannot be disclosed because of confidentiality restrictions. Several persons would exceed a 1 percent cap in all of these fisheries. In the Western Aleutian Islands golden king crab fishery, the number of persons exceeding a 40 percent, 20 percent, or 10 percent cap cannot be shown because of confidentiality restrictions. In the Eastern Aleutian Islands golden king crab fishery, no person would exceed the 40 percent cap. The number of persons exceeding the 20 percent cap in this fishery cannot be disclosed because of confidentiality restrictions. If the allocation in Aleutian Islands golden king crab fisheries is based on the combined participation in both areas, no person would exceed the 40 percent cap, and the number of persons exceeding the 20 percent cap cannot be disclosed.

Processing Shares

A complete analysis of the two-pie IFQ program is also contained in this section. Program elements including the initial allocation of shares, transfer rights, and ownership and use caps are examined. Two options for allocating processing privileges to catcher/processors are proposed. Under the first, catcher/processors would be allocated processing shares in the same manner as those shares are allocated to other processors.

Alternatively, catcher/processors could be allocated a “catcher/processor share” that includes both harvest and processing privileges.

Analysis of the option under which catcher/processors are allocated processing shares

If catcher/processors are allocated processing shares, in the Bering Sea *C. opilio*, the Bristol Bay red king crab, and the Bering Sea *C. bairdi* fisheries slightly more than 30 processors (including catcher/processors) will receive an allocation. The leading four processors would receive an average allocation of between 12 and 14 percent, depending on which qualifying year option is selected. The average allocation would be less than 5 percent and the median² allocation would be approximately 1 percent or less. In the Pribilof red king crab, Pribilof blue king crab, and St. Matthew blue king crab fisheries approximately 15 processors would receive allocations. The leading four processors would receive on average less than 20 percent of the total allocation. The median allocation would be less than 5 percent. In the two Aleutian Islands golden king crab fisheries, between 8 and 13 processors would receive an initial allocation. The four largest processor allocations would be between 20 and 25 percent of the total allocation. In the Eastern Aleutian Islands fishery, the median allocation would be between approximately 4 and 8 percent of the total allocation. In the Western Aleutian Islands fishery, the median allocation would be less than one percent.

In the Bering Sea *C. opilio*, Bristol Bay red king crab, and the Bering Sea *C. bairdi* fisheries 10 or 11 catcher/processors would receive processing allocations that collectively account for between 7 and 8 percent of the allocations in these fisheries. In the St. Matthew blue king crab and the Eastern Aleutian Islands and Western Aleutian Islands golden king crab fisheries 2 or 3 catcher/processors would receive an allocation of processing shares.³ In the Pribilof king crab fisheries, no catcher/processors would receive a processing allocation.

Ownership and use caps on processor shares are analyzed based on the initial allocations. These caps are intended to limit consolidation of processing shares. The analysis is limited because of confidentiality restrictions on the disclosure of data. The analysis shows that, with the exception of the Western Aleutian Islands (Adak) golden king crab fishery, no processors would exceed a 50 percent cap based on the initial allocation. In the Bering Sea *C. opilio*, the Bristol Bay red king crab, the Bering Sea *C. bairdi*, the Pribilof red king crab, and the Pribilof blue king crab fisheries, no processors would exceed a 30 percent cap.

The section also examines vertical integration in the crab fisheries by analyzing the allocation of harvest shares to persons affiliated with processors (including catcher/processors). The Council has proposed limiting processor ownership of harvest shares to 8, 5, or 1 percent of the total allocation of harvest shares to restrict vertical integration in the fisheries.⁴ In the Bering Sea *C. opilio*, the Bristol Bay red king crab, and the Bering Sea *C. bairdi* fisheries in excess of 40 vessels affiliated with processors (including independently owned catcher/processors) would receive an allocation. Under almost all of the initial allocation options between 4 and 5 processors would exceed a 1 percent cap on harvest share ownership in these fisheries. No processors

² The median allocation is the allocation at the midpoint of the distribution, for which half of the allocations would be larger and half of the allocations would be smaller.

³ These allocations cannot be disclosed because of confidentiality restrictions.

⁴ Common ownership is defined as having 10 percent common ownership of a vessel and a processor.

would exceed a 5 percent cap in the Bering Sea *C. opilio* or the Bering Sea *C. bairdi* fisheries. In the Aleutian Islands golden king crab fisheries, between 1 and 4 processors would receive harvest share allocations depending on the allocation option selected. In the Western subdistrict, the number of processors exceeding any caps cannot be shown because of confidentiality restrictions. In the Eastern subdistrict, no processors would exceed either an 8 or 5 percent cap. Under the option that would determine the allocation based on combined harvests in the two subdistricts, the number of processors exceeding any caps cannot be shown because of confidentiality restrictions. In the Pribilof red king crab and Pribilof blue king crab fisheries, between 4 and 6 processors would receive an allocation of harvest shares. In the Pribilof red king crab fishery, no processors would exceed an 8 percent cap. No further information on the caps can be disclosed for this fishery. In the St. Matthew blue king crab fishery, 11 processors would receive an allocation of harvest shares. No processors would exceed either an 8 or 5 percent cap in this fishery. The number of processors exceeding the 1 percent cap cannot be disclosed. In the Western Aleutian Islands red king crab fishery, three processors would receive an initial allocation of harvest shares. No information concerning the number of processors exceeding the proposed share caps can be disclosed for this fishery.

Analysis of the option under which catcher/processors are allocated catcher/processor shares

If catcher/processors are allocated catcher/processor shares, in the Bering Sea *C. opilio*, the Bristol Bay red king crab, and the Bering Sea *C. bairdi* fisheries, between 19 and 26 processors would receive an allocation in each fishery. The leading four processors would receive an average allocation of between 14 and 16 percent of the total processing allocation, depending on which qualifying year option is selected. The average allocation would be less than 6 percent and the median⁵ allocation would be less than 3 percent. In the Pribilof red king crab, Pribilof blue king crab, and St. Matthew blue king crab fisheries approximately 15 processors would receive allocations. The leading four processors would receive, on average, less than 20 percent of the total allocation. The median allocation would be less than 5 percent. In the two Aleutian Islands golden king crab fisheries, between 6 and 11 processors would receive an initial allocation. For those options which information can be disclosed, the four largest processor allocations combined would be between 20 and 25 percent of the total allocation. In the Eastern Aleutian Islands fishery, the median allocation would be between approximately 4 and 10 percent of the total allocation. In the Western Aleutian Islands fishery, the median allocation would be less than one percent.

In the Bering Sea *C. opilio*, Bristol Bay red king crab, and the Bering Sea *C. bairdi* fisheries between 9 and 11 catcher/processors would receive catcher/processor share allocations. In the St. Matthew blue king crab fishery 5 catcher/processors would receive catcher/processor share allocations. In the Eastern Aleutian Islands golden king crab fishery 0 or 1 catcher/processor would receive catcher processor shares. In the Western Aleutian Islands golden king crab fisheries and under the allocation option that would combine the Aleutian Islands golden king crab fisheries 1 or 2 catcher/processors would receive catcher processor shares. In the Western Aleutian Islands red king crab fishery 1 catcher/processor would receive catcher processor shares. In the Pribilof king crab fisheries, 0, 1, or 2 catcher/processors would receive catcherprocessor shares depending on the qualifying year option selected.

Ownership and use caps on processor shares are analyzed based on the initial allocations. The analysis is limited because of confidentiality restrictions on the disclosure of data. The analysis shows that with the

⁵ The median allocation is the allocation at the midpoint of the distribution, for which half of the allocations would be larger and half of the allocations would be smaller.

exception of the Western Aleutian Islands (Adak) golden king crab fishery, no processors would exceed a 50 percent cap based on the initial allocation. In the Bering Sea *C. opilio*, the Bristol Bay red king crab, the Bering Sea *C. bairdi*, the Pribilof red king crab, and the Pribilof blue king crab fisheries, no processors would exceed a 30 percent cap.

The section also examines vertical integration in the crab fisheries by analyzing the allocation of harvest shares to persons affiliated with processors (excluding catcher/processors). In the Bering Sea *C. opilio*, the Bristol Bay red king crab, and the Bering Sea *C. bairdi* fisheries between 25 and 35 vessels affiliated with processors (excluding independently owned catcher/processors) would receive an allocation. Under all of the initial allocation options, 4 or fewer processors would exceed a 1 percent cap on harvest share ownership in these fisheries. No processors would exceed a 5 percent cap in the Bering Sea *C. opilio* or the Bering Sea *C. bairdi* fisheries. In the Aleutian Islands golden king crab fisheries, 1 or 2 processors would receive harvest share allocations, depending on the allocation option selected. In neither subdistrict under the option that would allocate shares on combined harvests in the two districts would any processors exceed either an 8 or 5 percent cap. The number of processors exceeding a 1 percent cap cannot be shown because of confidentiality restrictions. Under some of the qualifying year options, no processors would exceed the 1 percent cap. In the Pribilof red king crab, Pribilof blue king crab, and St. Matthew blue king crab fisheries, 3 or 4 processors would receive an allocation of harvest shares. In the Pribilof red king crab fishery, no processors would exceed an 8 percent cap. In the St. Matthew blue king crab fishery, no processors would exceed a 5 percent cap. No further information on the caps can be disclosed for these fisheries. In the Western Aleutian Islands red king crab fishery, 1 processor would receive an initial allocation of harvest shares. No further information concerning the proposed share caps can be disclosed for this fishery.

Cooperative Program Alternatives (Section 3.5)

This section examines the cooperative program alternatives advanced in the Council motion. The section begins with a brief discussion of the cooperative alternatives that the Council has considered, but excluded from analysis. These cooperative program options were deemed unsuitable for the crab fisheries. These options would potentially distort allocations from the historical participation, providing limited share protection to both harvesters and processors.

More importantly, the section examines the Voluntary Cooperative program and Plurality Assignment Cooperative program currently under consideration. The Voluntary Cooperative program would allocate harvest and processing shares similar to those under the IFQ program alternatives. The program would permit harvest shareholders to form cooperatives associated with one or more processors holding a processing allocation. The program is intended to provide maximum flexibility, allowing the development of cooperative arrangements between participants that see an advantage to creating those arrangements. These agreements could help to ensure that more of each person's allocation is harvested. This could be accomplished through pooling remaining shares, say, at the end of a season, so one vessel from the cooperative could be sent out to "mop-up" the remaining quota. This has been successfully done in the BSAI pollock cooperatives. There the percentage of the TAC being left unharvested each year is very low, relative to the halibut and sablefish IFQ programs, which does not employ cooperatives.

Under the Voluntary Cooperative program share allocations would be made to both harvesters and processors regardless of whether cooperative agreements are entered into. Because of this allocation system there would

be no “open access” fishery. Persons that do not elect to join a cooperative would still receive a protected allocation.

The second cooperative program (the Plurality Assignment Cooperative program) would permit each harvester to enter a single cooperative associated with the processor to which he/she delivered the most pounds of crab during the qualifying period. Allocations are made to each cooperative, based on the catch history of its members. Allocations earned by harvesters that do not join a cooperative are made to an open access fishery that is fished competitively by harvesters that do not join cooperatives. Because of the eligibility rules and a requirement that a cooperative have at least two members, over half of the processors that received deliveries from the crab fisheries during the qualifying period (but were not the recipient of the most catch from at least two harvesters) would not be able to associate with a cooperative in the first year of the program. Also, under a 1994-99 qualifying period, five vessels would not be eligible to join a cooperative because they were the only vessel qualified to form a cooperative with their primary processor. These vessels would be required to participate in an open access fishery the first year of the program. Each year, participants in the open access fishery would become eligible to join a cooperative associated with the processor to which it delivered the most crab in the open access year.

The all-or-nothing allocation of catch history to processors under this alternative could result in disparities between processing history and processor allocations. Historical data show that many catcher vessels made deliveries to multiple processors over the qualifying period. For example, in the Bristol Bay red king crab fishery for the open seasons from 1993-1999, a total of 255 vessels had qualifying landings. Only 163 (or about 64 percent) of the vessels delivered at least 50 percent of their catch to the same processor. Under the Plurality Assignment Cooperative all the catch would be assigned for delivery to a single processor. To lessen the impact of requiring all of the catch to be assigned to a specific processor, alternatives are included that would require a cooperative to deliver a set percentage (as low as 10 percent) of its allocation to its associated processor. Members of the catcher vessel sector have indicated that requiring only 80 percent of the catch to be delivered to the cooperative’s processor would benefit harvesters, in terms of bargaining power and maintaining traditional markets, much more than requiring a 90 percent delivery rate. Processors on the other hand feel that as the percentage decreases from 100 percent they tend to be in a much weaker position to negotiate prices and make long term plans for their operations.

This program is difficult to characterize because several options have been proposed with vary degrees of connection between harvesters in a cooperative and the associated processor. The most stringent option would require delivery of all or most of a cooperative’s allocation to an associated processor. The most lenient option would not require any deliveries to the associated processor. Similarly, the program has options defining the ability of harvesters to move between cooperatives. These range from unrestricted movement, subject only to the approval of the cooperative to which the harvester is moving, to options that require a year in the open access fishery.

The alternatives for allocation of shares to vessels under the cooperative program are the same as under the IFQ alternatives. Therefore, the discussion of quota allocations is only covered in the section on IFQ allocations.

Regionalization and Community Protections (Section 3.6)

This section examines the two alternatives that would establish a regionalization program and several community protections. Regionalization of the fisheries is intended to protect community interests. The first alternative would divide the fishery into north and south regions, creating a requirement that landings and processing activity be distributed between the regions in accordance with historic participation patterns. Estimates of the distribution of shares under the alternatives are provided. North allocations in the Pribilof red king crab and Pribilof blue king crab, and St. Matthew blue king crab fisheries exceed 50 percent of the fishery. The allocations, however, vary by approximately 10 percent in the Pribilof blue king crab fishery and by more than 5 percent in the Pribilof red king crab fishery depending on whether the allocation is made under the years designated for allocating regional shares or the years designated for determining processor allocations. The significance of this difference is that use of different years for determining regional allocations and processor allocations could result in some processors being allocated shares for use in a region in which they have no processing history or facilities. In the Bering Sea *C. opilio* fishery the allocation to the north would be approximately 40 percent of the fishery. In the Bering Sea *C. bairdi* fishery the north allocation would be less than 5 percent under the only applicable regionalization option. Allocation of shares under the processor allocation option would allocate more than 20 percent to the north, because this allocation would be based on activity in the *C. opilio* fishery. In the Bristol Bay red king crab fishery, the allocation to the north would be less than 10 percent under any of the regionalization and processor allocation options. In the Aleutian Islands golden king crab fisheries, the north would receive no allocation.

The second regionalization alternative would create a link between processing activity and communities in which processing historically occurred. Under this option, processing would be permitted to relocate from a community only with permission of the community. In this draft, analysis of this option is strictly qualitative. The allocation of shares to communities has the potential to impose hardships on both harvesters and processors, while failing to allocate community shares may impose hardships on small, remote fishery dependent communities. Determining the appropriateness of this option requires balancing these potential hardships. Small allocations could burden processors by requiring that they either run processing facilities with small processing allocations or forgo processing a portion of their allocation. In addition, coordinating deliveries of crab to communities to exactly match the community allocation could be very challenging. Inability to reach an exact match could result in a portion of the GHL (or TAC) going unprocessed (and unharvested).

The analysis also assesses several different community protection measures. A two-year "cooling off period" during which processing shares cannot be relocated from the community where the historical processing occurred is analyzed. Under this provision, all processing shares will bear a community designation, which will require processing of the share in the designated community for the first two years of the program. The "cooling off period" would be intended to provide a period of general stability for processors and communities to adjust to the program. At the beginning of share-based management, trading of shares could lead to rapid consolidation in the processing sector, as some processors may choose to exit the fisheries. The "cooling off period" requirement is intended to provide each historic processing community with an added opportunity to entice processors to maintain facilities in the community under the new management structure.

A right of first refusal that would be granted to community groups and Community Development Quota (CDQ) groups from communities with significant crab processing history on the sale of any processing shares for use outside of the community is also analyzed. The provision is intended to provide community and CDQ

groups with a right to intervene on behalf of their communities, if a local processor intends to sell its processing interests outside the community. An exception to the right would allow a company to consolidate operations among several commonly owned plants to achieve intra-company efficiencies. In addition, companies could lease shares for use outside of a community subject to limits. Use of more than 20 percent of a person's Individual Processor Quota (IPQ) holdings outside of a community for more than 3 of 5 years would trigger the community right of first refusal. To exercise a right of first refusal a community group would be required to meet all of the terms and conditions of the underlying transaction. The right of first refusal would be established by a contract to be entered into by the processor receiving the allocation of Processor Quota Shares (PQS) and the community group. The processor would be required to enter the contract to receive the initial allocation of shares by NOAA Fisheries. To receive the right, a community would need to designate a qualified community group at least 90 days prior to the deadline for applications for the initial allocation of processing shares under the program. The exceptions to the right and the performance requirements for exercising the right could be used by companies to avoid exercise of the right by a community. The provision, however, could provide some leverage to a community that is faced with the sale of shares by a resident processor. In addition, a provision is analyzed that would grant community and CDQ groups that would receive the right of first refusal the right to purchase harvesting and processing shares in the open market to enhance fisheries activities for their communities. Sea time requirements for the purchase of harvest shares would be waived for these groups.

An additional community protection measure could cap the total amount of IPQs (or the annual allocation of processing shares) for the two largest fisheries, the Bristol Bay red king crab and the Bering Sea *C. opilio* fisheries. In years of low abundance, processor shares are intended to provide stability to the processing sector and historically dependent communities. As stocks increase, the caps would limit the allocation of processing shares providing opportunity for new processors and communities to participate and limit any potential windfall to historic participants.

Binding Arbitration (Section 3.7)

This section examines several alternative binding arbitration programs proposed by industry to govern ex-vessel price determinations between harvesters and processors. The two programs preferred by the Council's *ad hoc* industry working group are given additional attention in the analysis. Under one of those programs, a fleet wide price would be established, which could be applied to any delivery to a holder of unused IPQs at the election of a harvester. Under the second program, harvesters would be permitted to initiate a final offer arbitration proceeding with a processor holding unused IPQs to determine all terms of delivery, including price. This second program also contains two program options that are analyzed. Under the first, at the conclusion of the individual arbitration proceedings, the highest arbitrated price applicable to 7 percent or more of all IPQ would be applied to all arbitrated deliveries. Under the second option, a non-binding price would be determined prior to any arbitration, which would be a starting point for future negotiations and arbitration proceedings.

Options for Skippers and Crew (Section 3.8)

This section examines four options that are intended to protect skipper and crew interests. The first option would make an initial allocation of quota shares to skippers and/or crew. The allocation would be intended to provide those actively working in the fishery with an interest in the fishery. Several options for determining the allocation have been proposed. Eligibility would be based on either landings, verifiable by ADF&G fish

tickets (or affidavits in the case of crew), or a point system, under which points are awarded based on participation verified by fish tickets or affidavit. Allocations could be made equally to all eligible participants or could be based on landings or points or some combination of these measures. Quantitative analysis of the option is limited by available data.

The second option would provide skippers and crew with a first-right-of-refusal on a portion of each share allocation, when those shares are first transferred. A similar provision would create an owner on board requirement for a portion of any shares transferred after a specified period. These options are intended to provide a method of entry to skippers and crew that wish to have an interest in the fishery.

The third option would protect skippers and crew by guaranteeing their historical crew share and prohibiting vessel and quota share holders from reducing crew shares to cover the cost of participation in a share based fishery. This option is based on a system in the Canadian groundfish fishery. Preliminary research on this option suggest that enforcement of the provision could be problematic. The last option would create a low interest loan program to fund the purchase of quota shares by skippers and crew. This option would establish a program similar to that in the halibut and sablefish fishery.

CDQ Allocations (Section 3.9)

This section examines options for changing the allocations to CDQ groups in the different fisheries proposed for inclusion in the rationalization program. The analysis examines the allocations to both the CDQ groups and non-CDQ participants. Based on the GHIL in the most recent fisheries, assuming the option for the highest CDQ allocation is adopted, the allocations to CDQ groups could range from a high of 3.3 million pounds in the Bering Sea *C. opilio* fishery, to approximately 150 thousand pounds in the Pribilof red and blue king crab fisheries combined. These allocations would result in a decrease of approximately 13 thousand pounds and 1.3 thousand pounds from each eligible non-CDQ participant in these fisheries. A second provision analyzed in this section would allocate the unharvested portion (not to exceed 10 percent) of the GHIL in the Western Aleutian (Adak) golden king crab fishery to the community of Adak. Under this provision, Adak would receive the allocation to promote community development.

Other Management and Allocation Issues (Section 3.10)

This section examines various management implications of the rationalization program, including the effects of rationalization on other fisheries, the possible need to continue American Fisheries Act (AFA) sideboards to limit activities of AFA participants in the BSAI crab fisheries, options that would specify the duration of the rationalization program and schedule periodic review of the program, and the need for a program to recover the cost of management of the rationalized fisheries.

Crab rationalization may increase the opportunities for BSAI crab vessels to participate in other fisheries. LLP data indicate that 253 of the crab vessels hold at least one groundfish endorsement (this includes the 42 AFA catcher vessels). These vessels would be allowed to participate in groundfish fisheries using that license. However, the options for many of these vessels are limited in groundfish. Groundfish endorsements are area specific and licenses are expected to have gear endorsements added in the next year. Pacific cod endorsements are expected to be added to BSAI groundfish licenses as a result of Amendment 67 (47 pot catcher vessels are expected to qualify for a cod endorsement). Pacific cod is the most likely candidate for

expansion by the crab fleet. However, the restrictions currently in place for the cod fishery limit the expansion that can occur in that fishery. The quota is already split among fixed, trawl, and jig gear vessels.

There may be more concern in the Gulf of Alaska (GOA) cod fisheries where fewer restrictions are placed on entry. Information on the number of vessels licensed to harvest groundfish in the GOA, the number of vessel that actually participated in Western and Central Gulf, and the catch of those vessels over the 1995-2000 fishing seasons is reported in this section.

Increases in participation of BSAI crab vessels in State managed fisheries, including the GOA crab and the State of Alaska GOA cod fishery, could be limited by State regulations. The State waters cod fisheries are often managed with pot limits and vessel size restrictions. Those limits either make the fisheries unavailable or less attractive to large crab vessels. The GOA crab fisheries have had relatively low GHGs, when open in recent years. The pot limits applied to those fisheries may also make them less attractive to large BSAI crab vessels.

Including AFA vessels/processors in the quota allocation process may eliminate the need for harvesting and/or processing sideboards in the BSAI crab fisheries. The allocation alternatives would result in AFA vessel harvests and processing allocations similar to the caps. Limits on the amount of quota AFA vessels and processors can purchase after the initial allocation could prevent them from using BSAI pollock monies to increase their share holdings. These limits could also be accomplished through the ownership caps being considered.

This section also analyzes program review and sunset options . Program review should be helpful for identifying unintended consequences. Sunsetting the program, however, could limit the ability of participants to engage in long term planning, necessary to realize efficiency gains.

A cost recovery program is mandated for all new IFQ programs. The maximum fee that can be levied against the fleet is 3 percent of the ex-vessel value for harvest IFQ programs. However, the possible processor allocations raise the question of whether cost recovery should apply to processors in a program that allocates processor shares. Since they are benefitting from an allocation that would have management costs associated with it, should they be included in a cost recovery program to pay for its management?

Effects of Rationalization on Products and Consumers (Section 3.11)

This section examines potential changes in products and other effects on consumers of rationalization of the fisheries. The analysis draws on prior experiences in North Pacific fisheries as well as conversations with participants in the industry. The expected slower pace of the fishery and less compacted delivery times should allow processors to improve sorting and grading of crab and improve employee training. Improved product grading could benefit both participants in the fisheries and consumers. Also, expanding season lengths should decrease storage costs and allow consumers to purchase a fresher product as harvests can be better timed to market demand. Freezing techniques could also be modified to make more use of plate and blast freezers, which would result in a higher quality product.

The Effects of the Crab Vessel Buyback Program (Section 3.12)

This section of the analysis examines the effects of the vessel buyback program on the rationalization program. We have assumed that the buyback program will purchase vessels, LLP licenses, and catch history. The analysis is qualitative because the participation in this voluntary program cannot be quantitatively predicted.

The buyback program will tend to increase the aggregate allocation of the harvesters that remain in the fishery by the percentage of qualifying catch history that was removed from the quota share pool. Because the buyback program is specific to harvesters, it will cause a redistribution of processor “allocations” under the Plurality Assignment Cooperative. Processors that have more of their fleet bought out (in terms of cooperative allocation) relative to other processors would be worse off as a result of the buyback. Also, because catcher/processors are not part of the buyback, they will receive a larger harvest allocation under all of the rationalization alternatives. Depending on whether processing allocations to catcher/processors are based on their harvest allocations or their processing history, buyback could either allow them to process their entire harvest and increase their processing allocations or prevent catcher/processors from processing their entire allocation and have no effect on their processing allocations.

Stranded Capital in the Processing Sector and the Potential for a Processor Buyback (Section 3.13)

This section of the analysis examines the effects of the vessel buyback program on the rationalization program. The section also includes a discussion of the potential for a processor buyback program and the issue of stranded capital in the processing sector. The analysis is qualitative because the participation in this voluntary program cannot be quantitatively predicted.

Foreign Ownership (Section 3.14)

This section analyzes foreign ownership in the BSAI crab fisheries. Foreign ownership of both harvesting and processing sector interests are considered.

Custom Processing (Section 3.15)

This section presents an analysis of custom processing in the BSAI crab fisheries. Custom processing accounted for more than 8 percent of the processing of red king crab between 1995 and 2000. In 2000, custom processing accounted for more than 10 percent of all crab processing in the regions that process BSAI crab. The analysis also discusses the potential for custom processing in a rationalized fishery.

Economic Effects of Rationalization (Section 3.16)

This section examines various potential economic effects of rationalization. The section begins with an analysis of “net benefits” that examines changes in benefits that might be realized by producers (i.e., both harvesters and processors) and consumers, as well as changes in benefits realized through management cost changes and environmental impacts. The section also examines the distributional consequences of rationalization relying on economic analyses of rationalization programs in other North Pacific fisheries. The section also examines opportunities for entry into the rationalized fisheries and the effects of rationalization on different vessel classes.

Data Collection (Section 3.17)

An extensive program for the collection of economic data from harvesters and processors is analyzed in this section. The collection of these data would be intended to facilitate review of the program and would be used to detect unintended consequences of the program, which the Council could mitigate with future amendments. Substantial discussion is devoted to the need for confidentiality and the potential methods of aggregating data.

Community and Social Impacts (Section 3.18)

This section presents two types of information on community and social impacts of the range of alternatives and options. First, general level community and social impact issues associated with the different features of the range of proposed alternatives and options is presented. This section draws from experience of earlier rationalization programs in the potentially impacted communities. Second, community impacts driven by specific sector allocation changes under the range of alternatives and options are discussed. These sections include quantitative output tables showing the range of outcomes by sector and area, where applicable.

The Preferred Alternative (Section 4)

This section describes and analyzes the Council's preferred rationalization alternative, termed a "three-pie voluntary cooperative" program. Although the preceding sections analyze all of the elements included in the alternative, a complete understanding of consequences of the alternative requires a comprehensive analysis of the alternative, including all preferred elements and options, as provided in this section.

The Council carefully crafted its preferred alternative to strike a balance of the interests of several identifiable groups that depend on these fisheries. Share allocations to harvesters and processors, together with incentives for cooperation, are intended to increase efficiencies, provide economic stability, and facilitate compensated reduction of excess capacities in both harvesting and processing sectors. The binding arbitration program is intended to resolve price disputes between harvesters and processors, which in the past have delayed fishing. Community interests are intended to be protected by the CDQ group and Adak allocations, regional landing and processing requirements, as well as several community protection measures. Captains are allocated a portion of the catch to protect their interests in the fisheries. These owner on board "C" shares are intended to provide long term benefits to both captains and crew. The program includes a comprehensive economic and socioeconomic data collection program that would aid the Council in assessing the success of the program and in developing amendments necessary to mitigate any unintended consequences. Perhaps most importantly, the program would improve safety of participants in the fishery by ending the race for fish.

This section includes a net benefit analysis of the preferred alternative. Although specific benefits cannot be quantified, the section concludes that net benefits should arise from the program. Net benefits arising from harvesting and processing efficiency gains, consumer benefits, environmental benefits, and positive affects of the program on monitoring and management costs are discussed. The section also analyzes effects on captains and crew, effects on entry to the harvesting and processing sectors, and community and social impacts.

Consistency with Other Applicable Laws (Section 5)

This section analyzes the consistency of the rationalization alternatives with the National Standards of the Magnuson-Stevens Fishery Management Conservation Act, the Fishery Impact Statement requirement of the Magnuson-Stevens Fishery Management Conservation Act, and Executive Order 12866.

Regulatory Flexibility Analysis (Section 6)

This section contains the Initial Regulatory Flexibility Analysis that analyzes the effects of the proposed rationalization alternatives on small entities, as required by the Regulatory Flexibility Act. The section estimates the number of small entities that will be directly regulated by the rationalization program and analyzes both the reporting requirements and the potential impacts of the alternatives on these small entities.

1.0 Introduction

At its June 2001 meeting, the North Pacific Fishery Management Council (Council) adopted a suite of alternatives, elements, and options for analysis of a rationalization program for the Bering Sea/Aleutian Islands (BSAI) crab fisheries. At its December 2001 meeting, and again at its February 2002 meeting, after preliminary reviews of a draft of the analysis, the Council revised and refined the rationalization alternatives, elements, and options. The Council conducted an initial review of the analysis at its April 2002 meeting and approved the release of this analysis to the public. At its June 2002 meeting, the Council selected provisions defining its preferred alternative for rationalization of the fisheries, while identifying several areas for further analysis and subsequent consideration for inclusion in the preferred alternative. At its October 2002, December 2002, January/February 2003, and April 2003 meetings, the Council reviewed staff analyses and completed the selection of its preferred alternative.⁶

Rationalization is intended to address resource conservation, excess harvesting and processing capacity, bycatch issues, economic stabilization in the industry and coastal communities, safety, and resource allocation problems in the BSAI crab fisheries. At its April 2001 meeting, the Council adopted a problem statement concerning the BSAI crab fisheries, which it modified at its February 2002 meeting, to read:

BSAI Crab Rationalization Problem Statement

Vessel owners, processors, and coastal communities have all made investments in the crab fisheries, and capacity in these fisheries far exceeds available resources. The BSAI crab stocks have also been highly variable and have suffered significant declines. Although three of these stocks are presently under rebuilding plans, the continuing race for fish frustrates conservation efforts. Additionally, the ability of crab harvesters and processors to diversify into other fisheries is severely limited and the economic viability of the crab industry is in jeopardy. Harvesting and processing capacity has expanded to accommodate highly abbreviated seasons, and presently, significant portions of that capacity operate in an economically inefficient manner or are idle between seasons. Many of the concerns identified by the North Pacific Fishery Management Council (NPFMC) at the beginning of the comprehensive rationalization process in 1992, still exist for the BSAI crab fisheries. Problems facing the fishery include:

1. Resource conservation, utilization and management problems;
2. Bycatch and its associated mortalities, and potential landing deadloss;
3. Excess harvesting and processing capacity, as well as low economic returns;
4. Lack of economic stability for harvesters, processors, and coastal communities; and
5. High levels of occupational loss of life and injury.

The problem facing the Council, in the continuing process of comprehensive rationalization, is to develop a management program which slows the race for fish, reduces bycatch and its associated mortalities, provides for conservation to increase the efficacy of crab rebuilding strategies, addresses the social and economic concerns of communities, maintains healthy harvesting and processing sectors, and promotes efficiency and safety in the harvesting sector. Any such system should seek to achieve equity between the harvesting and processing sectors, including healthy, stable, and competitive markets

⁶ The structure of this analysis and the alternatives analyzed in this document differ from those of the EIS because preliminary drafts of this analysis were used to narrow alternatives for EIS analysis. The plurality cooperative analyzed in this document is of similar structure to the cooperative alternative analyzed in the EIS.

The proposed crab rationalization program represents the next step toward development of a Comprehensive Rationalization Plan (CRP) for all fisheries under the Council’s jurisdiction. The Council made a commitment at its November 1992 meeting to develop and implement a “comprehensive and rational management program for the fisheries” under its jurisdiction, including the groundfish fisheries in the Gulf of Alaska (GOA), and BSAI management areas, and the BSAI commercial king and Tanner crab fisheries. Since that time, the Council has taken a step-wise approach toward fulfilling its commitment to the overall rationalization process by first adopting a Vessel Moratorium Program (Moratorium) and then by adopting a License Limitation Program (LLP). Section 1.1 provides a summary of these actions, and other past Council and Congressional actions relevant to the rationalization process for the BSAI crab fisheries.

The proposed rationalization program addressed in this analysis includes only certain BSAI crab fisheries subject to the Fishery Management Plan for Bering Sea/Aleutian Islands King and Tanner Crabs (the FMP). The FMP, which outlines the joint State of Alaska (State), and Federal management of the BSAI crab fisheries, defers much of the management to the State, but identifies certain, more fundamental management measures that cannot be changed without an amendment to the FMP. Changes to the limited access program (including the proposed rationalization) are among those identified as requiring an amendment to the FMP.

1.1 Purpose and Need for Action

1.1.1 Need for Rationalization of Bering Sea/Aleutian Islands Crab Fisheries

Prior to the start of joint State and Federal management of the BSAI king and Tanner crab fisheries, these fisheries were managed by the State. The State had managed the king crab fisheries (within the limits of prevailing U.S. authority) since statehood in 1959, and had managed the domestic Tanner crab fisheries since their inception in the Bering Sea and the Aleutians, in 1968 and 1973, respectively. The crab fisheries have been managed by limits on total catch and entry limits established by the Vessel Moratorium Program and LLP. Effort also has been controlled to some extent by State managed seasons and pot limits. The current joint management of the crab fisheries by the State and Federal governments began in 1978, with the FMP for the commercial Tanner crab fishery off the coast of Alaska. That FMP was repealed in 1986, and replaced by the current FMP, which covers all BSAI king and Tanner crab fisheries.

Since the mid-1970's, when the U.S. extended jurisdiction from 3 to 200 nm seaward of its shores, crab fisheries under the FMP have experienced several cycles of expanding effort and harvesting capacity, followed by declining resource abundance and excess capacity. The crab fisheries were heavily exploited during the late 1970's, resulting in rapid increases in vessel numbers and harvest. The crab resource base plummeted in the early 1980's, due to harvest pressure and cyclical resource availability, leading to severe reductions in the harvest quota. The sudden decline and accompanying hardship induced some crabbers to shift effort to the emerging Alaskan groundfish industry in the 1980's. Rebuilding of some of the crab resources in the late 1980's led to a resurgence in crab operations by the early 1990's. By 1991, the convergence of new and existing crab vessels on the Bristol Bay king crab fishery resulted in a doubling of the number of vessels and tripling of the number of pots compared to 1986. Open entry and overcapitalization had also reduced the Bristol Bay king crab season to a mere seven days in 1991. During this period, the number of vessels also increased in the *C. bairdi* and *C. opilio* crab fisheries since many crabbers found it economically necessary to operate in several crab fisheries.

Throughout the 1990's, conditions of excess harvesting capacity and shortened seasons in the Bristol Bay red king crab fishery persisted. The number of vessels participating in the *C. bairdi* and *C. opilio* fisheries also continued to increase during this period, while season lengths declined. In addition, a number of the fisheries were closed for one or more years due to low abundance, including the Bristol Bay red king crab (closed 1994 -1995), Pribilof Islands red king crab (closed 1988 -1992) and Pribilof blue king crab (closed 1988 - 1994), St. Matthew Island blue king crab (closed since 1999), and Bering Sea *C. bairdi* (closed since 1997). Furthermore, in 1999, the National Marine Fisheries Service (NMFS) determined the *C. bairdi*, *C. opilio*, and the St. Matthew Island blue king crab stocks had been overfished (i.e., the spawning stock biomass was below the minimum stock size threshold). As required by the Magnuson-Stevens Act, the Council developed rebuilding plans for each stock within one year of notification.

The rapid growth and overcapitalization of the BSAI crab fisheries have intensified the race for fish. The harvesting and processing capacity in the BSAI crab fisheries are perceived to exceed the amounts necessary to efficiently utilize the annual guideline harvest levels (GHLs) for these fisheries. The excess capacity has resulted in allocation dilemmas for the Council regarding how access privileges to the resource should be distributed. The race for fish and shortened seasons have resulted in other resource conservation and management issues, including excessive bycatch of non-target crab species, highgrading (or discard of lower valued crab), handling mortality and deadloss, and insufficient attention to safety. Excess capacity and the race for fish have also resulted in economic instability and reduced earnings by affected harvesters and processors. These problems have threatened the Council's ability to achieve optimum yield (OY) in the affected fisheries from economic, biological, and social perspectives.

Faced with these problems in the BSAI crab fisheries and in the groundfish fisheries under its jurisdiction, the Council identified two distinct steps required to achieve comprehensive rationalization: (1) stem the flow of additional, unneeded vessels and capital investment into the fisheries under the Council's authority, and (2) address the existing and emerging problems resulting from an overcapitalized fishing industry. The Vessel Entry Moratorium and LLP programs implemented the first step of the overall rationalization process. The proposed rationalization program analyzed in this document represents the second step for the BSAI crab fisheries (efforts to rationalize the groundfish fisheries under the Council's authority are proceeding on separate tracks). The proposed action is intended to address the concerns about the condition of the resource and the economic welfare of participants in these fisheries, including harvesters, processors, crew, and communities.

1.1.2 Overview of Past Actions

Since 1992, several actions taken by the Council and implemented by NMFS have contributed to the early stages of rationalizing the BSAI crab fisheries. Council actions directly contributing include the Vessel Moratorium, the LLP, the addition of a recent participation requirement to the LLP (Amendment 10 to the BSAI King and Tanner Crab FMP), and crab harvesting and processing sideboard measures to limit America Fisheries Act beneficiaries from expanding effort into the BSAI crab fisheries. The Council's experience from actions taken to rationalize other fisheries under its jurisdiction, for example, the Individual Fishing Quota (IFQ) program for the halibut and sablefish fisheries, has also helped to shape many features of the proposed crab rationalization program. Finally, several important Congressional actions have had a direct bearing on the overall rationalization process, including the imposition of a Congressional moratorium on new IFQ programs (Sustainable Fisheries Act of 1996) and a buy-back program for vessels participating in the BSAI crab fisheries. These past actions are summarized next.

1.1.2.1 Vessel Moratorium Program

On June 24, 1992, the Council first submitted for review by the Secretary of Commerce (SOC) a moratorium on vessel entry into the groundfish, halibut, and crab fisheries under the Council's jurisdiction. The proposed rule was published in the Federal Register on June 3, 1994, but subsequently disapproved by the SOC on August 5, 1994. At its September 1994 and December 1994 meetings, the Council approved revisions to the vessel moratorium program. The final rule for the revised moratorium program was published on August 10, 1995 and the program became effective on September 11, 1995.

The moratorium limited access to the groundfish and BSAI crab resources off Alaska to vessels whose owners were issued a moratorium permit for the vessel by NMFS or that were within a vessel category exempt from the moratorium permit requirements. Generally, a vessel qualified for a moratorium permit if it made a legal landing of a moratorium species during the qualifying period of January 1, 1988, through February 9, 1992. The program also outlined conditions for allowing a vessel that qualified for a moratorium permit for one species to cross over to other fisheries in which the vessel did not qualify for a moratorium permit. The program also allowed a moratorium permit to be transferred to allow a vessel owner to make limited improvements to or replace an existing vessel. The moratorium was not expected to resolve the problem of excess harvesting capacity in the groundfish and BSAI crab fisheries. It was intended to function as an interim management measure to provide temporary industry stability by restricting the number of vessels allowed to participate in the affected fisheries and limiting increases in fishing capacity.

1.1.2.2 License Limitation Program

The Council approved license limitation programs for the groundfish and BSAI crab fisheries under its jurisdiction on June 17, 1995. The proposed rule received SOC approval on September 12, 1997, and the final rule was published in the Federal Register on October 1, 1998. The LLP became effective January 1, 2000, replacing the Moratorium program which expired on December 31, 1999.

The LLP limits the number, size, and specific operation of vessels that may be deployed in certain groundfish and BSAI crab fisheries under the Council's jurisdiction. By limiting the number of vessels that are eligible to participate in the affected fisheries, the LLP limits capitalization in those fisheries. The LLP was intended to serve as an interim step toward a more comprehensive solution to the conservation, management, and economic problems in a competitive derby fishery.

To qualify for a crab LLP permit, a person must own a vessel that has documented harvests of crab during two periods, the general qualification period (GQP) and the endorsement qualification period (EQP). The requirement for participation in both periods was intended to ensure that only vessel owners with both past dependence and recent participation in the fishery qualify. For all crab species, the GQP is January 1, 1988 through June 27, 1992 (a period that includes the qualification period for the Vessel Moratorium). Alternatively, a vessel satisfies the GQP requirement if it has a documented crab harvest between January 1, 1988 and December 31, 1994, provided it has a landing of any king or Tanner crab species between February 10, 1992 and December 11, 1994, and a documented harvest of groundfish between January 1, 1988 and February 9, 1992. Vessels that participated in the Norton Sound red and blue king crab fisheries and the Pribilof red and blue king crab fisheries are exempt from the GQP requirement. The EQP and the number of required harvests varies among seven area/species endorsements in order to accommodate the different

patterns of development and closures for specific crab species. The EQPs for the different fisheries appear in Table 1-1 below.

In addition to the area/species endorsements, the LLP license is designated for use on either a catcher/processor or catcher vessel and the vessel's length category. LLP licenses may be transferred, subject to the vessel designations and area/species endorsements. Rules governing the application process and transfer provisions of the LLP were published as a separate rule on August 6, 1999, and became effective on September 7, 1999.

Table 1-1: BSAI Crab LLP Endorsement Qualification Requirements.

Fishery	Number of Harvests	Endorsement Qualification Period
Pribilof red king crab and Pribilof blue king crab	one	January 1, 1993 through December 31, 1994
Norton Sound red king crab and Norton Sound blue king crab	one	
<i>C. opilio</i> and <i>C. bairdi</i>	three	January 1, 1992 through December 31, 1994
St. Matthew blue king crab	one	
Aleutian Islands brown king	three	
Aleutian Islands red king crab	one	
Bristol Bay red king crab	one	January 1, 1991 through December 31, 1994

1.1.2.3 Amendment 10 to the Fishery Management Plan for Bering Sea/Aleutian Islands King and Tanner Crabs

At its October 1998 meeting, the Council recommended for SOC approval several changes to the LLP. Changes were recommended to the LLP for the GOA and BSAI groundfish fisheries (Amendments 58 and 60 to the respective FMPs) and the BSAI crab fisheries (Amendment 10). The proposed rule for these recommended changes to the LLP were published in the Federal Register on March 30, 2001. Those rules took effect at the beginning of the 2002 fishing season.

Amendment 10 added a recent participation requirement to the eligibility requirements for a crab species LLP license. Under the current LLP, a person applying for a crab species license must demonstrate documented harvests from a qualifying vessel during the GQP and the respective EQP for that species. Under Amendment 10, a documented harvest must be made in a third period, the recent participation period (RPP), which extended from January 1, 1996, through February 7, 1998. The additional eligibility requirements of the RPP are proposed as a means of preserving activity reductions in the crab fisheries. The amendment ensured that crab species licenses of persons inactive in the crab fishery since 1995, would not be used by either the holders of those licenses or new entrants who received the licenses by transfer.

The Council recommended four exemptions to the RPP requirements:

1. A person who only qualifies for a Norton Sound red and blue king crab endorsement;
2. A person whose qualifying vessel is less than 60 ft. length overall (LOA);
3. A person whose qualifying vessel was lost or destroyed during the RPP, but who made a documented harvest of crab species during the period after the vessel was lost or destroyed through January 1, 2000; and
4. A person whose vessel made a documented harvest of crab species during the period January 1, 1998, through February 7, 1998, and who obtains the fishing history of a vessel that meets the GQP and the EQP, or enters into a contract to obtain the fishing history of a vessel that meets the GQP and EQP, by 8:36 am PST on October 10, 1998.

These exemptions were adopted, based on public testimony, to reduce the impact of the RPP on small fishing operations.

1.1.2.4 American Fisheries Act - Sideboards for Crab Harvesting and Processing

The American Fisheries Act (AFA) was signed into law during the fall of 1998. The purpose of the AFA was to tighten U.S. ownership standards and to provide the BSAI pollock fleet the opportunity to conduct their fishery in a more rational manner, while protecting non-AFA participants in the other fisheries. Since the passage of the AFA, the Council has taken an active role in the development of management measures to implement the various provisions of the AFA. The Council initiated an analysis of a suite of AFA-related management measures in late 1998, and took final action on the proposed amendments at its June 1999 meeting. At its December 1999 meeting, the Council recommended that NMFS proceed immediately with an emergency interim rule to implement its June 1999 recommendations so that AFA regulations could be in place prior to the start of the 2000 fisheries. The emergency rule was published on January 28, 2000, and implemented in the 2000 season. Under extensions, the provisions remain in effect.

The AFA established a cooperative management program for the pollock fisheries of the BSAI. It also established harvesting and processing restrictions (known as “sideboards”) on fishermen and processors who have received privileges under the AFA, to protect participants in other fisheries, including other groundfish fisheries and the BSAI crab fisheries. The AFA is relevant to the proposed rationalization program for the BSAI crab fisheries from two standpoints: (1) the cooperative management program established by the AFA provides experience and serves as one potential model for the design of the crab rationalization program, and (2) the AFA sideboards for crab limit further entry of AFA vessels and processors into the already overcapitalized BSAI crab fisheries. The major features of the AFA cooperative management program are discussed as part of the analysis of the proposed BSAI crab rationalization program alternatives. The AFA crab sideboards are described next.

The AFA required the Council to recommend by July 1, 1999, conservation and management measures to prevent AFA catcher vessels from exceeding in aggregate the traditional harvest levels of such vessels in other fisheries under the Council’s authority as a result of fishery cooperatives in the directed pollock fishery. (The Council met this deadline by taking final action at its June 1999 meeting.) Since the BSAI king and Tanner crab fisheries are managed by the State under Federal oversight, catcher vessel sideboards are implemented jointly through State and Federal actions. Participation in the BSAI crab fisheries by AFA

catcher vessels is generally limited by (1) AFA catcher vessel permit endorsements implemented by NMFS, and (2) crab sideboard limits to be implemented by the State.

A catcher vessel that lacks the appropriate endorsements on its AFA permit is prohibited from retaining BSAI king and Tanner crab. In the Bristol Bay red king crab (BBRKC) fishery, AFA catcher vessel harvest limits are equal to the percent of BBRKC harvested from 1991 through 1997 (excluding 1994 and 1995 when the fishery was closed). Under these provisions, AFA vessels are entitled to approximately 13 percent of the available quota in the BBRKC fishery. The Bering Sea *C. bairdi* fishery is currently closed and will remain closed until the the Council's rebuilding goal for that fishery is reached. When the fishery reopens, harvests by AFA vessels will be limited to their historic catch percentage from 1995 through 1996. Under these limits, AFA vessels will be entitled to approximately 7 percent of the Bering Sea *C. bairdi* fishery. In the Bering Sea *C. opilio*, Pribilof king crab, and St. Matthew king crab fisheries, sideboards limit the number of AFA vessels that are permitted to participate. Catch limits do not apply to AFA vessels in these fisheries because seasons are very short and few AFA vessels participate in the fisheries.

The AFA also established limits on crab processing for AFA inshore processors and AFA motherships that receive pollock harvested by a fishery cooperative. Specifically, effective January 1, 2000, such AFA processors would be "*prohibited from processing, in the aggregate for each calendar year, more than the percentage of the total catch of each species of crab in directed fisheries under the [Council's] jurisdiction ... than facilities operated by such owners processed of each such species in the aggregate, on average, in 1995, 1996 [and] 1997.*" Since the primary inseason management for the BSAI crab fisheries is delegated to the State, NMFS has worked closely with the Alaska Department of Fish and Game (ADF&G) to develop a management program to implement the crab processing sideboards. Meanwhile, in the emergency interim rule published on January 28, 2000, NMFS established for each BSAI crab fishery entity-wide crab processing caps for each AFA inshore or mothership entity. These crab processing caps applied to all crab processed by the associated AFA crab processing facilities including any "custom processing" activity.

At its April 2000 meeting, the Council received testimony from crab fishermen who opposed the crab processing caps implemented in 2000, through the emergency interim rule. Some crab fisherman testified that AFA crab processing limits were restricting markets for crab fishermen and having a negative effect on ex-vessel prices. At its September 2000 meeting, the Council voted to revise the base years used to calculate crab processing sideboard amounts by adding 1998, and giving it double weight. In other words, 1995 to 1998 would be used to determine crab processing history with the 1998 year counting twice. By adding 1998 and by giving it a double weight, the Council believed that the crab processing limits would more accurately reflect the status of the crab processing industry at the time of passage of the AFA. This change was implemented in the emergency interim rule published on January 22, 2001.

1.1.2.5 Sustainable Fisheries Act of 1996 - Moratorium on New IFQ Programs

The Sustainable Fisheries Act (SFA), enacted by Congress on October 11, 1996, re-authorized and made significant amendments to the Magnuson Fishery Conservation and Management Act of 1976 (renamed the Magnuson-Stevens Fishery Conservation and Management Act). While the original focus of the Magnuson-Stevens Act (MSA) was to Americanize the fisheries off the coasts of the U.S., the SFA included provisions aimed at the development of sustainable fishing practices in order to guarantee a continued abundance of fish and continued opportunities for the U.S. fishing industry. The SFA included provisions to prevent overfishing, ensure the rebuilding of overfished stocks, minimize bycatch, and address impacts on fish

habitat. The SFA also placed a four-year moratorium (until October 1, 2000) on the implementation of new IFQ programs and commissioned a comprehensive study of IFQ programs by the National Academy of Sciences (NAS).⁷ Finally, the SFA codified the Alaskan community development quota (CDQ) program already adopted by the North Pacific Council, but also commissioned an NAS study of the CDQ program.

The moratorium on new IFQ programs came about largely because of the high degree of controversy surrounding the four IFQ programs that had been implemented in the U.S., particularly the North Pacific halibut and sablefish IFQ programs that went into effect in 1995. IFQ programs raised concerns regarding potential negative and unknown effects. For example, concerns were raised regarding the new level of capital required for entry, whether fisheries would become absentee-investor owned under IFQs, the impact of IFQs on fishing communities, and potential foreign control of IFQs and the fisheries themselves. On the other hand, because of their potential to address many of the problems associated with the race for fish (including overcapacity, high bycatch rates, and safety) IFQ programs were recognized as promising fishery management tools that should be available to Fishery Management Councils for their consideration.

To address the concerns raised with respect to IFQs, the SFA (1) established a moratorium on new IFQ programs until October 1, 2000, (2) clarified certain rights associated with IFQs, (3) commissioned a comprehensive study of IFQs by the NAS, and (4) required, after October 1, 2000, that Councils and the SOC consider the NAS study and recommendations for any new IFQ programs. These last three provisions of the SFA are summarized briefly below. The actual findings and recommendations of the NAS study on IFQ programs are discussed in more detail in Section 2.3 of this analysis. The legal implications of the moratorium on new IFQ programs are discussed in Section 1.3, which addresses several legal considerations relevant to the proposed crab rationalization program.

Clarifications on IFQs - The SFA clarified that IFQs (1) shall be considered permits, (2) may be revoked or limited at any time in accordance with procedures under the MSA, (3) shall not confer the right of compensation to the holder if revoked or limited, and (4) shall not create a private property right to the fish before the fish are harvested.

NAS Study on IFQ Programs - The study on IFQs is intended to provide Congress with guidance needed to assess IFQs as a fishery management tool and, if necessary, allow Congress to develop a broadly supported national policy on IFQs. The SFA directed the NAS to consider many of the unresolved issues regarding IFQs, including transferability, duration, processor quotas, conservation impacts, fishery characteristics, and potential social and economic costs and benefits to the Nation, and to participants in the fishery. The SFA also directed NAS to study mechanisms to prevent foreign control of U.S. fishery resources and mechanisms to ensure that vessel owners, vessel operators, crew members, and U.S. fish processors are treated fairly and equitably in initial allocations.

Requirements for New IFQ Programs - The SFA requires, after the moratorium on new IFQ programs expires, that Councils and the SOC consider the NAS report on IFQs and the report's recommendations for any new IFQ programs. The SFA also requires the Councils and SOC to ensure that any new IFQ program:

(A) establishes procedures and requirements for the review and revision of the terms of any such program (including any revisions that may be necessary once a national policy with

⁷ The Consolidated Appropriations Act of 2001 extended the moratorium on new IFQ programs until October 1, 2002.

respect to individual fishing quota programs is implemented), and, if appropriate, for the renewal, reallocation, or re-issuance of individual fishing quotas;

(B) provides for the effective enforcement and management of any such program, including adequate observer coverage, and for fees under section 304(d)(2) to recover actual costs directly related to such enforcement and management; and

(C) provides for a fair and equitable initial allocation of individual fishing quotas, prevents any person from acquiring an excessive share of the individual fishing quotas issued, and considers the allocation of a portion of the annual harvest in the fishery for entry-level fishermen, small vessel owners, and crew members who do not hold or qualify for individual fishing quotas.

Finally, the SFA included several provisions with respect to CDQ programs. First, it amended the MSA to include the western Alaska CDQ program that the North Pacific Council had already established. The amendment authorized the North Pacific Council and the SOC to “*establish a western Alaska CDQ program under which a percentage of the total allowable catch (TAC) of any Bering Sea fishery is allocated to the program.*” Secondly, the SFA authorized the Western Pacific Council to establish a CDQ program for any fishery under its jurisdiction in order to provide access to such fishery for western Pacific communities. Thirdly, the SFA commissioned an NAS study of the CDQ program to investigate the implications of the program for the Native Alaskan communities and fishery participants.

A provision was included to phase in the CDQ allocation percentage for the Bering Sea crab fisheries by allocating 3.5 percent of the TAC in 1998, 5 percent in 1999, and 7.5 percent in 2000 and thereafter, unless the North Pacific Council submits and the SOC approves any other percentage on or after October 1, 2001. The phase-in of the CDQ crab allocation was included because of the declining resource abundance in many of the Bering sea crab fisheries and the associated strain on participants.

1.1.2.6 Consolidated Appropriations Act of 2001 - BSAI Crab Vessel Buy-Back Program

The Consolidated Appropriations Act of 2001 (P. L. No. 106-554), which took effect on December 21, 2000, established a license and vessel buyback program, and vessel eligibility criteria in order to reduce fishing capacity in the BSAI crab fisheries. The enactment of the buyback program is, in part, the result of industry-led efforts to provide relief for the crab fleet. An ad hoc industry group considered several approaches to rationalizing the BSAI crab fisheries, including a vessel buyback program, cooperatives, IFQs, and the status quo. In order to move more quickly on the development of the buyback program, in early 2000, the industry group split into two smaller ad hoc industry committees; one committee focused on the buyback program and the other focused on cooperatives.

The Consolidated Act included four provisions relevant to the rationalization of the BSAI crab fisheries: (1) it established a fishing vessel buyback program for the BSAI crab fisheries; (2) it established eligibility criteria for vessels to participate in the BSAI crab fisheries; (3) it mandated the North Pacific Council to analyze several options for rationalizing the GOA groundfish and BSAI crab fisheries under its jurisdiction; and (4) it extended the moratorium on new IFQ programs until October 1, 2002. The first three of these provisions are discussed briefly below.

Vessel Buyback Program - The buyback program is intended to reduce fishing capacity in the BSAI crab fisheries by buying back eligible vessels and permanently revoking all licenses, permits, and endorsements for fisheries subject to U.S. jurisdiction. Vessels removed under the program would be permanently ineligible to participate in any fishery worldwide. Finally, the owners of vessels or holders of permits for such vessels would forever relinquish any claim associated with such vessel, permits, and any catch history associated with such vessel for purposes of any present or future limited access system in the U.S.

At its February, April, and June 2001 meetings, the Council reiterated its support of the buyback program as an important step in the overall rationalization process for the BSAI crab fisheries. At each meeting, the Council moved to send a letter to the SOC stating the Council's support. The implications of the vessel buyback program in the context of the rationalization program alternatives under consideration for the BSAI crab fisheries, including the status quo alternative, are discussed in Section 3 of this analysis.

Eligibility to Participate in the BSAI Crab Fisheries - The initial statute established qualification criteria for vessels to be eligible to participate in the BSAI crab fisheries. An amendment to the statute reestablished the use of LLP permits for regulating participation, including the RPP requirement that the vessel have at least one landing of BSAI crab in 1996, 1997, or before February 7, 1998. The statute by reference adopted the exemptions of Amendment 10 to the LLP requirements. The implications of this statute for the rationalization of the BSAI crab fisheries are discussed in Section 3 of this analysis.

Analysis of Rationalization Options - In addition to the vessel buyback program, the Consolidated Act also mandated that the Council examine fisheries under its jurisdiction to determine whether rationalization is needed and directed the Council to analyze several specific options. This requirement is discussed more fully in section 1.3.1.

1.1.2.7 Consolidated Appropriations Act of 2004

In January of 2004, Congress passed legislation authorizing the Secretary of Commerce to implement the Council's preliminary preferred alternative, described in Section 4 of this document. The specific legislation authorizing this action together with the floor statement concerning that legislation are attached to the Environmental Impact Statement for the proposed action, which this document is Appendix 1 to.

1.1.3 Need for Further Action

Actions taken so far, including actions awaiting implementation (e.g., Amendment 10 to the LLP and the vessel buyback program), have been recognized as important initial steps toward the Council's ultimate goal of developing a more comprehensive and rational management system for the BSAI crab fisheries. The proposed rationalization program alternatives that are the focus of this analysis are intended to provide a management system for the BSAI crab fisheries that address the problems of a competitive derby fishery in a more comprehensive manner. The suite of elements and options adopted by the Council at its June 2001 meeting are the result of efforts that began in late 1999, involving representatives of harvesters, processors, skippers and crewmen, communities, and environmental organizations. Interested parties met on an informal basis in a series of meetings starting in late 1999, and continuing through the fall of 2000. This ad hoc industry committee was formalized into a Council committee in December 2000.

The BSAI Crab Rationalization Committee made significant progress during its meetings in February and March 2001, in developing a set of elements and options for Council consideration and analysis of a crab rationalization program. The Committee's proposed rationalization program consisted of a three-component IFQ program that would allocate harvesting quota shares only to the harvesting sector (one-pie), allocate harvesting quota shares to the harvesting sector and processing quota shares to the processing sector (two-pie), and impose regional restrictions on deliveries of crab to processors (regionalization). While the Committee agreed that the rationalization program could be based on just one or two of the components, the Committee did not reach consensus on the relative desirability of a one-pie or two-pie IFQ program, with or without regionalization. The Committee agreed to recommend that the Council include all three components in the analysis, recognizing that the Council may choose to adopt a subset of the three.

At its June 2001 meeting, the Council refined and selected for analysis several alternatives and options for rationalization of the crab fisheries based on the Crab Rationalization Committee's work, AP recommendations, public testimony, a staff discussion paper, and discussion of the Council. A more complete discussion of the efforts of the ad hoc committee, the Crab Rationalization Committee, the AP, and the Council that led to this analysis appears in Appendix 1-1. The Council revised and refined its motion at its December 2001, and February 2002 meetings.

1.2 Alternatives Under Consideration

1.2.1 Description of Alternatives

Three general management alternatives for rationalization of the BSAI crab fisheries are under consideration:

- Alternative 1. No Action (Status Quo)
- Alternative 2. Crab IFQ Program
- Alternative 3. Crab Co-op Program

Brief descriptions of each alternative are provided below. The complete list of elements and options that are analyzed in this document is provided in Section 1.2.2.

Alternative 1. No Action (Status Quo) - Under this alternative, the BSAI crab fisheries would continue to be managed in accordance with existing Federal and State management measures, including any management measures pending implementation. The analysis of this alternative will address the implications for the resource and the fishing industry, including harvesters, processors and communities, if management of the BSAI crab fisheries continued without any additional actions by the Council. The analysis will consider the implications of implementation of Amendment 10 (recency requirement for the LLP), the AFA sideboard limits on harvesters and processors and the vessel buyback program. The analysis assesses the potential impact and timing of anticipated recoveries in the crab stocks.

Alternative 2. Crab IFQ Program - Under this alternative, the BSAI crab fisheries would be managed under some type of IFQ program. Depending on the Council's choice of elements and options, the IFQ program could be a one-pie IFQ program or a two-pie IFQ program. Under a one-pie IFQ program, quota shares (QS) would only be issued to the harvesting sector. Under a two-pie IFQ program, separate pools of quota shares would be allocated to the harvesting sector and the processing sector. In order to address coastal community concerns, the proposed IFQ program also includes options for restricting crab deliveries to certain

geographical regions (an approach called *regionalization*) and/or options for increasing the crab allocations to the existing CDQ groups. Several options are available for addressing (a) the initial allocation, (b) transferability, (c) ownership and use caps, and (d) the concerns of skippers and crew members.

Additional options may be chosen, which would have implications for harvesters-processor interactions under either IFQ program. For both one-pie and two-pie IFQ programs, options are included for controlling the degree of vertical integration. Under a two-pie system, additional options are proposed to encourage price competition among processors, including options to allow harvesters to deliver a specific percentage of their quotas to any processor on an open-delivery basis. Finally, an option for a private-sector (non-governmental) managed, binding arbitration process for resolving pricing disputes between harvesters and processors is included.

Alternative 3. Crab Co-op Program - Under this alternative, the BSAI crab fisheries would be managed under a cooperative system. Two types of co-op models are proposed: (1) a voluntary, multispecies cooperative, with independent harvesting and processing allocations proposed by ADF&G (2) a “plurality assignment” cooperative model under which each vessel is eligible to join a cooperative associated with the processor to which it delivered the most pounds of crab during a specified period. Under both cooperatives, harvesting vessels would be allowed to join one cooperative, which would receive an annual allocation of the GHIL or TAC based on the catch history of the member vessels during the qualifying period on a fishery-by-fishery basis. The cooperative models specify different linkages between the co-ops and processors.

Many of the options for the IFQ program alternative also apply to the co-op alternative, including options governing the initial allocation to harvesters, ownership caps, and options for addressing skipper and crew concerns. In addition, options for regionalizing deliveries or expanding the crab allocations to CDQ groups may also be considered in the context of a co-op alternative. The co-op alternative also includes options that are unique to co-ops, including options governing the number of vessels required to form a co-op, movement of vessels between co-ops, and the duration of co-op agreements.

1.2.2 Elements and Options for Analysis

The Council developed a set of options for analysis through an iterative process beginning at its June 2001 meeting, continuing through its April 2002 meeting. At the Council’s June 2002 meeting, the Council selected a preferred alternative for rationalization of the fisheries, yet the Council identified several options that required further consideration and analysis to develop a comprehensive preferred alternative addressing all areas of the problem statement. The Council completed the identification of a comprehensive preferred alternative at its April 2003 meeting. The different options considered by the Council after staff analysis are presented below in the chronological order in which those options were developed by the Council.

The following is a complete list of elements and options adopted for analysis by the Council at its June 2001 meeting as supplemented and modified by the Council through its April 2002 meeting:

Draft Council Motion for Item C-5 BSAI Crab Rationalization
April 14, 2002

C-5 BSAI Crab Rationalization

BSAI Crab Rationalization Problem Statement

Vessel owners, processors, and coastal communities have all made investments in the crab fisheries, and capacity in these fisheries far exceeds available resources. The BSAI crab stocks have also been highly variable and have suffered significant declines. Although three of these stocks are presently under rebuilding plans, the continuing race for fish frustrates conservation efforts. Additionally, the ability of crab harvesters and processors to diversify into other fisheries is severely limited and the economic viability of the crab industry is in jeopardy. Harvesting and processing capacity has expanded to accommodate highly abbreviated seasons, and presently, significant portions of that capacity operate in an economically inefficient manner or are idle between seasons. Many of the concerns identified by the NPFMC at the beginning of the comprehensive rationalization process in 1992, still exist for the BSAI crab fisheries. Problems facing the fishery include:

1. Resource conservation, utilization, and management problems;
2. Bycatch and its' associated mortalities, and potential landing deadloss;
3. Excess harvesting and processing capacity, as well as low economic returns;
4. Lack of economic stability for harvesters, processors, and coastal communities; and
5. High levels of occupational loss of life and injury.

The problem facing the Council, in the continuing process of comprehensive rationalization, is to develop a management program which slows the race for fish, reduces bycatch and its associated mortalities, provides for conservation to increase the efficacy of crab rebuilding strategies, addresses the social and economic concerns of communities, maintains healthy harvesting and processing sectors, and promotes efficiency and safety in the harvesting sector. Any such system should seek to achieve equity between the harvesting and processing sectors, including healthy, stable, and competitive markets.

Alternative Rationalization Programs

The Council adopted elements and options for analysis of alternative rationalization programs for the BSAI crab fisheries. The alternative models under consideration include several IFQ-style and cooperative-style rationalization models that may be structured as either harvester-only or harvester-processor programs, depending on the Council's choice of options. Additional features may be included to address coastal community and skipper/ crew issues. The following elements and options apply to any rationalization model under consideration as applicable:

1. Harvesting Sector Elements

- 1.1 Included in the program are the following crab fisheries subject to the Federal FMP for BSAI:

- Bristol Bay red king
- Brown king (AI Golden king)
- Adak red king
- Dutch Harbor red king
- Pribilof Islands blue king
- St. Matthew blue king
- Pribilof Islands red king
- Opilio (EBS snow crab)
- E AI Tanner
- W AI Tanner
- Bairdi (EBS Tanner)

Other FMP species not included here are discussed under item L at the end of the alternatives section.

Options:

- A) Exclude the E AI Tanner, W AI Tanner, Dutch Harbor red king crab, and W AI red king crab.
- B) Federal waters shall be closed to the harvest of Eastern (Dutch) and Western AI Tanner crab and Eastern (Dutch) and Western AI red king crab until such time as the State of Alaska develops a fishery management plan and harvest strategies that include provisions to conserve the stocks and prevent overcapitalization.
- C) Exclude the E AI Tanner, W AI Tanner, Dutch Harbor red king crab, and W AI red king crab East of 179° W longitude. (Insert consistent with recent Board of Fish action).

1.2 Persons eligible to receive an initial allocation of QS must be:

Option 1. Any person that holds a valid, permanent, fully transferrable LLP license; or

Option 2 A person, defined as a U.S. citizen that owns a MarAd certified and/or USCG ~~documented~~ BSAI crab vessel that: (i) was used to satisfy the General Qualification Period (GQP) and Endorsement Qualification Period (EQP) landings requirements of the License Limitation Program (LLP), and (ii) either was used to satisfy the Recent Participation Period (RPP) landings requirement of Amendment 10 or meets the exemption requirements of Amendment 10.

Suboption: A person who has purchased an LLP, with GQP, EQP, and RPP qualifications to remain in a fishery is eligible to obtain a distribution of QS on the history of either the vessel on which the LLP is based, or on which the LLP is used, but NOT both.

1.3 Categories of QS/IFQs

1.3.1 Crab Fishery Categories - QS/IFQs will be assigned to one of the crab fisheries included in the program as identified in paragraph 1.1, except Dutch Harbor red king, E AI Tanner, and W AI Tanner. (Note also that the Adak red king crab fishery has been closed for several years.)

1.3.1.1 Brown king crab (AI golden king crab) option.

Option 1. Split into two categories: Dutch Harbor brown king crab and Western Aleutian Islands brown king crab

1.3.2 Harvesting sector categories - QS/IFQs will be assigned to one of the following harvesting sector categories:

- (a) catcher vessel (CV), or
- (b) catcher/processor (CP)

QS-IFQ for the Catcher/Processor sector is calculated from the crab that were both harvested and processed onboard the vessel. This shall confer the right to harvest and process crab aboard a catcher/ processor in accordance with section 1.7.2.

1.3.3 Processor delivery categories - QS/IFQs for the CV sector may be assigned to processor delivery categories if processor quota shares (PQs) are included in the program. Two processor delivery categories (options for the percentage split between class A/B shares for initially allocated QS appear under the Processing Sector Elements):

- (a) Class A - allow deliveries only to processors with unused PQs
- (b) Class B - allow deliveries to any processor

- 1.3.4 Regional Categories - QS/IFQs for the CV sector may be assigned to regional categories if Regionalization is included in the program. Two regions would be defined as follows (see Regionalization Elements for a more detailed description of the regions):
- (a) North Region - All areas on the Bering Sea north of 56° 20' N. Latitude.
 - (b) South Region - All areas on the Bering Sea south of 56° 20' N. Latitude and on the Gulf of Alaska

1.4 Initial allocation of QS

1.4.1. Calculation of initial QS distribution will be based on legal landings excluding deadloss.

(a) Calculation of QS distribution. The calculation is to be done, on a vessel-by-vessel basis, as a percent of the total catch, year-by-year during the qualifying period. Then the sum of the yearly percentages, on a fishery-by-fishery basis, is to be divided by the number of qualifying years included in the qualifying period on a fishery-by-fishery basis to derive a vessel's QS.

Suboption: For each of the fisheries for which such a vessel holds valid endorsement for any years between the sinking of the vessel and the entry of the replacement vessel to the fishery, allocate QS according to a range of 0 to 100% of the vessel's average history for the qualifying years unaffected by the sinking.

(b) Basis for QS distribution.

Option 1. For eligibility criteria in paragraph 1.2, Option 1, the distribution of QS to the LLP license holder shall be based on the catch history of the vessel on which the LLP license is based and shall be on a fishery-by-fishery basis. The underlying principle of this program is one history per vessel. However, the initial allocation of quota share will allow stacking or combining of valid, permanent, fully transferable LLP licenses and of histories of vessels as permitted under the LLP.

Option 2. For eligibility criteria in paragraph 1.2, the distribution of QS to the LLP license holder shall be based on the catch history of the vessel (including replacement vessels) on which the LLP license and endorsements are based and shall be on a fishery by fishery basis. The catch history upon which the fishing quota shares are derived, must have been earned on vessels that are currently MarAd certified and/or USCG documented fishing vessels. The initial allocation of quota share will allow stacking or combining of LLPs and histories that satisfied (i) the GQP and EQP landings requirements of the LLP, and (ii) either the RPP landings requirement, or one or more of the specific exemption requirements of Amendment 10 to the LLP.

Option 3: In cases where the fishing privileges (i.e. moratorium qualification or LLP license) of an LLP qualifying vessel have been transferred, the distribution of QS to the LLP shall be based on the aggregate catch histories of (1) the vessel on which LLP license was based up to the date of transfer, and (2) the vessel owned or controlled by the LLP license holder and identified by the license holder as having been operated under the fishing privileges of the LLP qualifying vessel after the date of transfer. Only one catch history per LLP License.

Suboption: Persons who have an purchased LLP, with GQP, EQP, and RPP qualifications to remain in a fishery may obtain a distribution of QS on the history of either the vessel on which the LLP is based or on which the LLP is used, NOT both.

Suboption: With the exception of Amendment 10 replacement vessels, catch histories from different vessels shall not be combined for any single fishery, nor shall distribution of QS be based, in whole or in part, on any catch history of any vessel not lawfully U.S. documented and endorsed as a fishing vessel at the time such QS distribution is made. License transfers for purposes of combining LLPs must have occurred by January 1, 2002. (Could be applied to any of the above options or suboptions)

1.4.2 Qualifying Periods for Determination of the QS Distribution:

1.4.2.1 Opilio (EBS snow crab)

Option 1. 1994 - 1999 (6 seasons)

(a) Best 5 seasons

Option 2. 1992 - 1999 (8 seasons)

(a) Best 7 seasons

Option 3. 1995 - 1999 (5 seasons)

(a) All seasons

(b) Best 4 seasons

Option 4. 1996 - 2000 (5 seasons)

(a) Best 4 seasons

Option 5. 1996-2002 (7 seasons)

(a) (Best 6 seasons)

1.4.2.2 Bristol Bay red king crab

Option 1. 1993 - 1999 (5 seasons, closed in '94 and '95)

(a) All seasons

(b) Best 4 seasons

Option 2. 1992 - 1999 (6 seasons)

(a) All seasons

(b) Best 5 seasons

Option 3. 1996 - 2000 (5 seasons)

(a) Best 4 seasons

Option 4. 1996-2001 (6 seasons)

(a) Best 5 seasons

1.4.2.3 Bairdi (EBS tanner crab)

Option 1. 1992 - 1996 (5 seasons)

(a) All seasons

(b) Best 4 seasons

Option 2. 91/92* - 1996 (6 seasons)

(a) Best 5 seasons

Option 3. Based on a 50/50 combination of Bristol Bay red king crab and opilio harvests.

*The biological season extended over a calendar year

1.4.2.4 Pribilofs red king crab

Option 1. 1993 - 1998

(a) Best 4 seasons

Option 2. 1994 - 1998

(a) All seasons

- (b) Drop one season⁸

1.4.2.5 Pribilofs blue king crab

Option 1. 1993 - 1998

- (a) Best 4 seasons

Option 2. 1994 - 1998

- (a) All seasons
- (b) Drop one season

1.4.2.6 St. Matthew blue king crab

Option 1. 1993 - 1998

- (a) Best 4 seasons

Option 2. 1994 - 1998

- (a) All seasons
- (b) Drop one season

1.4.2.7 Brown king crab (based on biological season)

(Options apply to both Dutch Harbor and western Aleutian Island brown king crab)

Option 1. 92/93 - 98/99 (7 seasons)

- (a) All seasons
- (b) Drop one season

Option 2. 95/96 - 98/99 (4 seasons)

- (a) All seasons
- (b) Drop one season

Option 3. 96/97 - 98/99 (3 seasons)

- (a) All seasons
- (b) Drop one season

Option 4. 96/97 - 2000/01 (5 seasons)

- (a) Best 4 seasons

Option 5. 96/97 - 2001/02 (6 seasons)

- (a) Best 5 seasons

Suboption: Award each initial recipient QS based on:

- (a) GHL split Dutch Harbor/western Aleutian Island brown king crab
- (b) historical participation in each region.

1.4.2.8 Adak Red King Crab

Option 1. 1992 - 1996

- (a) All seasons
- (b) Best 2 seasons
- (c) Not appropriate for rationalization

1.5 Annual allocation of IFQs:

1.5.1 Basis for calculating IFQs:

Option 1. GHL

Option 2. Convert GHL to a TAC and use the TAC as the basis.

1.6 Transferability and Restrictions on Ownership of QS/IFQs:

⁸All potential recipients would drop their worst season during the qualifying period.

- 1.6.1 Persons eligible to receive QS/IFQs by transfer:
- Option 1.
- (a) All persons or entities eligible to document a U.S. fishing vessel are eligible to own or purchase harvester QS and IFQs
 - (b) Persons or entities with 75% U.S. ownership
Suboption: Initial recipients of harvesting quota share are grandfathered
- Option 2. US citizens who have had at least (3 options):
- a. 30 days of sea time*
 - b. 150 days of sea time*
 - c. 365 days of sea time*
- Suboption: Initial recipients of harvesting quota share are grandfathered
- Option 3. Entities that have a U.S. citizen with 20% or more ownership and at least
- a. 30 days of sea time*
 - b. 150 days of sea time*
 - c. 365 days of sea time*
- Suboption: Initial recipients of harvesting quota share are grandfathered

*Definition of sea time (3 options):

- Option 1. Sea time in any of the US commercial fisheries in a harvesting capacity
- Option 2. Sea time in a harvesting capacity in any commercial fishery of the State of Alaska or the Alaska EEZ
- Option 3. Sea time in any BSAI crab fishery

- 1.6.2 Leasing of QS (Leasing is equivalent to the sale of IFQs without the accompanying QS.)
Leasing is defined as the use of IFQ on vessel which QS owner holds less than 5-50% ownership of vessel or on a vessel on which the owner of the underlying QS is present:
- Option 1. Leasing QS is allowed with no restrictions
 - Option 2. Leasing QS is not allowed
 - Option 3. A brown king crab QS holder may annually swap with any other brown king crab QS holder, on a pound for pound basis, IFQ in one district for IFQ in the other district.

- 1.6.3 Separate and distinct QS Ownership Caps - apply to all harvesting QS categories pertaining to a given crab fishery with the following provisions:
- (a) initial issues that exceed the ownership cap would be grandfathered;
 - (b) apply individually and collectively to all QS holders in each crab fishery;
 - (c) percentage-cap options for the Bristol Bay red king crab, Opilio, Bairdi, Pribilofs red king crab, Pribilofs blue king crab and St. Matthew blue king crab fisheries (a different percentage cap may be chosen for each fishery):
 - Option 1. 1 % of the total QS pool for the fishery
 - Option 2. 5% of the total QS pool for the fishery
 - Option 3. 8% of the total QS pool for the fishery
 - (d) percentage-cap ranging from 10%-40% for the Dutch Harbor and western Aleutian Island brown king crab (a different percentage cap may be chosen for each fishery or may be applied to the combined fisheries if not categorized separately).

Suboption: No initial issuance shall exceed the cap specified. Any amount of QS that would be issued to a person in excess of the cap shall be distributed to other qualified persons receiving an allocation in the fishery:

- a) equally or
- b) proportionally.

- (e) percentage-cap ranging from 10%-30% for Adak red king crab (if QS for this fishery are issued).
- (f) in the opilio fishery, the cap can be reduced to 0.5% of the total QS pool in the event the GHL increases to over 400 million pounds (with those over this cap prior to the reduction grandfathered).

1.6.4 Controls on vertical integration (ownership of harvester QS by processors):

- Option 1: No controls
- Option 2: A cap of 1%, 5% or 8%, with grandfathering of initial allocations
- Option 3: An entity that owns PQs may not own harvester QS in addition to those harvester QS that were issued to the PQ holder in the initial allocation.

Vertical integration ownership caps on processors should be analyzed using both the individual and collective rule and the threshold ownership rule using 10%, 25%, and 50% minimum ownership standards for inclusion in calculating the cap. PQS ownership caps are at the company level.

1.7 Use of IFQs

1.7.1 Use by harvesting sectors - IFQs must be used in accordance with the privileges defined for the associated QS category. The following provisions also apply:

- I. "A" class CV-IFQs may be processed by either a shoreside processor or a catcher/processor so long as sufficient processor shares are held by the processor.
- II. "B" class CV-IFQ's may be processed by either a shoreside processor or a catcher/processor.
- III. "A" or "B" class CV-QS initially issued to a catcher/processor shall not be regionally or community designated.
- IV. "A" or "B" class CV-QS purchased or obtained by catcher/processers shall retain their regional or community designation.
- V. No allowance of the use of purchased class B share IFQ crab on catcher processor vessels.

1.7.2 Catcher/Processor shares:

1.7.2.1 Catcher/Processors shall be granted "A" and "B" class CV-QS in the same manner as catcher vessels.

1.7.2.1.1 Catcher/Processors shall be granted CP-QS in the same manner as catcher vessels.

1.7.2.2 Catcher/Processors shall be granted PQ's based on their processing history.

1.7.2.3 Allowances for Catcher/Processors:

- Option 1. Catcher/Processors are prohibited from purchasing additional PQs from shore based processors but are free to acquire PQs from other Catcher/Processors.
- Option 2. Catcher/Processors shall be allowed to purchase additional PQs from shore based processors as long as the shares are processed within 3 miles of shore in the designated region.
- Option 3. Catcher/Processors may purchase additional CV-QS but cannot process unless sufficient unused IPQs are held.

- Option 4. Catcher/Processors may sell processed or unprocessed crab. Depending on the type of model (one-pie, two-pie, etc.), unprocessed crab may be delivered to:
 - (a) processors that hold unused IPQs, or
 - (b) any processor
- Option 5. Only catcher processors that both caught and processed crab onboard their qualifying vessels in any BSAI crab fishery during 1998 or 1999 will be eligible for any CP QS in any IFQ or Coop program.
- Option 6. CP-QS initially issued to a catcher/processor shall not be regionally or community designated.

1.7.2.4 Transfers to shore-based processors:

- (a) Catcher/Processors shall be allowed to sell PQ's to shore based processors.
- (b) When CP-PQ shares without a regional designation are sold to a shore based processor, the shares become designated by region.
- (c) Catcher/Processors shall be allowed to sell CP/QS to shore based processors.
- (d) When CP/QS shares, without a regional designation, are sold to a shore based processor, the shares become CV and PQ shares designated by region.

1.7.3 Catch accounting under IFQs - All landings including deadloss will be counted against IFQs. Options for treatment of incidental catch are as follows:

- Option 1. No discards of legal crab will be allowed and sufficient IFQs for legal crab must be available.
- Option 2. No discards of "marketable" crab will be allowed for opilio crab and sufficient IFQs for "marketable" crab must be available. (Legal size for opilio is 3.1 inches but the industry standard is 4 inches.)
- Option 3. No discards of opilio crab with a carapace of 4 inches or greater in width.
- Option 4. Discards of incidentally caught crab will be allowed. (This option would allow, for example, incidental catch of bairdi crab in a red king crab fishery to be discarded without counting against bairdi IFQs.)
- Option 5. Request ADFG and BOF to address the concerns of discards, highgrading, incidental catch and the need for bycatch reduction and improved in season monitoring to coincide with implementation of a rationalization program.

1.7.4 Use caps on IFQs harvested on any given vessel:

- Option 1.
 - a) fleet average percent of the catch
 - b) highest single vessel percentage of the catch

Time periods considered for determining the catch shall be:

- a) the IFQ qualifying years;
- b) the IFQ qualifying years plus the years from the end of the qualifying period through the year of the final Council action.

Option 2. No use caps

1.8 Other Optional Provisions

1.8.1 Options for skippers and crews members:

Option 1.

I. Percentage to Captains and/or crew:

A range of percentages for initial allocation from 0% to 20% should be analyzed.

(i.e. 0%, 10%, 20%)

A crewman is defined as a US citizen who held a a commercial fishing landing permit or crew license during the qualifying period.

II. Species specific:

As with vessels.

III. Eligibility:

- Determined on a fishery by fishery basis by 1) having at least one landing in the qualifying years used by the vessels and 2) having recent participation in the fishery as defined by at least one landing per year in the fishery in the last two years prior to adoption of a rationalization program by the Council.
- As a second option, eligibility could be determined by a point system modeled after that used by the State of Alaska in SE Alaska for limited entry in the Dungeness, King, and Tanner crab fisheries there.
- Eligibility will include:
 1. Skippers only
 2. All crew

IV. Qualification period:

As with vessels.

V. Distribution per Captain:

- i) Shares based on landings (personal catch history based on ADF&G fish tickets).
- ii) Shares distributed equally among qualified participants.
- iii) distribution based on a point system
- iv) A mix of one or more of the above, with a range of 0-50% distributed equally and the balance based on landings and/or points

VI. Distribution for All Crew:

- i) Shares distributed equally among qualified participants.
- ii) distribution based on a point system
- iii) A mix of one or more of the above, with a range of 0-50% distributed equally and the balance based on points

VII. Transferability criteria:

- (1) Sale of QS
 - a) QS is fully transferable
 - b) QS is only transferable to active participants
- (2) IFQ leasing
 - a) IFQ is fully leasable
 - b) IFQ is only leasable to active participants
 - c) IFQ is leasable to smaller, distant fisheries (i.e. St. Mathew, Pribilof and Adak King Crab)
 - d) No leasing of IFQ

Use it or lose it would apply to all skipper/crew QS, with a one year hardship provision. If the skipper/crew QS holder does not maintain active status in the fishery they would be required to transfer their QS to another active participant in the fishery.

An active participant is defined by participation in at least one delivery in a crab fishery included in the proposed rationalization program in the last year as evidenced by ADF&G fish ticket or affidavit from the vessel owner.

VIII. Skipper/Crew on Board requirements

- a) No onboard requirement for skipper/crew with QS
- b) Initial issuees of QS would not be required to be onboard the vessel, subsequent tranferees would be required to be onboard the vessel when harvesting QS.
- c) Requirement for skipper/crew to be onboard vessel when harvesting QS.

Option 2: First Right of Refusal on Quota Share Transfers

- (1) A range of 0-20% of initially issued QS would be designated as crew shares, these shares would remain as a separate class of QS. Transfer of initially issued QS must include transfer of 0-20% crew shares for which there will be a first right of refusal for eligible crew to buy. The owner of the QS being offered for sale would have to give notice to NMFS RAM division of the impending sale. RAM in turn could then notify the fleet of the available QS. After this initial transfer crew QS will be available for transfer to any active participant in the fishery.
- (2) If a qualified buyer cannot be found then 50% of the 0-20% crew QS offered for sale would have to be gifted to a pool available to qualified buyers and the remaining 50% of the 0-20% could then be offered for sale on the open market to any buyer.
- (3) The crew pool of QS would be overseen by RAM. The proceeds from the sale of this QS by auction to the highest qualified bidder would go into a dedicated low interest loan program for crew.
- (4) Time frame for the first right of refusal is 1-3 months.
- (5) Eligibility of a U.S. citizen to purchase crew shares would be defined by participation in at least one delivery in the subject crab fishery in the last year as evidenced by ADF&G fish ticket or affidavit from the vessel owner.

Option 3. Protection of traditional and historical crew share percentages with no sunset based on the Canadian Groundfish Development Authority Code of Conduct.

Option 4. A low-interest rate loan program for skipper and crew purchases of QS would be established or made part of the existing loan program for IFQ purchases.

Option 5. Owner On Board Option

- a. A portion (range of 5-50%) of the quota shares initially issued to fishers / harvesters would be designated as "owner on board."
- b. All initial issuees (individual and corporate) would be grandfathered as not being required to be aboard the vessel to fish shares initially issued as "owner on board" shares
- c. Shares transferred to initial issuees in the first (range of 3-7 years) of the program would be considered the same as shares initially issued
- d. "owner on board" shares transferred by initial issuees , after the grace period, would require the recipient to be aboard the vessel to harvest the IFQ/ITQ

- e. In cases of hardship (injury, medical incapacity, loss of vessel, etc.) a holder of "owner on board" quota shares may, upon documentation and approval, transfer / lease his or her shares for the term of the hardship / disability or a maximum of (Range 1-3 years)
- f. Shares issued to CDQ groups are exempt from owner on board requirements

Suboption: Any transfer of QS designated at initial allocation as "owner on board" quota would count against "1st refusal" requirement.

1.8.2 Overage Provisions:

- (a) Allowances for overages during last trip:
 - Option 1. 1%
 - Option 2. 3%
 - Option 3. 5%
- (b) Any overage would be deducted from the QS holder's IFQs (during the next season) at:
 - Option 1. same amount as overage
 - Option 2. twice the amount as overage

1.8.3 AFA vessels option: Eliminate AFA harvester sideboard caps on crab species upon implementation.

1.8.4 Discussion in the analysis of season opening dates under an IFQ program and the potential for concurrent seasons and multi-species fishing to reduce bycatch.

1.8.5 Sideboards.

Sideboards shall be addressed through a TRAILING AMENDMENT, which shall evaluate the following options:

1. Non AFA vessels that qualify for QS in the rationalized opilio crab fisheries would be limited to their
 - a) GOA groundfish catch history excluding sablefish or
 - b) inshore pcod catch history in the GOA fisheries (with offshore pcod exempt).

The years for qualification would be the same as the qualifying period selected from 1.4.2.1.
2. Sideboard exemptions:
 1. exempt vessels from sideboards which had opilio landings in the qualifying years of:
 - Option a. <100,000 pounds
 - Option b. <70,000 pounds
 - Option c. <50,000 lbs
 - Option d. <25,000 lbs
 3. exempt vessels with more than 100, 200, or 500 tons of cod total landings in the years 95-99
 4. vessels with <10, <50 and <100 tons total groundfish landings in the qualifying period would be prohibited from participating in the GOA cod fishery.

2. Processing Sector Elements

2.1 Eligible Processors - processors (including catcher-processors) eligible to receive an initial allocation of processing quota shares (PQs) are defined as follows:

- (A) U.S. Corporation or partnership (not individual facilities) that
- (b) processed crab for any crab fishery included in the IFQ program during 1998 or 1999.

2.2 Categories of Processing Quota Shares

2.2.1 Crab fishery categories - processing quota shares may be issued for the following crab fisheries:

Bristol Bay red king

Brown king (AI Golden king)
Adak red king
Dutch Harbor red king
Pribilof Islands blue king
St. Matthew blue king
Pribilof Islands red king
Opilio (EBS snow crab)
E AI tanner
W AI tanner
Bairdi (EBS tanner)

- 2.2.2 Regional categories - processing quota shares will be categorized into two regions if regionalization is adopted (see Regionalization Elements for description of regions):
(a) Northern Region - All areas on the Bering Sea north of 56° 20' N. Latitude
(b) Southern Region - All areas on the Bering Sea south of 56° 20' N. Latitude and all areas on the Gulf of Alaska

2.3 Initial allocation of processing quota shares

- Option 1. Processing quota shares shall be initially issued to Eligible Processors based on three-year average processing history⁹ for each fishery, determined by the buyer of record listed on ADF&G fish tickets, as follows:
- (a) 1997 - 1999 for Bristol Bay red king crab
 - (b) 1996 - 1998 for Pribilof red king crab
 - (c) 1996 - 1998 for Pribilof blue crab
 - (d) 1996 - 1998 for St. Mathew blue crab
 - (e) 1997 - 1999 for opilio crab
 - (f) Bairdi crab based on 50/50 combination of processing history for BBRKC and opilio
 - (g) 1996/97, 1997/98 and 1998/99 seasons for brown king crab
 - (h) The council shall/may determine if the 4 species not included are appropriate for PQs, Dutch Harbor red king, E AI tanner, W AI tanner, and Adak red king
 - (i): The qualifying years for issuance of IPQ in the Western Aleutian Islands (Adak) red king crab fishery will be:
 - Option A. 1992/93 to 1995/96
 - Option B. Based on Western Aleutian Islands brown king crab IPQ
 - Option C. 0 - 50% of IPQs would be allocated to the community of Adak
- Option 2. Processing quota shares shall be initially issued to Eligible Processors based on the processing history for Opilio, BBRKC or brown king crab, determined by the buyer of record listed on ADF&G fish tickets, using the best 4 seasons during the 1996 - 2000 seasons.
Suboption: Extend this option to 1996 - 2002 for Opilio (best 6 of 7 seasons)
1996 - 2001 for BBRKC (best 5 of 6 seasons)
1996/7 - 2001/2 for brown king crab (best 5 of 6 seasons)
- Option 3. If an eligible processor is no longer active in the crab fisheries, the history of the processor will be allocated to open delivery (Class B) shares but will retain its regional designation.

⁹The three-year average shall be the three-year aggregate pounds purchased by each eligible processor in a fishery, divided by the three-year aggregate pounds purchased by all eligible processors in that fishery.

Option 4. If the buyer can be determined to be an entity other than the entity on the fish ticket, then the IPQ shall be issued to that buyer.

2.4 Percentage of season's GHL or TAC for which IPQs are distributed:

2.4.1 IPQs will be issued for a portion of the season's GHL or TAC for each species to provide open delivery processing as a means to enhance price competition:

- Option 1 100% GHL (or TAC) would be issued as IPQs
- Option 2 90% GHL (or TAC) would be issues as IPQs - the remaining 10% would be considered open delivery.
- Option 3 80% of GHL (or TAC) would be issued as IPQs - the remaining 20% would be considered open delivery.
- Option 4 70% of GHL (or TAC) would be issued as IPQs - the remaining 30% would be considered open delivery.
- Option 5 0% - no processing shares

2.5 Implementation of the open delivery processing portion of the fishery:

Catcher vessel QS/IPQs are categorized into Class A and Class B shares. Purchases of crab caught with Class A shares would count against IPQs while purchases of crab caught with Class B shares would not. Crab caught with Class B shares may be purchased by any processor on an open delivery basis.

2.6 Transferability of processing shares - provisions for transferability include the following:

- (a) Processing quota shares and IPQs would be freely transferable, including leasing
- (b) IPQs may be used by any facility of the Eligible Processor (without transferring or leasing)
- (c) Processing quota shares and IPQs categorized for one region cannot be transferred to a processor for use in a different region.

2.7 Ownership and use caps - different percentage caps may be chosen for each fishery:

2.7.1 Ownership caps

- Option 1. based on maximum share for processors by fishery plus a percentage of 5%, 10% or 15%.
- Option 2. Ownership cap equal to largest share issued to processor at initial issuance.
- Option 3. Range of caps from average to maximum with grandfather clause.

PQS ownership caps should be analyzed using both the individual and collective rule and the threshold ownership rule using 10%, 25%, and 50% minimum ownership standards for inclusion in calculating the cap. PQS ownership caps are at the company level.

2.7.2 Use caps

- Option 1 Annual use caps ranging from 30% - 60% of the GHL (or TAC) by fishery.
- Option 2. Annual use caps of quota share equal to the largest PQ holder's share in each specific fishery.

2.8 Other Optional Provisions:

2.8.1 The crab processing caps enacted by Section 211(c)(2)(A) of the AFA would be terminated.

2.8.2 Penalties - Eligible Processors must fully utilize their processing quota shares in the season while a fishery is open or lose the amount that is not utilized for one season in the next season.

- (a) Distribution of unused quota:

Option 1. Distributed to other processors proportionally

Option 2. Distributed to other processors equally

Option 3. Allocate to open delivery

Suboption 1. If QS is reclassified from Class A to Class B:

- a) reclassification of Class A QS will be distributed proportionally among all Class A QS holders
- b) reclassification of Class A QS will be distributed equally among all Class A QS holders
- c) reclassification of the unused Class A QS to B class

All three options for reclassification of these temporary B QS should require a regionalization designation to maintain the appropriate regional allocations. Additionally, include discussion of reasons a processor may not use its quota, including physical inability (e.g. plant breakdown); harvesters being unable to deliver when the processor is able to process; *bona fide* price disagreement; concern over exceeding the processor quota allotment (when there is only a small amount of processor quota remaining); and *bonafide* dispute over quality of the crab.

- (b) Hardship provisions

- 2.8.3 Option for use of a private sector managed (non-governmental), binding arbitration process, for failed price negotiations, between fishermen and processors. To the extent that this may be a key design feature in a two pie IFQ program, the analysis should consider the mechanics and applicability to a two pie IFQ program.

Considerations for analysis of binding arbitration:

- Individuals and groups of fishermen holding QS will negotiate independently and separately with individual processing companies holding PQs at any time, before season openings, the earlier the better, to seek best market prices;
- Only required if negotiations fail to achieve acceptable price to both parties;
- Private-sector financed and managed and conducted on a company-by-company basis;
- Individuals, groups and companies that request binding arbitration jointly bear the cost;
- Requires statutory definition, along with harvesting and processing quota shares;
- Harvesting and processing sectors must agree to participate;
- Agreements on price settlements are binding and will likely require an enforcement mechanism (i.e. contracts or statement of agreement between parties);
- Biological seasons, overlap of the biological seasons, crab quality, weather and other considerations need to be contemplated in development of the process framework;
- Need to establish criteria for pool of arbitrators

Elements of the binding arbitration process:

- Requires independent market analyses for specified BSAI king, tanner (Bairdi) and snow (Opilio) crab species by a designated market analyst to be chosen by industry (fishermen and processors);
- Arbitrator, chosen by industry (fishermen and processors) before start of negotiations, sits in on presentation of market analysis but does not sit in on negotiations;
- Need to establish and adhere to deadlines for:

- (a) Presentation of market analysis to industry (i.e. 8 to 10 weeks prior to season opening)
 - (b) Agreement on date to go to arbitration
 - (1) Pre season
 - (2) In season
 - (c) Agreement on deadline for price settlement
 - (1) Date certain
 - (2) or based on % of GHJ caught
- Arbitration will require the parties to submit best price and arbitrator picks one or the other price, but does not split the difference or other options
 - Options to establish a price:
 - Option 1. Prices established are a minimum price, based on market analysis, with processors agreeing to pay at least the minimum price (allows variability on prices between companies).
 - Option 2. Formula approach similar to some Bering Sea pollock operations, where the fleets share in the percentage of the sale price of the products. In this case, the arbitrator would decide the formula percentage.

The Council will appoint a technical working group to further assess the means to implement a system of Binding Arbitration as part of the crab rationalization program for all alternatives considered. The working group should be charged to return with a report to the Council in June, 2002. The working group will include staff support, NOAA GC, and representatives of the AMA, the processors, and harvesting groups. Further the Council/NMFS will explore options to bring in representatives of the harvest and processing sector from the Newfoundland crab fishery, who participated in the process with John Sackton, the arbitrator.

Additionally, the costs of arbitration and market research shall be funded by one-quarter of one percent of the federal fee on the ITQ program from the fisheries subject to the rationalization plan - distributed equally to an arbitration fund to the harvesters' legally constituted collective bargaining association.

- a) One quarter of one percent of the program for enforcement and management

Elements of the binding arbitration process:

The following additional options are added for analysis:

1. Arbitration may bind:
 - Option 1. All harvesters
 - Option 2. Only fishermen associated with a particular processor entity
 - Option 3. All processors
 - Option 4. Only the processor associated with a particular group of harvesters
2. The arbitrator shall base his or her decision on:
 - Option 1. Historical sharing of revenues in the fishery
 - Option 2. Historical revenues and costs of the fishery
 - Option 3. Distribution of revenues in excess of variable costs in the fishery
 - Option 4. All of the above and any other relevant factors the parties present to the arbitrator
3. An arbitration decision may be enforced by:
 - Option 1. Standard contract law provisions
 - Option 2. Use it or lose it provisions for both harvesters and processors
 - Option 3. Specific performance requirement

Staff shall include a brief preliminary qualitative discussion of the binding arbitration options in the public review analysis. Staff shall provide further analysis as the program is better defined.

3. Regionalization Elements

3.1 Two regions are proposed:

- (a) Northern Region - All areas on the Bering Sea north of 56° 20' N. Latitude. (This region includes the Pribilof islands and all other Bering Sea Islands lying to the north. The region also includes all communities on Bristol Bay including Port Heiden but excludes Port Moller and all communities lying westward of Port Moller.)
- (b) Southern Region - All areas on the Bering Sea south of 56° 20' N. Latitude and all areas on the Gulf of Alaska (This region includes all parts of the Alaska Peninsula westward of and including Port Moller. All of the Aleutian Islands are included in the South Region as are all ports and communities on the Gulf of Alaska.)

Suboption: Regional categories for deliveries of Aleutian Islands brown king and Adak red king crab split into a "Western" (west of 174 degrees West longitude) and "Eastern" (east of 174 degrees West) area with an option that up to 50% of W AI brown king crab must be processed in the W AI region.

3.2 Regional categorization of processing and/or harvesting quota shares

3.2.1 Categorization will be based on all historical landings. Periods used to determine regional percentages are as follows:

Option 1. 1995 - 1999

Option 2. 1997 - 1999

Option 3.

There shall be no regional designation when the percentage associated with the region is 0 - 8%.

There shall be no regional designation of the Bairdi fishery shares.

There shall be no regional designation of the Bristol Bay red king crab fishery shares.

Pribilof red king crab Class A shares shall all be designated for the Northern Region.

Pribilof blue king crab Class A shares shall all be designated for the Northern Region.

3.2.2 Options for the harvesting sector:

Option 1. all CV quota shares are categorized by region

Option 2. only Class A CV quota shares are categorized by region

3.2.3 Options for the processor sector:

Option 1. Processing quota shares and IPQs are categorized by region

Option 2. Regional restrictions apply to deliveries made on an open delivery basis

3.2.4 Once assigned to a region, processing and/or harvesting quota shares cannot be reassigned to a different region.

3.2.5 Options for addressing potential mismatch of harvesting and processing shares within the region.

1. The base years for determining processing shares and the base period for determining the share assigned to each region shall be the same.

2. If the cumulative harvester quota associated with each region differs from the total regional share, by species, the harvester share, by species, shall be adjusted, up or down, in the following manner:

a. The adjustment shall apply only to harvesters with share in both regions.

- b. The adjustment shall be made on a *pro rata* basis to each harvester, so that the total share among those harvesters, by region, equals the total share assigned to each region.
 - 3. The adjustment shall only be on shares that carry a regional designation; Class B quota would be excluded from the adjustment.
- 3.3 Delivery and processing restrictions - the following provisions apply to the delivery and processing of crab with IFQs or IPQs that are categorized by region:
 - (a) Crab harvested with catcher vessel IFQs categorized for a region must be delivered for processing within the designated region
 - (b) Crab purchased with IPQs categorized for a region must be processed within the designated region.
- 3.4 Alternative Regionalization/Community Protection Option: Processing history may leave an eligible community of origin in which the history was established with permission of the eligible community. The processing QS may change communities with negotiated agreement between the processor and the originating (eligible) community; these agreements will be filed with the Secretary of commerce thirty days prior to the quota share leaving the eligible community.

"Eligible communities" shall be defined as any community in which aggregate (community) landings exceeded 0-8% of the species for which processor QS is awarded during the qualifying period.

"Community landings" for closed fisheries will be determined using a formula that mirrors "processor option one" as defined in the current analysis.

Option to be evaluated as a TRAILING AMENDMENT:

Under this option, processor quota shares are subject to regional designations as set forth in Section 3.1, 3.2 and 3.3. A processing quota share holder may switch processor quota from one region to another region (on an annual or permanent basis) by compensating the community that is impacted by that change. A processor must provide compensation only if it switches from one region to another region. A change in location of processing within a region does not require compensation to a community. Compensation for a permanent departure from a region is only required one time; a subsequent change to another region does not require further compensation by the processing share quota owner. A switch of the region of processing under this option would include the following elements:

- 1. This option does not displace the regional designation of Class A shares or the processing of quota delivered under Class A shares. It instead provides an option for the delivery and processing of quota from Class A shares using IPQ into a different region upon compensation (in a manner and form acceptable to the effected community) to switch to another region.
- 2. The community to be compensated would be determined by the community that received the raw fish tax associated with the IPQ being transferred. The options for determining the community include:
 - (a) The community to which the raw fish tax was paid in 1, 2, 3 or 4 years prior to the proposed transfer;
 - (b) The community to which the raw fish tax was paid in the period used to determine eligibility for the issuance of IPQ;
 - (c) The community to which a majority of the raw fish tax was paid in the period designated in a or b above.
- 3. The processor that pays the compensation to the community may designate the harvester that also is allowed to switch from the original region to another region. The harvester is free to accept or reject that designation.
- 4. The option applies only to IPQ and corresponding Class A shares. It does not apply to any processing of Class B shares nor to Class B shares themselves.

5. The entity entitled to negotiate on behalf of the community shall be designated by one of the following: The State of Alaska or the United States Department of Commerce.

4. Community Development Allocation (based on existing CDQ program):
 - Option 1. No change from existing program
 - Option 2. Expand existing program to all crab fisheries under this analysis.
 - Option 3. Increase for all species of crab to 10%
 - Option 4. Increase for all species of crab to 12.5%
 - Option 5. For the Aleutian Islands brown king crab fishery, the percentage of resource not utilized (difference between actual catch and GHL) during base period is allocated to the community of Adak.

5. Program Duration and Review

The following options apply to all program elements:

 - Option 1. Program review after 2 years and every 3 years thereafter to objectively measure the success of the program, including benefits and impacts to harvesters (including vessel owners, skippers and crew), processors and communities by addressing concerns, goals and objectives identified in the Crab Rationalization problem statement and the Magnuson Stevens Act standards. This review should include analysis of post-rationalization impacts to coastal communities, harvesters and processors in terms of economic impacts and options for mitigating those impacts.

 - Option 2. Program review every 3 years to objectively measure the success of the program, including benefits and impacts to harvesters (including vessel owners, skippers and crew), processors and communities by addressing concerns, goals and objectives identified in the Crab Rationalization problem statement and the Magnuson Stevens Act standards. This review should include analysis of post-rationalization impacts to coastal communities, harvesters and processors in terms of economic impacts and options for mitigating those impacts.

 - Option 3. No program review

 - Option 4. Sunset in 5 or 7 years

6. Cooperative model options:

6.1 Coop model with the following elements and options:

State Voluntary Cooperative: The purpose of the voluntary cooperative for BSAI crab fisheries is to allow harvesting, processing and community interests to share in the benefits of a rationalized fishery, enhanced by formal cooperation between buyers and sellers. A cooperative structure encourages entities with common and mutual interests to approach those interests through a common perspective.

- Individual harvesting and processing histories are issued to both catcher and processors. (Harvesters under Section 1.3.2 a) which meet program qualifications. Processors under Section 2.1, 2.3, and 2.4 (Options 1-4) which meet qualifications of the program).

- Cooperatives may be formed through contractual agreements among fishermen who wish to join into a cooperative with one or more processors holding processor history for one or more species of crab. Fleet consolidation within this cooperative may occur either by internal history leasing and vessel retirement or by history trading within the original cooperative or to a different cooperative.

- 3) There must be at least 2 or more unique vessels/owners to form a coop with a processor. Vessels are not restricted to deliver to a particular plant or processing company.

Suboption: There must be at least 4 or more unique vessels engaged in one or more crab fisheries to form a coop with a processor. Vessels are not restricted to deliver to a particular plant or processing company.

- New processors may enter the fishery by acquiring processor history from an initial issuee. Cooperative formation with a new processor lacking processing history requires the new processor to offer both an adequate payment to the vessel and to the originating plant where the prior processing history resided.
- Custom processing would continue to be allowed within this rationalization proposal.
- Provide an opportunity for communities. Processing history may leave an eligible community of origin in which the history was established with permission of the eligible community. The processing QS may change communities with negotiated agreement between the processor and the originating (eligible) community; these agreements will be filed with the Secretary of commerce thirty days prior to the quota share leaving the eligible community.

"Eligible communities" shall be defined as any community in which aggregate (community) landings exceeded 0-8% of the species for which processor QS is awarded during the qualifying period.

"Community landings" for closed fisheries will be determined using a formula that mirrors "processor option one" as defined in the current analysis.

(Option for community protection that is being considered as trailing amendment under section 3.4 may be included in this program)

7) Regional Categories:

- Option 1. No regional categories.
- Option 2. Harvester cooperatives' regional categories for deliveries of Bering Sea crab as in paragraph 1.3.4.
- Option 3. Harvester cooperatives' regional categories for deliveries of Aleutian Islands brown king and Adak red king crab split into a "Western" (west of 174 degrees West longitude) and "Eastern" (east of 174 degrees West) area.

8) Duration of coop agreements.

- Option 1. 2 years
- Option 2. 4 years
- Option 3. 6 years
- Option 4. A harvester quota share holder may exit the cooperative at any time after one season. One season shall mean the season established by the Alaska Board of Fisheries for the fishery associated with the quota shares held by the harvester.

9) Community Development Allocation (under existing CDQ program)

- Option 1. No change from existing program
- Option 2. Expand existing program to all crab fisheries under this analysis.
- Option 3. Increase for all species of crab to 10%
- Option 4. Increase for all species of crab to 12.5%

Option 5. For the Aleutian Islands brown king crab fishery, the percentage of resource not utilized (difference between actual catch and GHL) during base period is allocated to the community of Adak.

10) Observer requirements. For crab vessels greater than 60' in length, maintain observer coverage at:

- Option 1. Status quo.
- Option 2. 10%
- Option 3. 20%
- Option 4. 30%

11) Length of program:

- Option 1. Sunset in 5 years
- Option 2. Program review to objectively measure the success of the program by addressing concerns identified in the Crab Rationalization problem statement and the Magnuson Stevens Act standards.
 - Suboption 1. Program review after 2 years
 - Suboption 2. Program review every 3 years

12) Option for skipper and crew members: Protection of traditional and historical crew share percentages with no sunset.

13) Catch Accounting - All landings including deadloss will be counted against a vessel's quota. Options for treatment of incidental catch are as follows:

- Option 1. No discards of legal crab will be allowed, and sufficient quota for legal crab must be available.
- Option 2. No discards of "marketable" crab will be allowed for opilio crab and sufficient quota for "marketable" crab must be available. (Legal size for opilio is 3.1 inches, but the industry standard is 4 inches.)
- Option 3. No discards of opilio crab with a carapace of 4 inches or greater in width.
- Option 4. Discards of incidentally caught crab will be allowed. (This option would allow, for example, incidental catch of bairdi crab in a red king crab fishery to be discarded without counting against a vessel's bairdi quota.)
- Option 5. Request ADFG and BOF to address the concerns of discards, highgrading, incidental catch and the need for bycatch reduction and improved in season monitoring to coincide with implementation of a rationalization program.

6.2 Use a co-op model that would have the following options:

1. Formation of Coop

A. There would be one coop formed with each eligible crab processor. Coops would be formed with the processor at the company level, not the plant level. Two or more vessels are sufficient to form a coop. The coop would handle all species of crab.

B. Crab processor eligibility would be determined using the qualifying period identified for allocation of initial IPQs (Eligible Processors, including C/P as revised in 1.7.2.3 option 5. Processors eligible to receive an initial allocation of processing quota shares (PQs) are defined as follows: U.S. Corporation or partnership (not individual facilities) that processed crab for any crab fishery included in the IFQ program during 1998 or 1999.)

C. Each crab vessel is eligible to join only one coop. Which coop the vessel is eligible to join is determined based on which eligible processor that vessel delivered the highest pounds of crab to during the processor qualifying period used for 1.B above.

D. Vessels that join a coop will have their catch history from the vessel qualifying period protected. A vessel that does not elect to join in the coop for which it is eligible remains under an open access fishery.

E. Each vessel's catch history is determined using the formulas identified for calculation of initial quota shares selected under section 1.4 as modified above.

F. A coop agreement would be filed annually with the Secretary of Commerce, after review by the Council, before a coop's catch history would be set aside for their exclusive use. The processor and each boat that is eligible and elects to join the coop must sign the agreement. Only the histories of those boats that sign will be protected.

2. Operation of Coop

A. The coop is responsible for allocating fishing quotas for each species of crab to the coop members. Each vessel is entitled to one vote, and decisions will be made by majority vote unless otherwise agreed to by the coop members.

B. The processor with which the coop is formed gets

- i. first right of refusal for all crab harvested by coop members, with coop free to deliver crab to another eligible processor if no agreement is reached; or
- ii. a guaranteed amount of coop crab to be delivered, with the amount ranging from 10% to 100%, the remainder of which can be delivered by the coop to either—

I. any eligible processor, or

II. any processor, eligible or not (i.e., new entrant allowed).

C. If the processor buys the coop crab, it may process the crab itself or may arrange to have it processed by any other crab processor (i.e., the processor acts as broker for coop crab it does not wish to process).

D. In the alternative, the processor may elect to have the coop act as its own broker for crab the processor does not wish to buy, with the coop free to either sell the crab to another processor or allow individual vessels to make arrangements on their own.

E. Cooperatives may arrange to swap, purchase, or trade deliveries of crab by mutual agreement of the cooperatives concerned.

3. Movement of Vessels Between Coops

A. Three alternatives would be analyzed.

i. Vessels are free to transfer between coops once each year, with agreement of the coop to which they are moving. Vessel catch history goes to new coop.

ii. Vessels may move to a new coop after spending one year in the open access fishery. Coop must agree to entry of new vessel. Vessel catch history is not protected in open access, but is restored upon entering new coop.

iii. Vessels may only leave coop with agreement of the processor. Catch history only goes with vessel if processor agrees.

B. Vessels that did not join a coop in the first year coops are formed may join the coop of the processor to which they delivered the highest pounds of crab in the previous year after spending one year in the open access fishery.

4. Regionalization, Etc.

A. All other options in the June Draft Council motion regarding regionalization, skipper/crew shares, etc. would be applied to the Lead Fishery Cooperative Model based on the options identified for analysis in those areas.

5. Taxes

Require owners of CP vessels to pay a fee equivalent to the tax that would have been imposed had the CP operated in State waters.

Further, the Council reaffirmed its earlier policy statement that catch history in the crab fisheries beyond December 31, 1998 may not count in future rationalization programs, including a fishery cooperative system.

The Initial Council Review Draft of the plurality coop is complete. Further analysis should focus on the options for an individual quota framework - both one-pie and two-pie - for management of the BSAI crab fisheries. The analysis should include a discussion of the use of the voluntary cooperative as a fishery management tool within the individual quota framework.

The analysis should include information on the alternative fisheries that harvesters and processors have participated in, so that alternative allocation options can be better assessed based on an individual harvester or processor's dependence on a particular crab fishery.

The amount of stranded capital in the processing sector should be analyzed. Options for addressing the stranded processing capital issue, such as a processor buyback program should also be discussed.

The effect of regionalization on ownership caps should be added to the analysis.

The analysis should include a qualitative discussion of cumulative impacts of the options on different classes of vessels.

Motion to require certain socioeconomic data from the crab catching, processing and catcher/processors participants during implementation of the crab rationalization program. This information is to include, but not be limited to: harvest and production costs; expenditure patterns; vessel ownership data including vessel identifiers (name and address files); and employment and earnings data. Individual socioeconomic data will be collected from fishing and processing entities and tabulated by the resource agencies, and maintained in a secure and confidential manner for analysis by the State and Federal fishery management agencies and the NPFMC. A team of Council and agency staff shall be appointed to develop a list of specific data to be collected, and the mechanism by which the data would be collected. Upon development of the draft plan, the team will meet with Council identified industry members to refine the program.

In addition the analysis should include the customary information that meets the requirements of an IRFA, RIR, EA etc.

Adopt by reference the recommendations on page 10 of the Final AP minutes of 2/9/02 and the SSC recommendations regarding improvements and changes to the crab rationalization document outlined in the SSC minutes of 2/7/02.

The state's current authority to set GHs will be modified to include the setting of TACs under the BSAI Crab FMP.

Finally, the Council requested that the Analysis include to the extent possible a comprehensive qualitative and, where possible, quantitative consideration and examination of the following:

- A. Processor ownership interest in BSAI crab harvesting vessels
- B. CV ownership interest in processors

- C. Processor ownership interest in BSAI crab fishing history
- D. CV ownership interest in BSAI processing history
- E. Foreign ownership interest in the BSAI crab processing sector
- F. Foreign ownership in the BSAI crab harvesting sector
- G. The percentage of Harvester QS that will be allocated to the processor sector as a result of processor sector ownership interest in BSAI crab harvesting vessels and BSAI crab fishing history.
- H. The percentage of processor PQs that will be allocated to the harvesting sector as a result of harvesting sector ownership interests in the BSAI crab processing sector and BSAI crab processing sector history including CPs.
- I. The anti-competitive impacts and economic barriers that may result from the cumulative and combined impacts of Individual Processing Quotas (IPQs) coupled with Regionalization. For example, are the combined impacts and barriers of IPQs and Regionalization different than the individual and respective impacts of IPQs or Regionalization and, if so, to what extent.
- J. The general economic and social impacts and the impacts on free and open competition and markets of IPQs, including the Halverson report and Matulich report on a 2-pie IFQ-type program.
- K. The impacts of IPQs on free markets and vigorous competition in the BSAI crab industry that may result from (1) processor sector ownership interest in BSAI crab harvesting vessels, (2) processor sector ownership interest in BSAI crab fishing history, and (3) the percentage of harvester QS that may be allocated to the processor sector as a result of processor sector ownership interest in BSAI crab vessels and BSAI crab fishing history.
- L. Staff should provide information describing the issues related to recency and potential proxy QS from other crab fisheries for determining the initial allocations in the EAI tanner, WAI tanner, and EAI (Dutch Harbor) red king crab fisheries. The State of Alaska should be consulted on potential options which can be implemented as trailing amendments.
- M. An analysis of the implications of rationalization on BSAI and GOA groundfish and other crab fisheries (including tanneri and Pribilof Islands brown king crab fisheries) shall be included in the analysis.
- N. A comprehensive section on environmental consequences (including bycatch, highgrading, stock rebuilding) of the rationalization alternatives shall be included in the analysis.
- O. An analysis of the impact of the crab vessel buyback on the rationalization alternatives (including the distribution of allocations and caps of harvester and processor shares and the regionalization alternatives) shall be included in the analysis.
- P. The analysis shall include a discussion of the cost recovery program and its interaction with the current State fee program.
- Q. The general impacts of IPQs on free markets and vigorous competition, price mechanisms, costs, distribution of rents and other competitive mechanisms:
 - (1) in the BSAI crab processor sector
 - (2) in the BSAI crab harvester sector.
 - (3) in the BSAI crab industry,
 - (4) in the non-AFA processor sector,
 - (5) in the Kodiak processor sector,
 - (6) in the BSAI and GOA fishing industry,
 - (7) that may result from mergers, acquisitions, combinations and concentrations in the processing sector,
 - (8) that may result from foreign ownership interest in the processing sector.
- R. Restrictions of ownership of Harvester QS by processing entities that have more than 25% foreign ownership interest.
- S. Spillover effects on other fisheries.

- T. Include a discussion of the percent of GHL purchased by non-eligible processors on an annual basis and the effect on the final QS pool.
 - U. Include a conceptual discussion on how co-op management might work in the harvesting and processing sectors and a comparison of IFQs/IPQs, to co-ops including the Dooley-Hall co-op structure in addressing the problem statement.
 - V. Conservation benefits and other implications of each component of the program (IFQ, IPQ, Regionalization Co-ops). Present the analysis of these issues in a consolidated section in the EA/RIR.
-

The Council at its June 2002 meeting selected elements and options that defined its preferred alternative for rationalization of the BSAI crab fisheries. As a part of that motion, the Council included the following provisions not explicitly identified in the previous motion. In addition, the Council requested that staff analyze the additional options for consideration. The following are the provisions of the June 2002 motion that amend or supplement the provisions of the April 2002 motion (additions are shown in bold):

Elements of the Crab Rationalization Program

Harvesting Sector Elements

Harvester shares shall be considered a privilege and not a property right.

- 1.1 Crab fisheries included in the program are the following fisheries subject to the Federal FMP for BSAI crab:

**Adak (WAI) red king crab - West of 179° W
Pribilof Islands blue and red king crab**

- 1.3.4 Regional Categories -

South Region - All areas not included in the North Region.

- 1.4 Initial allocation of QS

- 1.4.1. Calculation of initial QS distribution will be based on legal landings excluding deadloss.

- (b) Basis for QS distribution.

(Old Option 3) In cases where the fishing privileges (i.e. moratorium qualification or LLP license) of an LLP qualifying (i.e. GQP, EQP, RPP and Amendment 10 combination) vessel have been transferred, the distribution of QS to the LLP shall be based on the aggregate catch histories of (1) the vessel on which LLP license was based up to the date of transfer, and (2) the vessel owned or controlled by the LLP license holder and identified by the license holder as having been operated under the fishing privileges of the LLP qualifying vessel after the date of transfer. Only one catch history per LLP license. **The only catch histories that may be credited by transfer under this suboption are the individual catch histories of vessels that generate a valid permanent fully transferable LLP license.**

- 1.4.2. Qualifying Periods for Determination of the QS Distribution:

1.4.2.3 Bairdi (EBS Tanner crab)
Option 2. 91/92 - 1996 (best 4 of 6 seasons)

1.4.2.4 and 1.4.2.5 **Pribilof red and blue king crab**
Option 2. 1994 - 1998
b. Drop one season

1.4.2.7 Brown king crab (based on biological seasons)
Option 4. 96/97 2000/01 (all 5 seasons)

1.4.2.8 **Adak (WAI) red king crab - west of 179° west long.**
Option 1. 1992/1993 - 1995/1996 (4 seasons)
d. Best 3 seasons

1.6.2 Leasing of QS (leasing is equivalent to the sale of IFQs without the accompanying QS.)
Leasing is defined as the use of IFQ on vessel which QS owner holds less than 10% ownership of vessel or on a vessel on which the owner of the underlying QS is not present:

Option 1. Leasing QS is allowed with no restrictions **during the first five years after program implementation.**

1.6.3 Separate and distinct QS Ownership Caps - apply to all harvesting QS categories pertaining to a given crab fishery with the following provisions:

c. Percentage-cap options for the Bristol Bay red king crab, Opilio, Bairdi, **Pribilof red and blue king crab** and St. Matthew blue king crab fisheries (a different percentage cap may be chosen for each fishery)

1.7.2.3 Allowance for Catcher/Processors:

Option 8. The CP sector is capped at the aggregate level of initial sector-wide allocation.

1.7.4 Use caps on IFQs harvested on any given vessel are provided **for those vessels not participating in a voluntary cooperative described under section 6.1.**

1.8.2 Overage Provisions for the Harvesting Sector:
Allowances for overages during last trip:

Option 2. Overages up to 3% will be forfeited. Overages above 3% results in a violation and forfeiture of all overage.

1.8.5 Sideboards.

Options:

1. **Non AFA vessels that qualify for QS in the rationalized opilio crab fisheries would be limited to their**
 - a. **GOA groundfish catch history excluding sablefish or**
 - b. **Inshore pcod catch history in the GOA fisheries (with offshore pcod exempt).**
2. **The years for qualification would be the same as the qualifying period selected from 1.4.2.1.**
 - b. **Sideboard exemptions:**
3. **Exempt vessels from sideboards which had opilio landings in the qualifying years of:**
 - Option a. <100,000 pounds**
 - Option b. <70,000 pounds**
 - Option c. <50,000 lbs**
 - Option d. <25,000 lbs**

4. Exempt vessels with more than 100, 200, or 500 tons of cod total landings in the years 95-99
5. Vessels with <10, <50 and <100 tons total groundfish landings in the qualifying period would be prohibited from participating in the GOA cod fishery.

Suboption a: Council staff should analyze economic dependency of participants in the Bering Sea Korean hair crab fishery to determine if sideboards are warranted.

2.1 Eligible Processors

**Hardship provisions for processors that did not process crab in 1998 or 1999 but meet the following provisions:
A processor (not Catcher/Processor) that processed opilio crab in each season between 1988 and 1997 and
Invested significant capital in the processing platform after 1995, will be determined to be a qualified processor.**

Significant capital is defined as a direct investment in processing equipment and processing vessel improvements in excess of \$1 million.

2.3 Initial allocation of processing quota shares

Option 1. Processing quota shares shall be initially issued to Eligible Processors based on three-year average processing history for each fishery, determined by the buyer of record listed on ADF&G fish tickets, as follows:

- (b) 1996 - 1998 for Pribilof red and blue king crab,**
- (f) 1996/97 - 1999/00 seasons for brown king crab**

Option 4. If the buyer can be determined, by NMFS using the State of Alaska Commercial Operators Annual Report, fish tax records, or evidence of direct payment to fishermen, to be an entity other than the entity on the fish ticket, then the IPQ shall be issued to that buyer.

2.6 Transferability of processing shares - provisions for transferability include the following:

d. New processors may enter the fishery by purchasing IPQ or by purchasing Class B Share crab or by processing CDQ crab.

2.7.1 Ownership caps

Option 4. No ownership to exceed 30% of the total PQS pool on a fishery by fishery basis with initial issues grandfathered.

2.7.2 Use Caps.

Option 3. In the Northern Region annual use caps will be at 60% for the opilio crab fishery.

2.8.3 A private sector managed (non-governmental), binding arbitration process for failed price negotiations, between fishermen and processors will be implemented through a TRAILING AMENDMENT .

The Council requests that the Binding Arbitration Committee review the following provisions when considering the development of the binding arbitration program:

- **continue its efforts to refine the system of Binding Arbitration that will accomplish the goals articulated in the Council Crab Rationalization Problem Statement. The Committee should meet over the course of the summer and return with a report at the October 2002 Council Meeting.**
- **that the system of binding arbitration will create a mechanism to establish a minimum or formula price for all crab delivered using Class A harvesting shares.**
- **this minimum or formula price to be the "safety net" for the "last man standing" facing the last IPQ**

holder. It is intended to ensure that any harvester without market options has the option of an arbitrated minimum price.

- that there be one arbitration event per IPQ holder per season. Once through arbitration of price, price shall not be the subject of arbitration for that IPQ holder again for that season.
- that the system of price formation encourage the tradition of harvesters voluntarily engaged in collective bargaining with individual processing firms for the minimum ex-vessel price or formula in large GHL fisheries.

Listing these possible elements is not intended to restrict the committee from considering other arbitration program elements that it believes will be effective for protecting the interests of the parties.

3.1 Two regions are proposed:

b. Southern Region - All areas not in the Northern Region.

3.2 Regional categorization of processing and/or harvesting quota shares

3.2.1 Categorization will be based on all historical landings.

There shall be no regional designation of the bairdi fishery shares. When there is a harvestable surplus of bairdi, an open season, and the vessel has bairdi quota, bairdi will be retained and delivered as incidental catch in the red /blue king crab and opilio fisheries.

3.4 Community Protection

Transfers of IPQ out of a region are prohibited.

If an owner of IPQ decides to sell the IPQ, the right of first refusal to purchase the IPQ shall be granted to cdq groups (for IPQ in the Bering Sea) or a community organization approved by the local government (for IPQ in the GOA) providing that any IPQ so purchased is processed at a facility owned at least 50% by the CDQ organization or community group.

The amount of IPQ in any year shall not exceed the percentage of the TAC for any crab species as follows:

Option 1: IPQ percentage times a TAC of 150 million pounds.

Option 2: IPQ percentage times a TAC of 200 million pounds.

5. Program Elements

RAM Division in conjunction with State of Alaska will produce annual reports regarding data being gathered with a preliminary review of the program at 3 years.

Option 2. Formal program review at the **first Council Meeting in the 5th year after implementation** to objectively measure the success of the program, including benefits and impacts to harvesters (including vessel owners, skippers and crew), processors and communities by addressing concerns, goals and objectives identified in the Crab Rationalization problem statement and the Magnuson Stevens Act standards. This review shall include analysis of post-rationalization impacts to coastal communities, harvesters and processors in terms of economic impacts and options for mitigating those impacts. Subsequent reviews are required every 5 years.

Option 5. A proportional share of fees charged to the harvesting sectors and processing sectors for management and enforcement of the IFQ/IPQ program shall be forwarded to the State of Alaska for use in management and observer programs for BSAI crab fisheries.

At its October 2002 meeting, the Council adopted several additional provisions for staff analysis to consider

to supplement the preferred alternative identified in the June 2002 motion. The following provisions were included for analysis by the Council:

Elements of the Crab Rationalization Program

Section 3.4

Addition:

- Alternative 3 Allow for a community organization in those communities that have at least 1% of the initial distribution of processing history of any BSAI crab fishery to be exempted from the restriction for the 150 days of sea time requirement under 1.6 Transferability and Restrictions on Ownership of QS.

Community organization would be defined as:

- I. CDQ groups for CDQ communities
- II. non-profit community group (similar to CDQ group structure) for non-CDQ communities
- III. non-profit community group (similar to group structure under halibut community purchase program) for non-CDQ communities regardless of whether or not they are in a borough.

Ownership and management of harvest and processing shares by CDQ or community group will be subject to rules similar to CDQ regulations

The Council also approved the following options for consideration for the Captains QS (C share) program (options developed by the committee as amended at the direction of the Council):

1.8.1 Options for captain and crews members:

1.8.1.2 Percentage to Captain:

1. Initial allocation of 3% shall be awarded to qualified captains as C shares.
 - a. Allocation from QS pool
 - b. Allocation is from each vessel's allocation to the skipper on the vessel

1.8.1.3 Species specific:

1. As with vessels.

1.8.1.4 Eligibility:

Option 1

1. A qualified captain is determined on a fishery by fishery basis by
 - 1) having at least one landing in
 - a) 1 of the qualifying years used by the vessels
 - b) 2 of the qualifying years used by the vessels
 - c) 3 of the qualifying years used by the vessels and
 - 2) having recent participation in the fishery as defined by at least
 - I. one landing per season in the fishery in the last two seasons prior to June 10, 2002.
 - II. one landing per season in the fishery in one of the last two seasons prior to June 10, 2002.
 - III. one landing per season in the fishery in two of the last three seasons prior to June 10,

2002.

Suboption: For recency in the Adak red king, Pribilof, St. Matthew, and bairdi fisheries a qualified captain must have at least

- a) one landing per season in the opilio, BBRKC, or AI brown crab fisheries in the last two seasons prior to June 10, 2002 (operators of vessels under 60 feet are exempt from this requirement for the Pribilof red and blue king crab fishery).
- b) one landing per season in the opilio, BBRKC, or AI brown crab fisheries in one of the last two seasons prior to June 10, 2002 (operators of vessels under 60 feet are exempt from this requirement for the Pribilof red and blue king crab fishery).
- c) one landing per season in the opilio, BBRKC, or AI brown crab fisheries in two of the last three seasons prior to June 10, 2002 (operators of vessels under 60 feet are exempt from this requirement for the Pribilof red and blue king crab fishery).

2. A captain is defined as the individual named on the Commercial Fishery Entry Permit.

For captains who died from fishing related incidents, recency requirements shall be waived and the allocation shall be made to the estate of that captain. All ownership, use, and transfer requirements would apply to C shares awarded to the estate.

Option 2

Point System

Point system-following alternative is provided:

1) Participation 1996-2001

Qualified by delivery in at least two different species

(Maximum 36 points)

Graduated Scale weights most recent participation

Year	Points Awarded
2001	7 points
2000	7 points
1999	6 points
1998	6 points
1997	5 points
1996	5 points

2) Consistent Participation 1996-2001

Qualified by making total catch in a season for two different species

(Maximum 24 points)

4 points for each year

3) Vessel Ownership As of January 1, 2002

(Maximum 6 points)

% of Ownership	Points Awarded
1-50%	4 points
51-75%	5 points
76-100%	6 points

* This could be used to qualify captains as a general group or on fishery by fishery basis.

1.8.1.5 Qualification period:

1. As with vessels.

1.8.1.6 Distribution per captain:

1. C QS based on landings (personal catch history based on ADF&G fish tickets) using harvest share calculation rule.

Regionalization and Class A/B Designation

Option 1: C shares shall be a separate class of shares and not be subject to Class A share delivery requirements.

- Suboptions
- a. This allocation shall be made off the top and shall not affect the Class A/Class B share split for harvest shares. C shares shall not be subject to regional designations.
 - b. This allocation shall be made from the harvest Class B shares. C shares shall not be subject to regional designations.

Option 2: C shares shall be a separate class of shares but shall be subject to the Class A/Class B split and any related delivery requirements associated with the parallel harvest shares. C shares shall be subject to regional designations.

Option 3: C shares shall be a separate class of shares and shall all be subject to Class A share delivery requirements.

Option 4: C shares shall not be regionally designated or have an IPQ delivery requirement, but when used shall be delivered with the same regional distribution as the harvest shares used on the vessel on a season by season basis.

Initial Allocation Regionalization

If C shares are regionalized, at the initial allocation regional designations shall be made based on the captain's history, with an adjustment to the allocation to match the PQS regional ratio made based on the same scheme used for regional adjustment of harvest shares.

1.8.1.7 Transferability criteria:

1. Purchase of C QS.
 - a. C QS may be purchased only by persons who are
 - Option 1. US citizens who have had at least 150 days of sea time in any of the US commercial fisheries in a harvesting capacity and
 - Option 2. active participants

An "active participant" is defined by participation as captain or crew in at least one delivery in a crab fishery included in the rationalization program in the last 365 days as evidenced by ADF&G fish ticket or affidavit from the vessel owner or evidence from other verifiable sources.

2. C share leasing
 - a) C QS are leasable for the first three seasons a fishery is prosecuted after program implementation.

Suboption: limit to the following fisheries only:
Pribilof red and blue crab and St. Matthew blue crab
 - b) In cases of hardship (injury, medical incapacity, loss of vessel, etc.) a holder of C shares may lease C QS, upon documentation and approval, (similar to CFEC medical transfers) for the term of the hardship/disability or a maximum of 2 years over a 10 year period.

1.8.1.8 Loan program for crab QS

A low-interest rate loan program consistent with MSA provisions, for skipper and crew purchases of QS, shall be established for QS purchases by captains and crew members using 25% of the Crab IFQ fee program funds collected. These funds can be used to purchase A, B, or C shares.

Loan funds shall be accessible by active participants only.

Any A or B shares purchased under the loan program shall be subject to any use and leasing restrictions applicable to C shares (during the period of the loan).

National Marine Fisheries Service (NOAA Fisheries) is directed to explore options for obtaining seed money for the program in the amount of \$250,000 to be available at commencement of the program to leverage additional loan funds.

1.8.1.9 Captain/Crew on Board requirements

1. Holders of captain QS or qualified lease recipients are required to be onboard vessel when harvesting IFQ.
2. C QS ownership caps for each species are
 - Option 1. the same as the individual ownership caps for each species
 - Option 2. the same as the vessel use caps for each species
 - Option 3. double the vessel use caps for each species

C share ownership caps are calculated based on the C QS pool (i.e. section 1.7.4). Initial allocations shall be grandfathered.

3. Use caps on IFQs harvested on any given vessel shall not include C shares in the calculation.

1.8.1.10 C/P Captains

Captains with C/P history shall receive C/P C QS at initial issuance. C/P C shares shall carry a harvest and processing privilege.

- Option 1. The same rule applies to C/P C QS if they leave the C/P sector as in section 1.7.2.4.
- Option 2. C/P C shares shall be useable only on C/Ps.
- Option 3. C/P C shares may be harvested and processed on C/Ps or harvested on catcher vessels and delivered to shore based processors.
- Option 4. If C shares are not subject to IPQ delivery requirements, C shares may be harvested and processed on C/Ps or harvested on catcher vessels and delivered to shore based processors.

1.8.1.11 Cooperatives

C share holders shall be eligible to join cooperatives.

Crab Sideboards

The Council requested staff to expand the discussion of the application of sideboards to vessels, LLP licenses and transfers, and cooperatives for assessing the effectiveness of those caps. The Council also requested staff to consider the impacts that AFA sideboards and sideboard exemptions have had on the Pacific cod fishery in the analysis.

Data Collection

The Council directed the Data Workgroup and staff to continue working on development of a mandatory data collection program. The Council requested that the following issues be addressed at the December Council meeting:

1. the need and usefulness of allocating fixed costs across enterprises and products unrelated to crab,

2. collection of additional information on purchase and expenditure data to estimate community impacts,
3. development of an approach to collect additional data that could be used to study community and social impacts,
4. the usefulness of fish tickets and crew license identifiers to estimate number of crew days by vessel,
5. a discussion of protection of confidential data with input from NOAA GC and the State AG,
6. a discussion of the data collection under a third party system (includes a legal review of PSMFC collecting the data),
7. a discussion of whether arms length transactions are needed to determine "true" market prices, and
8. a discussion of data verification and enforcement under voluntary and mandatory data collection programs (the discussion should also include information on the potential for defense and abuse of the verification and enforcement systems).

The Council also developed three alternatives which consider various levels of fixed costs to be included in the data collection program. Under each alternative are two sub-options that request analysis on whether disaggregated expenditure and purchase data could be collected most efficiently under a mandatory or voluntary program. The alternatives and sub-options are listed below.

Alternative 1. Complete the analysis with the section on fixed costs (e.g., section 6.2 in the cost data surveys).

- Sub-option 1. Utilize disaggregated expenditure and purchase data to measure impacts to communities acquired by mandatory data collection
- Sub-option 2. Utilize disaggregated expenditure and purchase data to measure impacts to communities that are provided through a program analogous to the UAF-ADFG on-going opilio impact study.

Alternative 2. Complete the analysis without the section on fixed costs (e.g., section 6.2 in the cost data surveys).

- Sub-option 1. Utilize disaggregated expenditure and purchase data to measure impacts to communities acquired by mandatory data collection
- Sub-option 2. Utilize disaggregated expenditure and purchase data to measure impacts to communities that are provided through a program analogous to the UAF-ADFG on-going opilio impact study.

Alternative 3. Complete the analysis with a subset of the fixed cost data in section 6.2 in the cost data surveys.

- Sub-option 1. Utilize disaggregated expenditure and purchase data to measure impacts to communities acquired by mandatory data collection
- Sub-option 2. Utilize disaggregated expenditure and purchase data to measure impacts to communities that are provided through a program analogous to the UAF-ADFG on-going opilio impact study.

Additional Issues

The Council also included the following items for analysis.

Adak allocation clarification

Goals of Allocation: The 10% community allocation of Golden King Crab was developed to provide the community of Adak with a sustainable allocation of crab to aid in the development of seafood harvesting and processing activities within that community. Adak is a community that has similar attributes to the communities that have already been awarded community development quotas (CDQ). It is a very small second class city with a year-round population of over 110 residents, with commercial fishing as the only source of private sector income. As a Bering Sea community, the transportation alternatives are highly constrained without road, ferry, limited air service, or barge service. While the

community government is supported by modest local taxes and municipal assistance a critical source of revenue is the revenue sharing from the Alaska commercial fisheries business tax. Adak does not qualify as a CDQ community because of the reasons described in the Council staffing document, and the Council's allocation to Adak is to serve a similar end. The Council believes that there are no other similarly situated communities in the Western Aleutian Islands that are not CDQ communities.

Criteria for Selection of Community Entity to Receive Shares:

1. A non-profit organization will be formed under Aleut Enterprise Corporation¹⁰ with a board of directors selected from the enterprise foundation's board.
2. A non-profit entity representing the community of Adak, with a board of directors elected by the community (residents of Adak) in a manner similar to the CDQ program. As a sub option, the shares given to this entity may be held in trust in the interim by the Aleut Enterprise Corporation and administered by it.

For both options 1 and 2 above, a set of use procedures, investment policies and procedures, auditing procedures, and a city or state oversight mechanism will be developed. Funds collected under the allocation will be placed in trust for 2 years until the above procedures and a plan for utilizing the funds are fully developed.

Performance standard for management of the allocation to facilitate oversight of the allocation and assess whether it achieves the goals: Use CDQ type management and oversight to provide assurance that the Council's goals are met. Continued receipt fo the allocation will be contingent upon an implementation review conducted by the State of Alaska to ensure that the benefits derived from the allocation accrue to the community and achieve the goals of the fisheries development plan.

Additional sunken vessel provision

This provision would apply to persons whose eligibility to replace their vessel was initially denied under PL 106-554. The sunk vessel must have been replaced with a newly constructed and have been under construction by June 10, 2002 and participating in a Bering Sea crab fishery by October 31, 2002 for a person tor receive a benefit under this provision.

For each of the fisheries for which such a vessel holds a valid endorsement, for all season between the sinking of the vessel and the entry of the replacement vessel to the fishery within the IRS replacement period (as extended by the IRS, if applicable) allocate QS according to 50 to 100 percent of the vessel's average history for the qualifying years unaffected by the sinking.

CDQ caps

The following ownership caps would apply to CDQ ownership of QS

Range of Analysis:

Area/Species	QS Pool Percentages
Bristol Bay red king crab	1%, 3%, 5%
Bering Sea opilio crab	1%, 3%, 5%
Bering Sea bairdi crab	1%, 3%, 5%

¹⁰The Aleut Enterprise Corporation is a separate corporation from the Aleut Native Corporation formed under ANSCA. The AEC is a multi-ethnic economic development foundation formed to promote economic enterprise in the community of Adak.

Pribilof red and blue king crab	2%, 6%, 10%
St. Matthew blue king crab	2%, 6%, 10%
EAI brown king crab	10%, 20%, 30%
WAI red king crab	10%, 20%, 30%
WAI brown king crab	10%, 20%, 30%

The analysis shall include a qualitative discussion of how these caps relate to cooperative formation. The analysis shall also examine caps under 1) the individual and collective rule and 2) using thresholds of 10, 50, and 100 percent ownership for inclusion in calculating cap.

At its December 2002 meeting, the Council motion included the following direction concerning options to be considered for inclusion in the Council's preferred alternative:

Elements of the Crab Rationalization Program

Community Protection:

A cooling off period of 2 years shall be established during which processing quota earned in a community may not be used outside that community. The community protection committee shall consider implementation details.

The following types of alternatives could be considered in the committee, if consistent with the charge to the committee or within the discretion of the chair of the committee:

Under the alternatives with regionalization limitations and/or processor "A" shares:

Creation of a 3rd region, the North Gulf Coast region, defined as the area north of the extension of the existing north/south line eastward across the Alaska Peninsula and the Gulf of Alaska.

Suboption:

- a. Communities that have processed more than 1% of a rationalized crab species in any one of the qualifying years within the 3rd region to receive a direct allocation of processor "A" shares proportionally from regions 1 and 2.
- b. Holders of harvester shares shall be allowed to make one delivery within the 3rd region (last load home) to any community that has processed more than 1% of a rationalized crab species in any of the qualifying years. Crab poundage delivered in region 3 will be apportioned between regions 1 and 2 according to the ratio of "regionalized" shares owned by the harvester.

At its April 2002 meeting the Council created a committee to work to develop options for a system of binding arbitration to resolve ex-vessel price disputes between harvesters and processors. The committee developed several options, which the Council considered through its April 2003 meeting. The following problem statement and options were the refined options developed by the committee and considered by the Council:

Arbitration Problem Statement

Issuing harvesting and processing quota raised concerns regarding changes in bargaining power between the harvesting and processing sectors in ex-vessel price formation. Binding arbitration is a mechanism intended to address that issue, and to help achieve the goals articulated in the North Pacific Council's Crab Rationalization Problem Statement.

Standard for Arbitration (All options apply to all alternatives)

Option 1

The arbitration decision will attempt to make an equitable division of rents in the fishery (using the historic division of revenues as a surrogate for the division of rents for existing product forms).

Option 2

The arbitration decision will attempt to set a competitive or fair market price for crab delivered.

Option 3

The arbitrator shall consider relevant factors in making an arbitration decision, including but not limited to:

- a. Historical exvessel prices and division of revenues
- b. Current ex vessel prices (including prices for Class A, Class B, and Class C shares recognizing the different nature of the different share classes)
- c. Consumer and wholesale product prices for the processing sector and the participants in the arbitration (recognizing the impact of sales to affiliates on wholesale pricing)
- d. Innovations and developments of the different sectors and the participants in the arbitration (including new product forms)
- e. Efficiency and productivity of the different sectors (recognizing the limitations on efficiency and productivity arising out of the management program structure)
- f. Quality (including quality standards of markets served by the fishery and recognizing the influence of harvest strategies on the quality of landings)
- g. The interest of maintaining financially healthy and stable harvesting and processing sectors
- h. Safety
- i. Timing and location of deliveries
- j. Reasonable underages to avoid penalties for overharvesting quota and reasonable deadloss

Option 4

The primary role of the arbitrator shall be to establish a price that preserves the historical division of revenues in the fisheries while considering relevant factors, including the following:

- a. Current ex vessel prices (including prices for Class A, Class B, and Class C shares recognizing the different nature of the different share classes)
- b. Consumer and wholesale product prices for the processing sector and the participants in the arbitration (recognizing the impact of sales to affiliates on wholesale pricing)
- c. Innovations and developments of the different sectors and the participants in the arbitration (including new product forms)
- d. Efficiency and productivity of the different sectors (recognizing the limitations on efficiency and productivity arising out of the management program structure)
- e. Quality (including quality standards of markets served by the fishery and recognizing the influence of harvest strategies on the quality of landings)
- f. The interest of maintaining financially healthy and stable harvesting and processing sectors
- g. Safety
- h. Timing and location of deliveries
- i. Reasonable underages to avoid penalties for overharvesting quota and reasonable deadloss

Alternative Arbitration Structures

- I. A structure of one arbitration per processing firm, with harvesters using one mandated collective bargaining

association that would submit one last and final offer on behalf of all IFQ holders. Sub-options for this structure include

- a. Can either be pre-season or at any time the processor is first forced to arbitration.
 - b. Instead of mandating a collective bargaining association, the structure could require one last best offer from all IFQ holders (without mandating belonging to the association).
 - c. IFQ holders not participating can either have the protection of the arbitration (last man standing is protected) or not (last man standing does not receive the benefit of the arbitration).
- II. A structure of one arbitration event per processing firm, but with multiple arbitrations allowed. Under this system, arbitration would occur at one time, using one arbitrator, per processor, but any individual IFQ holder or group of IFQ holders could force arbitration of their individual last/best offer. Sub-options for this structure include:
- a. Can be collective bargaining by harvesters or individual or both. If individuals can arbitrate, there would be a notice and joinder opportunity for all harvesters to join into arbitration.
 - b. Can either be pre-season (only) or at any time the processor is first forced to arbitration.
 - c. If an IFQ holder is not part of the arbitration, it can still get the benefit of the minimum price established. The sub-options are the lowest, mean or highest arbitrated price.
- III. A structure of multiple arbitration events per processing firm only at firm times.
- a. The sub-options for when arbitration is allowed include temporal (such as every two months, or one event one month before the end of the season) or market related (if the market changes up or down over 5%, for example).
 - b. It is assumed that any IFQ holder may join in the arbitration.
 - c. It is assumed that any IFQ holder has the benefit of the last arbitration. The sub-options are the same as I.c.
- IV. A structure of multiple arbitration events per processing firm. Under this structure, arbitration could occur at the election of any quota holder at any time. Sub-options for this structure include:
- a. Can be collective bargaining by harvesters or individual or both.
 - b. There may be standards that must be met in order to require arbitration, such as a minimum amount of IFQ to cause arbitration.
- V. A structure establishing a "fleet wide" single arbitration event.
- a. The system would not use "last best offer" but rather the arbitrator could pick any final price the arbitrator wanted.
 - b. It would require that the arbitrator develop a formula pricing system
 - c. It would require revenue by processor be given to the arbitrator to use in developing the formula. It could require costs by processor be given to the arbitrator to use in developing the formula.
 - d. The formula could either adjust weekly with changes in market prices or establish a base or minimum price paid at the time of delivery and adjustment after product sales are completed.

Detail of Structure II (Last best offer structure)

General:

The Last Best Offer Model provides efficiency by resolving all price and delivery disputes pre-season, while also providing a later opportunity for an IFQ holder, who did not arbitrate or conclude a contract, to opt in on the same terms to a contract resulting from any of the completed arbitrations. The Last Best Offer Model allows voluntary agreements between IFQ and IPQ Quota Holders at any time, and provides a pre-season "matching" period for IFQ Holders to match with an IPQ Holder. The arbitration would occur close to the beginning of the season.

Specific characteristics include:

1. Processor-by-processor. Processors will participate individually and not collectively, except in the choice of the

market analyst and the arbitrator/arbitration panel.

2. Processor-affiliated shares. Participation of processor-affiliated shares will be limited by the current rules governing antitrust matters.
3. Arbitration standard. The standard for the arbitrator is the historic division of revenues between harvesters and processors in the aggregate (across the entire sectors), based on arm's-length first wholesale prices and ex-vessel prices (Option 4 under "Standard for Arbitration" in the staff analysis). The arbitrator shall consider several factors including those specified in the staff analysis, such as current ex vessel prices for A, B, and C Shares, innovations, efficiency, safety, etc.
4. Opt-in. An IFQ holder may opt in to any contract resulting from a completed arbitration for an IPQ holder with available IPQ by giving notice to the IPQ holder of the intent to opt in, specifying the amount of IFQ shares involved, and acceptance of all terms of the contract. Once exercised, an Opt-in is binding on both the IPQ holder and the IFQ holder.
5. Performance Disputes. Performance and enforcement disputes (e.g. quality, delivery time, etc.) initially will be settled through normal commercial contract dispute remedies. If those procedures are unsuccessful and in cases where time is of the essence, the dispute will be submitted for arbitration before the arbitrator(s). The costs of arbitration shall be paid from the fees collected, although the arbitrator(s) will have the right to assign fees to any party for frivolous or strategic complaints.
6. Lengthy Season Approach. For a lengthy season, an IPQ holder and an IFQ holder (or group of IFQ holders) may agree to revise the entire time schedule below and could agree to an arbitration(s) during the season. That approach may also be arbitrated pre-season if the holders cannot agree.

Process:

1. Negotiations and Voluntary Share Matching.
At any time prior to the season opening date, any IFQ holders may negotiate with any IPQ holder on price and delivery terms for that season (price/price formula; time of delivery; place of delivery, etc.). If agreement is reached, a binding contract will result for those IFQ and IPQ shares. IPQ holders will always act individually and never collectively, except in the choice of the market analyst(which may occur at any time pre-season) and the arbitrator/arbitration panel for which all IFQ and IPQ holders will consult and agree.
2. Required Share-Matching and Arbitration.
Beginning at the 25-day pre-season point, IFQ holders may match up IFQ shares not already subject to contracts with any IPQ shares not under contract, either as collective groups of IFQ holders or as individual IFQ holders (the offered IFQ Shares must be a substantial amount of the IFQ Holder(s)' uncontracted shares). The IPQ holder must accept all proposed matches up to its non-contracted IPQ share amount. All IFQ holders "matched" with an IPQ holder will jointly choose an arbitrator with that IPQ holder. The matched share holders are committed to the arbitration once the arbitrator is chosen (if the parties wish, the arbitrator may initially act as a mediator to reach an agreement quickly). Arbitration must begin no later than 15 days before the season opening date.
3. Data.
The Arbitrator will gather relevant data independently and from the parties to determine the historical distribution of first wholesale crab product revenues (at FOB point of production in Alaska) between harvesters and processors in the aggregate (across the entire sectors). For a vertically integrated IPQ holder(and in other situations in which a back-calculation is needed), the arbitrator will work with that IPQ holder and the IFQ holders to determine a method for back-calculating an accurate first wholesale price for that processor. The Arbitrator will receive a pre-season market report from the market analyst, and may gather additional data on the market and on completed arbitrations. The Arbitrator will also receive and consider all data submitted by

the IFQ holders and the IPQ holder. The Arbitrator will not have subpoena power.

All data obtained by the Arbitrator will be shared with the parties, subject only to antitrust limitations. The Arbitrator may consult with the third party data collector (e.g., the Pacific States Marine Fisheries Commission) for purposes of verifying data.

4. Arbitration Decisions.

Arbitration will be based on a "last best offer" system, with the Arbitrator choosing one of the last best offers made by the parties. The Arbitrator will work with the IPQ and IFQ holders to determine the matters that must be included in the offer (e.g. price, delivery time & place, etc.) and will set the date on which "last best offers" must be submitted. The last best offers may also include a price over a specified time period, a method for smoothing prices over a season, and an advance price paid at the time of delivery.

If several groups or individual IFQ Holders have "matched" with that IPQ Holder, each of them may make a last best offer. Prior to submission of the last-best offers, the Arbitrator may meet with parties, schedule joint meetings, or take any actions aimed at reaching agreement. The Arbitrator will notify the IPQ holder and the IFQ holders of the Arbitration Decision no later than 10 days before the season opening date. The Arbitration Decision may be on a formula or ex-vessel price basis. The Arbitration Decision will result in a contract for the IPQ holder and the IFQ holders who participated in arbitration with that IPQ holder.

5. Post-Arbitration Opt-In.

Any IFQ holder with shares not under contract may opt in to any contract resulting from an Arbitration Decision for an IPQ holder with IPQ that is not under contract, on all of the same contract conditions (price, time of delivery, etc.). If there is a dispute regarding whether the "opt in" offer is consistent with the contract, that dispute may be decided by the arbitrator who will decide only whether the Opt-in is consistent with the contract.

6. Formula and Prices.

Throughout the year, the market analyst will survey the crab product market and publish periodically a composite price. That price will be a single price per species, based on the weighted average of the arm's length transactions in products from that species.

7. Additional Modifications

- a. The arbitrator who makes the last pre-season arbitration decision will review all of the arbitration decisions for that season and select the highest arbitrated prices(s), which is representative of 7% of the market share of the PQ. That price shall become the price for all arbitrated prices of that season, inclusive of the opt-in provision, and, independent of delivery terms at the harvester option. If the arbitration decisions include both formula and straight price decisions, the arbitrator shall have the discretion to select and apply one of each type. The decision on which price is the 'highest arbitrated price' shall take into consideration terms of delivery that may have a significant impact on price, including time and place of delivery.
- b. A single annual fleet-wide arbitration will be used to establish a non-binding formula under which a fraction of the weighted average first wholesale prices for the crab products from each fishery may be used to set an ex-vessel price. The formula is to be based on the historical (1990-2000) distribution of first wholesale revenues between fishermen and processors. The formula may be adjusted by the arbitrator(s) to take into account post-rationalization developments as the arbitrator(s) deem appropriate, subject to certain general guidelines.

Detail of Structure V (Fleet-wide binding arbitration structure)

General:

A single annual fleet-wide arbitration will be used to establish a formula under which a fraction of the weighted average

first wholesale prices for the crab products from each fishery is used to set a default ex-vessel price. This price will apply in cases where a delivery is made in the absence of contract between a harvester and a processor. The formula is to be based on the historical (1990-2000) distribution of first wholesale revenues between fishermen and processors. The formula may be adjusted by the arbitrator(s) to take into account post-rationalization developments as the arbitrator(s) deem appropriate, subject to certain general guidelines.

On certain terms and conditions, harvesters holding individual fishing quotas ("IFQs") for which they do not have a contract with a processor may "put" such IFQs to any processor with available individual processing quota ("IPQs") for the arbitrated default price, by providing a notice of intent to deliver, which specifies the date, place, quantity, etc. of the proposed delivery. If a processor to whom a harvester puts IFQ does not agree with the delivery terms, the terms will be subject to expeditious negotiation, and, if the harvester elects, binding arbitration before the arbitrator(s) that establish the default price formula. Under no circumstances will a processor have the ability to "call" IFQ.

To address differences in timing between when deliveries are made and when the related product is sold, and the potential that processors will exclusively reserve delivery periods when product has higher value to harvesters with whom they are affiliated, the arbitrator(s) will have the authority to "smooth" first wholesale prices over a period that the arbitrator(s) determine is appropriate.

Because there will be some time lag between deliveries to which the default price applies and the determination of that price, the arbitrator(s) will establish a method for projecting the default price, and will establish a formula for determining the percentage of the default price to be paid at delivery (as an advance), and the balance to paid when the default price has actually been calculated (as a settlement).

Procedure:

1. Arbitrator. Representatives of the harvesting and processing sectors select an arbitrator. If the two sectors are not able to agree, each sector will choose an arbitrator, and the two so chosen will choose a third arbitrator.
2. Market Analyst. The arbitrator(s) select a market analyst, in consultation with representatives of the harvesting and processing sectors.
3. Data Gathering. The arbitrator(s) and the market analyst (the "Team") meet with each processor individually as necessary (to address antitrust issues) and harvesters individually and/or collectively (subject to the vertical integration standards of generally applicable antitrust laws) to:
 - a. gather data relevant to determining the historical distribution of first wholesale crab product revenues between harvesters and processors;
 - b. determine a method for constructing a composite first wholesale price from the IPQ holders' crab product transactions;
 - c. determine composite price adjustment factors for each crab delivery port, to reflect the differential costs associated with delivering to, processing at and shipping from each port;
 - d. determine the percentage of the default price to be paid at delivery (as an advance), and the balance to paid when the default price has actually been calculated (as a settlement);
 - e. determine the start date and duration of the period during which harvesters may "put" their IFQ to an IPQ holder with available IPQs, on a fishery by fishery basis;
 - f. determine the level of "upward" vertical integration of each IPQ holder, and to determine, in cases where a processor does not sell product on an arm's length basis at the first wholesale level, the value accrued by the

- processor at each transaction level up to and including the first point at which it sells on an arm's length basis to a third party (which will be used to back-calculate a proxy first wholesale price for any such processor); and
- g. the variety of crab product forms projected to be produced and the likely markets for such products.
4. Initial Discussions/Mediation. Not less than 120 days before the opening of the first crab fishery of the upcoming year, the Team meets with each processor individually and with harvesters collectively (subject to the vertical integration standards set forth above) to present their preliminary conclusions regarding the items listed in section 3., above. The arbitrator(s) seek consensus among representatives of the harvesting and processing sectors regarding these issues.
 5. Contract Negotiation Period. The Team encourages harvesters and processors to negotiate voluntary contracts concerning IFQ/IPQ transactions prior to the opening of the period during which put options may be exercised. The arbitrator(s) allow adequate time between the initial discussions and mediation referenced in Section 4., above, and the opening of the put option period(s) to facilitate contract negotiation and formation.
 6. Arbitration. Not less than 30 days before the first crab fishery opens, the arbitrator(s) stipulate the revenue distribution formulas, method for constructing composite first wholesale prices, advance and settlement percentages and the put option periods for each fishery, if they have not been agreed upon by all IPQ and IFQ holders.
 7. Composite Price Calculation. Throughout the year, the market analyst surveys the crab product market, and publishes a weekly composite price based on the survey structure and price construction methodology developed by the Team. The weekly composite price is a single price per species, based on the weighted average of the arm's length transactions in products produced from that species.
 8. Price Smoothing Function. The weekly composite prices may be used, at the arbitrators' discretion, to establish a single season or multi-week price, to "smooth" differences between prices at delivery and prices at the time of product sales, and to address optimal delivery times being reserved to processor-affiliated vessels. In addition, for purposes of determining appropriate seasonal advance payments at delivery, the Team will produce a weekly projection of the smoothed price that would apply to deliveries made during a given week.
 9. Delivery Mechanics. In the absence of a contract, a fisher would have the option to put his IFQs to a processor with available IPQs at the default price, during the put exercise period. A harvester may exercise its put option by providing a notice of intent to deliver, proposing place, time, quantity, etc. The amount of IFQ involved must be substantial, relative to the harvester's uncommitted IFQ. Upon a harvester putting IFQ to a processor with available IPQ, the put IFQ and the equivalent amount of IPQ are reserved until: (i) terms of delivery are agreed upon (in which case the IFQ and IPQ are committed), (ii) the harvester withdraws the IFQ put (which may be any time through the harvester electing to undertake binding arbitration with respect to the put), or (iii) expiration of the negotiation period, if the harvester does not elect to enter binding arbitration. The negotiation period is 5 business days for harvesters that are not members of a cooperative, and 7 business days for harvesters that are. In cases where a processor objects to any term of the IFQ put, the matter is not resolved through negotiation during the negotiation period, and the harvester elects to undertake binding arbitration, the dispute will be arbitrated by the arbitrator(s) selected to determine the formula. To reduce the administrative burden associated with such dispute resolution, the arbitrator(s) are expected to use reasonable efforts to consolidate such disputes on a processor by processor basis, such that each processor is subjected to no more dispute resolution sessions than necessary, and to conduct the related arbitration(s) expeditiously.
 10. Opt-In. After the put option period has closed, a harvester with uncommitted IFQ may deliver to a processor with uncommitted IPQ by either (i) accepting the delivery terms established under put option arbitration(s) with that processor, or (ii) by negotiating mutually agreeable delivery terms with the processor.

11. Payment. Because the price smoothing function may introduce some lag between delivery and price determination, payments will be made on an advance and settlement basis. The advance percentage is intended to be that which typically applied pre-rationalization in transactions where a harvester was not sharing market risk, and is expected to be a reasonably high percentage (i.e., 80%) of the projected composite price. The settlement will be calculated promptly following the close of the price smoothing period, and paid promptly thereafter.
12. Performance-Related Dispute Resolution. Disputes arising out of any IFQ/IPQ transactions (including but not limited to disputes concerning product quality, delivery, payment or other harvester and processor performance obligations) will initially be addressed through standard commercial contract procedures (i.e., notice of breach, opportunity to cure for a commercially reasonable period, etc.). Disputes that are not resolved through such procedures will be submitted to binding arbitration before the arbitrator(s). To reduce the risk that disparate resources could affect the outcome, the costs of arbitration will be paid out of the pool of funds collected (as taxes or industry assessments) to support the price arbitration process. On the other hand, to discourage frivolous or strategic (as opposed to substantive) complaints, the arbitrator(s) may deny access to arbitration or assess arbitration costs and fees in cases where a party asserts a non-substantive claim.

Summary Comments:

The arbitrator(s) pre-season functions (other than determining the historical distribution of first wholesale revenues) are repeated annually. The arbitrator(s) are expected to take into account changes in fishery and market characteristics, such as changes in season duration and product forms each successive season, and to adapt the structure and function of the model accordingly, while preserving its general parameters.

In addition to developing a composite base price formula, the arbitrator(s) and the market analyst will be expected to develop individual port price adjustment factors, to reflect the differential costs of delivering to, processing in and shipping from each community.

The arbitrator(s) may exclude high value products from the composite price calculation in cases where processors and/or harvesters have incurred extraordinary expenses or made capital investments to produce such products, or in cases where the arbitrator determines exclusion of such products is appropriate to provide an incentive to improve efficiency or product quality. The arbitrator(s) would not be expected to exclude high value products in cases where the higher value relates to market timing.

Price smoothing is intended to eliminate the need to track product from delivery to first arm's length sale, reducing administrative burden to processors. Further, price smoothing is intended to address the disparity in value related to delivery timing, where delivery periods associated with peak values are reserved to a processor's affiliated fleet, and/or in cases where a processor chooses to process products other than crab during such periods. On the other hand, it may be appropriate in some circumstances to allow the composite price to float with the market price, to reflect differences in value associated with harvest timing, such as in-fill percentages, and generally applicable market cycles. The arbitrator(s) will have substantial discretion in balancing relevant factors, and determining the appropriate duration and scope of the price smoothing function.

The arbitrator(s) will have the authority to address market timing and processor operational or logistical considerations in put option arbitrations. On the other hand, the arbitrator(s) will be expected to address the opportunity costs incurred by harvesters as the result of addressing those considerations.

Because the historical distribution of first wholesale revenues was based on an ex-vessel cash sales and not on profit/loss sharing, it did not include risk compensation for fishermen. Therefore, in cases where the ultimate composite price is less than the advance, fishermen would not be expected to refund the difference.

Market Report

An independent market analyst selected by the mutual agreement of the sectors will present to both sectors and all designated arbitrators an analysis of the market for products of that fishery.

Selection of the Arbitrator(s) and Market Analyst

The market analyst and arbitrator(s) will be selected by mutual agreement of the PQS holders and the QS holders. PQS holders collectively must agree and QS holders collectively must agree. Processors may participate collectively in the selection process. The details of the selection will be decided at a later time.

Shares subject to binding arbitration

This binding arbitration system shall address price disputes between holders of delivery restricted IFQ (including Class A IFQ and Class C IFQ when subject to delivery restrictions) and holders of IPQ. Binding arbitration does not apply to the negotiation of price for deliveries under the class B IFQ and Class C IFQ when not subject to delivery restrictions. C share holders, however, may elect to participate in the arbitration process prior to delivery restrictions taking effect.

Shares of processor affiliates

Option 1

Holders of IFQs that are affiliated with processors are not eligible to participate in the arbitration process. Processor affiliation will be determined using the threshold rule with percent thresholds of 10, 25, and 50 percent.

Option 2

Entities that are partially owned by processor affiliates will be permitted to participate in arbitration, however, the participation will apply only to a share of IFQs equal to the ownership share of owners not affiliated with a processor (e.g., if an entity owning any part of a processor owns a 75 percent interest in 100 IFQs, the nonaffiliated owner of those IFQs may participate in arbitration with 25 shares).

Option 3

Participation of processor affiliates in binding arbitration as IFQ holders will be determined by any applicable rules governing anti-trust. Any parties eligible for collective bargaining under the Fishermen's Marketing Act of 1934 will be eligible to participate in binding arbitration. No antitrust exemption should be made to enable processor affiliated IFQ holders to participate in arbitration.

Payment for the Arbitration and Market Analysis

The payment for the market analysis and the arbitrators will be shared by the two sectors. Cost shall be shared by all participants in all fisheries.

Option 1

For shared costs, the payment of those costs shall be advanced by IPQ holders. The IPQ holders will collect the IFQ holders' portion of the shared costs by adding a pro rated surcharge to all deliveries of Class A crab.

Option 2

Administration of payments will be accomplished by allocation of a share of the cost recovery funds to the binding arbitration program.

Performance-Related Dispute Resolution.

Disputes arising out of any IFQ/IPQ transactions (including but not limited to disputes concerning product quality,

delivery, payment or other harvester and processor performance obligations) will initially be addressed through standard commercial contract procedures (i.e., notice of breach, opportunity to cure for a commercially reasonable period, etc.). Disputes that are not resolved through such procedures will be submitted to binding arbitration before the arbitrator(s). To reduce the risk that disparate resources could affect the outcome, the costs of arbitration will be paid out of the pool of funds collected (as taxes or industry assessments) to support the price arbitration process. On the other hand, to discourage frivolous or strategic (as opposed to substantive) complaints, the arbitrator(s) may deny access to arbitration or assess arbitration costs and fees in cases where a party asserts a non-substantive claim. (This option appears as 13. in the Fleet Wide Model)

Quality Dispute Resolution.

In cases where the fisherman and the processor cannot come to agreement on quality and thus price for crab, two mechanisms are suggested for resolving the price dispute-after the processor has processed the crab (to avoid waste from the dumping the load at sea): (1) In cases where fishermen and processors have agreed to a formula based price, the two parties would take their normal shares of the price, after the disputed load is sold. (2) This type of dispute would most likely apply in cases where fishermen desire to stay with fixed dockside prices and there is disagreement on quality and therefore price. These cases could be referred to an independent quality specialist firm. The two parties in dispute would decide which firm to hire.

Data Used in Arbitration

Under any arbitration structure, the arbitrator must have access to comprehensive product information from the fishery (including first wholesale prices and any information necessary to verify those prices).

Processors may participate in common discussions concerning historical prices in the fisheries.

Subject to limitations of antitrust laws and the need for proprietary confidentiality, all parties to an arbitration proceeding shall have access to all information provided to the arbitrator(s) in that proceeding.

Data collected in the data collection program may be used to verify the accuracy of data provided to the arbitrator(s) in an arbitration proceeding. Any data verification will be undertaken only if the confidentiality protections of the data collection program will not be compromised.

Payment for the Arbitration and Market Analysis

The payment for the market analysis and the arbitrators will be shared by the two sectors. Cost shall be shared by all participants in all fisheries.

Option 1

For shared costs, the payment of those costs shall be advanced by IPQ holders. The IPQ holders will collect the IFQ holders' portion of the shared costs by adding a pro rated surcharge to all deliveries of Class A crab.

Option 2

Administration of payments will be accomplished by allocation of a share of the cost recovery funds to the binding arbitration program.

Enforcement of the Arbitration Decision

The decision of the arbitrator will be enforced by:

1. civil damages
2. specific performance
3. forfeiture of unused IFQs or IPQs in the fishery for the following season (1 year use-it-or-lose-it) subject to

hardship exceptions.

Oversight and Administration

Oversight and administration of the binding arbitration should be conducted in a manner similar to the AFA cooperative administration and oversight. System reporting requirements and administrative rules should be developed in conjunction with the Council and NOAA Fisheries after selection of the preferred program.

At its October 2002 meeting the Council created a committee to work to develop options for protection of communities under the rationalization program. The committee developed several options, which the Council considered through its April 2003 meeting. The following options were the refined options developed by the committee and considered by the Council:

Cool Down Period

During the Cool Down Period shall the following elements will apply:

1. The method to determine the shares associated with a community will be the same method used for allocating processing quota as established by the Council.
2. Community shall be defined as the boundaries of the Borough or, if no Borough exists, the first class or second class city, as defined by applicable state statute. A community must have at least 3 percent of the initial PQS allocation in any fishery based on history in the community to require continued use of the IPQs in the community during the cool down period.
3. 10% of the IPQs may leave a community on annual basis, or up to 500,000 pounds, whichever is less. The amount that can leave will be implemented on a pro rata basis to all PQS holders in a community.
4. Exempt the Bairdi, Adak red crab and Western Aleutian Islands brown crab fishery from the cool down provision.
5. There should be an exemption from the requirement to process in the community if an act of God prevents crab processing in the community. This provision will not exempt a processor from any regional processing requirements.

IPQ Cap

The amount of IPQ in any year shall not exceed the percentage of the TAC for crab species as follows:

For opilio:

Option 1: IPQ percentage times a TAC of 175 million pounds.

Option 2: IPQ percentage times a TAC of 200 million pounds.

For Bristol Bay red king:

Option 1: IPQ percentage times a TAC of 20 million pounds.

Option 2: IPQ percentage times a TAC of 25 million pounds.

Option 3: IPQ percentage times a TAC of 30 million pounds.

IPQ issued in excess of the IPQ limit shall be subject to regional landing requirements.

Community Purchase and Right of First Refusal Options

The committee believes that communities need an effective right of first refusal on any shares sold for use outside of the community. The committee believes that the following provisions should be included in the right of first refusal:

1. General Right of First Refusal

For communities with at least three percent of the initial PQS allocation in any BSAI crab fishery based on history in the community except for those communities that receive a direct allocation of any crab species (currently only Adak), allow CDQ groups or community groups representing qualified communities a first right of refusal to purchase processing shares that are based on history from the community which are being proposed to be sold for processing outside the boundaries of the community of original processing history in accordance with the provisions below.

Entity Granted the Right of First Refusal

The right of refusal shall be established by a contract entered into prior to the initial allocation of PQS which will contain all of the terms specified in paragraphs A through I below. The contract will be between the recipient of the initial allocation of the PQS and:

- 1) the CDQ group in CDQ communities
- 2) the entity identified by the community in non-CDQ communities.

In non-CDQ communities, the community must designate the entity that will represent the community at least 90 days prior to the deadline for submission of applications for initial allocations of PQS.

Contract Terms

- A. The right of first refusal will apply to sales of the following processing shares:
 1. PQS and
 2. IPQs, if more than 20 percent of a PQS holder's community based IPQs (on a fishery by fishery basis) has been processed outside the community of origin by another company in 3 of the preceding 5 years.
- B. Any right of first refusal must be on the same terms and conditions of the underlying agreement and will include all processing shares and other goods included in that agreement.
- C. Intra-company transfers within a region are exempt from this provision. To be exempt from the first right of refusal, IPQs must be used by the same company. In the event that a company uses IPQs outside of the community of origin for a period of (two options):
 1. 3 consecutive years
 2. 5 consecutive yearsthe right of first refusal on those processing shares (the IPQs and the underlying PQS) shall lapse. With respect to those processing shares, the right of first refusal will not exist in any community thereafter.
- D. Any sale of PQS for continued use in the community of origin will be exempt from the right of first refusal. A sale will be considered to be for use in the community of origin if the purchaser contracts with the community to:
 1. use at least 80 percent of the annual IPQ allocation in the community for 2 of the following 5 years (on a

fishery by fishery basis), and

2. grant the community a right of first refusal on the PQS subject to the same terms and conditions required of the processor receiving the initial allocation of the PQS.

- E. All terms of any right of first refusal and contract entered into related to the right of first refusal will be enforced through civil contract law.
- F. A community group or CDQ group can waive any right of first refusal.
- G. The right of first refusal will be exercised by the CDQ group or community group by providing the seller within 60 days of receipt of a copy of the contract for sale of the processing shares:
 - 1. notice of the intent to exercise and
 - 2. earnest money in the amount of 10 percent of the contract amount or (two options)
 - a. \$250,000 or
 - b. \$500,000whichever is less.

The CDQ group or community group must perform all of the terms of the contract of sale within the longer of:

- 1. 120 days of receipt of the contract or
 - 2. in the time specified in the contract.
- H. The right of first refusal applies only to the community within which the processing history was earned. If the community of origin chooses not to exercise the right of first refusal on the sale of PQS that is not exempt under paragraph D, that PQS will no longer be subject to a right of first refusal.
 - I. Any due diligence review conducted related to the exercise of a right of first refusal will be undertaken by a third party bound by a confidentiality agreement that protects any proprietary information from being released or made public.

2. GOA First Right of Refusal

For communities with at least three percent of the initial PQS allocation of any BSAI crab fishery based on history in the community that are in the area on the Gulf of Alaska north of 56°20'N latitude, groups representing qualified communities will have a first right of refusal to purchase processing quota shares which are being proposed to be transferred from unqualified communities in the identified Gulf of Alaska area.

The entity granted the right of first refusal and terms and method of establishing the right of first refusal will be the same as specified in the general right of first refusal.

3. Community Purchase Option

Allow for a community organization in those communities that have at least 3 percent of the initial PQS allocation of any BSAI crab fishery based on history in the community to be exempted from the restriction for the 150 days of sea time requirement under 1.6 Transferability and Restrictions on Ownership of QS.

4. Identification of Community Groups and Oversight

For CDQ communities, CDQ groups would be the entity eligible to exercise any right of first refusal or purchase shares on behalf of the community. Ownership and management of harvest and processing shares by CDQ groups will be subject to CDQ regulations.

For non-CDQ communities, the entity eligible to exercise the right of first refusal or purchase shares on behalf of a community will be identified by the qualified city or borough, except if a qualified city is in a borough, in which case

the qualified city and borough must agree on the entity. Ownership and management of harvest and processing shares by community entities in non-CDQ communities will be subject to rules established by the halibut and sablefish community purchase program.

Regionalization of the Bairdi Fishery

The committee requests that the Council consider regionalization of the bairdi fishery prior to that fishery becoming a directed fishery.

Other Provisions in the Council Motions

The committee has examined all other provisions in the Council motions of April, June, October, and December 2002.

1.3 Scope of Analysis Mandated by Congress

As part of the Consolidated Appropriations Act of 2001 (Pub. L. No. 106-554), Congress directed the Council to examine fisheries under its jurisdiction to determine whether rationalization is needed and provide an analysis of several specific approaches to rationalization. The specific legislative language is:

The North Pacific Fishery Management Council shall examine the fisheries under its jurisdiction, particularly the Gulf of Alaska groundfish and Bering Sea crab fisheries, to determine whether rationalization is needed. In particular, the North Pacific Council shall analyze individual fishing quotas, processor quotas, cooperatives, and quotas held by communities. The analysis should include an economic analysis of the impact of all options on communities and processors as well as the fishing fleets. The North Pacific Council shall present its analysis to the appropriations and authorizing committees of the Senate and House of Representatives in a timely manner.

At its April 2001 meeting, the Council considered this directive and requested clarification from NOAA General Counsel (GC) on the scope of the analysis required by Congress. As part of a white paper prepared by Council staff on the proposed crab rationalization alternatives for the June 2001 meeting, this requested guidance from NOAA GC was provided. NOAA GC indicated that the statute language required the Council to analyze the rationalization options identified (i.e., individual fishing quotas, processor quotas, cooperatives, and quotas held by communities) and did not appear to give the Council any discretion to exclude any of the options from its analysis. Furthermore, NOAA GC indicated that each option needs to be considered on an equal analytical footing. Finally, NOAA GC suggested that the Council could prepare a threshold comparative analysis of the different options that considered the impact of the options on communities, processors, and the fishing fleets, but that the analysis did not need to consider all details required for Council adoption and SOC approval of a rationalization program.

At its June 2001 meeting, the Council adopted a suite of elements and options for alternative rationalization programs for the BSAI crab fisheries and tasked Council staff to initiate a full analysis of the alternatives, which this document provides. The options under consideration include the options identified in the statute. The Council also requested that staff prepare a summary report to Congress on the rationalization options, once the full analysis is completed. Currently, the Council anticipates that the report will be completed after selection of a preferred alternative, at its June 2002 meeting.

1.4 Data, Vessel Ownership, and Concentration of Interests

The primary data source relied on in this analysis is described in Appendix 1-2 to this document.

Several sections of the analysis examine the concentration of interests under the rationalization program. Use and ownership caps on harvesting and processing shares in the fisheries and limits on vertical integration, in particular, require detailed knowledge of the ownership structure of interests in the fisheries. Limited data are available concerning this ownership. Many vessels and LLP licenses are corporate owned with individual ownership concealed by the corporate structure. Vessel ownership information is collected by the U.S. Maritime Administration (MarAd), but it is not released at detailed level by that agency. MarAd collects complete ownership information to verify U.S. ownership necessary for participation in U.S. fisheries. LLP license ownership and vessel ownership records are maintained by the NMFS/RAM office. These records, however, include only the named legal owner or owners. Regardless of the purpose for this choice of ownership, corporate ownership has the effect of concealing the concentration of interests in the fishery. At the June 2001 Council meeting, industry representatives agreed to provide the Council with vessel ownership identification to assist Council staff in overcoming this obstacle to the analysis. Three different efforts have secured portions of the information.

A processor group has delivered to Council staff a list of vessels owned by each major crab processor, or its subsidiaries or affiliates. The information provided is vessel and owner specific, enabling Council staff to combine the information with vessel harvest information in the ADF&G fish ticket file to determine participation patterns and potential distribution of harvest shares to processor affiliated vessels under the rationalization alternatives. Owners of 38 vessels provided information.

The Alaska Crab Coalition (the ACC) has delivered to Council staff ownership information for a number of vessels. The information collected by the ACC survey shows only groupings of vessel ownership by fishery, without vessel identification. For example, the data show that in the Pribilof Islands red and blue king crab fishery two different owners control four vessels, two owners control three vessels, and 12 owners control a single vessel. Similar information is provided for each of the other LLP fisheries. Because of the summary nature of the information, staff is unable to combine the information with the ADF&G fish ticket files, limiting the effectiveness of the ownership information for analyzing the potential distribution of shares under the rationalization alternatives. Owners of 55 vessels have responded to this survey.

The CRAB Group contracted a survey of all vessels in the crab fisheries to obtain ownership information. CRAB Group reported that the survey response rate was poor, due to the potential loss of confidentiality on delivery of the results to Council staff. To overcome the poor response rate, the survey was modified so that only summary findings, without vessels identification, would be delivered to Council staff. The specificity of the information is similar to that provided by the ACC. Because of the summary nature of the information, staff is unable to combine the information with the ADF&G fish ticket files, limiting the usefulness of the ownership information for analyzing the rationalization alternatives. Owners of approximately 100 vessels responded to this survey.

1.5 Organization of Analysis

The remainder of this document is organized into the following sections:

Section 2. Background

Section 3. Analysis of the Alternatives

Section 4. Preferred Alternative and other EIS alternatives
Section 5. Consistency with Other Applicable Laws
Section 6. Regulatory Flexibility Act
Section 7. References
Section 8. Agencies and Individual Consulted
Section 9. Preparers

2.0 Background

2.1 Affected environment; fishery management; and status of stocks, biology and fisheries

Detailed information on the affected environment, fishery management, and the status of the stocks, biology and fisheries is contained in the EIS, of which this RIR/IRFA is an appendix.

2.1.1 Affected environment

The action area for BSAI crab fisheries effectively covers all of the Bering Sea under U.S. jurisdiction, extending southward to include the waters south of the Aleutian Islands west of 170°W. to the border of the U.S. Exclusive Economic Zone. These regions encompass those areas directly affected by fishing, and those that are likely affected indirectly by the removal of crab at nearby sites. The lack of important information on distribution and stock structure of target species confounds a clear and precise definition of the action area, but a review of areas fished by the crab fisheries and surveyed by the NMFS annual trawl survey suggests that virtually the entire Bering Sea, excluding the nearshore region (less than 50 meters in depth), is utilized by one fishery or another.

2.1.2 Crab fisheries management: an overview

This section also provides summary descriptive information on the major target species of the fisheries under the FMP, including important life history traits, trophic interactions, fisheries, stock assessments, and recommended catch levels. These species and the respective fisheries are described in greater detail in the annual Crab Stock Assessment and Fishery Evaluation (SAFE) reports compiled by the North Pacific Fishery Management Council's (Council) Crab Plan Team, and reviewed at various levels throughout the Council process. By reference, those SAFE reports are incorporated in this document in their entirety (NPFMC 2001).

Overview of the FMP

The crab stocks in the Bering Sea are managed by the State of Alaska (State) through the Federal FMP. Under the FMP, management measures fall into three categories: (1) those that are fixed in the FMP under Council control, (2) those that are frameworked so that the State can change management measures following criteria outlined in the FMP, and (3) those measures under discretion of the State. Significant State actions and actions to ensure the FMP complies with the Magnuson-Stevens Act are either reviewed by or developed in conjunction with the Council's Crab Plan Team.

Management measures implemented for the BSAI king and Tanner crab fisheries, as defined by the federal crab FMP, by category.

Category 1 <u>(Fixed in FMP)</u>	Category 2 <u>(Frameworked in FMP)</u>	Category 3 <u>(Discretion of State)</u>
* Legal Gear	* Minimum Size Limits	* Reporting Requirements
* Permit Requirements	* Guideline Harvest Levels	* Gear Placement and Removal
* Federal Observer Requirements	* Inseason Adjustments	* Gear Storage
* Limited Access	* Districts, Subdistricts and Sections	* Gear Modifications
* Norton Sound Superexclusive Registration Area	* Fishing Seasons	* Vessel Tank Inspections
	* Sex Restrictions	* State Observer Requirements
	* Closed Waters	* Bycatch Limits (in crab fisheries)
	* Pot Limits	* Other
	* Registration Areas	

The Council approved the FMP in 1989. The Council revised and updated the FMP in 1998 (NPFMC 1998). The revised version of the FMP incorporates: 6 FMP amendments; catch data and other scientific information from the past 10 years; and changes due to amendments to the Magnuson-Stevens Act and other laws, a Russian/US boundary agreement, and a Federal/State Action Plan. The revised FMP included Amendment 7 to specify criteria for identifying overfishing and when a crab stock is overfished.

Since the FMP was revised, NMFS has approved Amendment 8 to establish Essential Fish Habitat, Amendment 9, to extend the moratorium program, Amendment 10 to establish recency criteria for the crab license limitation program, Amendment 11 to implement a rebuilding plan for Tanner crab, Amendment 14 to implement a rebuilding plan for snow crab, and Amendment 15, to implement a rebuilding plan for St. Matthew blue king crab, and Amendment 13, to implement American Fisheries Act sideboards. The Council is developing Amendment 12 to establish habitat areas of particular concern. NMFS is developing implementing regulations for a capacity reduction program for the BSAI king and Tanner crab fisheries in response to a Congressional mandate.

The most basic fishery management measure employed for crab fisheries is the establishment of catch limits, called guideline harvest levels (GHLs). ADF&G derives the GHLs for most stocks based on annual abundance estimates. The abundance of the major crab stocks is estimated annually from data collected during the NMFS annual Eastern Bering Sea trawl survey and published in the NMFS Annual Report to Industry. The crab stocks annually surveyed are: Bristol Bay red king crab, Pribilof Islands red king crab, Pribilof Islands blue king crab, St. Matthew blue king crab, eastern Bering Sea Tanner crab, and eastern Bering Sea snow crab. ADF&G derives the GHL from these annual abundance estimates following harvest strategies developed for each species. Once the fishery reaches its GHL, ADF&G closes the fishery by emergency order. For crab species not surveyed, ADF&G estimates abundance using pot surveys and fishery information.

The crab fisheries target only large male crabs. Each fishery has a minimum size limit for male crab. All crab fisheries use pot gear. The State has established pot limits for each fishery to limit effort in the crab fisheries. In addition to minimum size and sex restrictions, the State has instituted numerous other regulations for the BSAI crab fisheries. The State requires vessels to register with the state by obtaining licenses and permits, and register for each fishery and each area.

State regulations also prescribe gear modifications to inhibit the bycatch of small crab, female crab, and other species of crab. Gear modifications include escape rings, tunnel size, and a requirement that crab pots be fitted with a degradable escape mechanism. Like other fisheries, pot fisheries incur some bycatch of incidental fish and crab. Bycatch in crab pot fisheries includes crabs, octopus, Pacific cod, halibut, and other flatfish (Tracy 1994). However, the vast majority of bycatch in the crab fisheries is females of target species, sublegal males of target species, and non-target crabs. All bycatch of non-legal crabs is discarded at sea. Since pot gear selectively harvests primarily legal sized crab, the crab fisheries do not remove significant amounts of other species from the ecosystem.

Bering Sea Aleutian Islands King and Tanner crab fishing seasons.

Snow crab	January 15
Golden king crab	August 15
St. Matthew/Pribilof Islands king crab	September 15
Bristol Bay red king crab	October 15
Tanner crab	Oct 15/ Jan 15
Norton Sound king crab	July 1

The State establishes fishing seasons following criteria in the FMP. The adjacent table outlines the BSAI crab fishing season start dates. Fishing seasons are established to achieve the biological conservation, economic and social, vessel safety, and gear conflict objectives of the FMP. Season opening dates are set to maximize meat yield, minimize handling of softshell crabs, and meet market demands.

Community Development Quota Program: The Magnuson-Stevens Act mandated that the Council and NMFS establish a Community Development Quota (CDQ) program under which a percentage of the total allowable catch of Bering Sea and Aleutian Island crab fisheries is allocated to the program (§305.104-297(1)(A)). The crab CDQ groups receive 7.5% of the GHL for the following Bering Sea fisheries: Bristol Bay red king crab, Pribilof red and blue king crab, Norton Sound red king crab, snow crab, and Tanner crab.

Crab CDQ fisheries began in 1998. The Council and NMFS defer management authority of the BSAI king and Tanner crab CDQ fisheries to the State, with federal oversight. The FMP provides the State with the authority to establish CDQ fishing seasons, to allocate the crab CDQ reserve among CDQ groups, and to manage crab harvesting activity of the CDQ groups (§8.1.4.2 of the BS/AI crab FMP). ADF&G divides the 7.5% reserve among the six CDQ groups. The State sets the CDQ seasons after the regular commercial fishery. Sixty-five communities along the Bering Sea are eligible for the CDQ program. These villages aligned into six CDQ groups.

Licence Limitation Program: Fishing under the crab license limitation programs (LLP) began in January 2000. The goal of the LLP is to limit access to the crab fisheries to the historic participants or to people who purchase licenses from historic participants. Owners of vessels must have a valid LLP license in order to participate in the BSAI crab fisheries. NMFS issued licenses based on fishing history during a general qualifying period, with area/species endorsements based on additional qualifying periods for each species by area. Licenses also limit the size of the vessel deployed under the license. Interim licenses were also issued to any applicant that had a valid moratorium qualification for crab in 1999. Interim licenses are temporary and the total numbers of licenses will decrease as interim licenses either are denied or licenses granted. Interim licenses are issued if any part of a person’s claim is contested. Also, the number of licenses may change as a result of a small number of new licenses issued from late filed claims.

Table 2.1-1 Crab Licenses Limitation Program: number of licenses issued as of January 2002

Number of crab licenses: 395 (113 of which are interim licenses)

Number of crab licenses with specific endorsements, by crab fishery:

Endorsement	Licenses	Interim	Total
Aleutian Is. golden king	23	18	41
Aleutian Is. red king	22	21	43
EBS Tanner	213	106	319
Bristol Bay red king	207	101	308
Norton Sound king	58	5	63
Pribilof Is. king	95	48	143
St. Matthew Is. blue king	135	67	202

Notes: A crab license may contain more than one endorsement. EBS Tanner endorsements included both snow crab (*C. opilio*) and Tanner crab (*C. bairdi*).

The LLP was recently modified by Amendment 10, which change the basic eligibility criteria for crab. Amendment 10 requires recent participation in the BSAI king and Tanner crab fisheries in order to qualify for a license under the crab LLP. The recent participation requirement applies to the general licenses only; if a vessel satisfies the recent participation criteria, the owner would receive the original license and all of the species/area endorsements

for which it qualified under the original criteria. No new species/area endorsements could be earned during the recent qualification. The Secretary approved Amendment 10 and issued implementing regulations that resulted in a decrease in the total number of crab licenses.

American Fisheries Act: In 1998, Congress passed the American Fisheries Act (AFA) to establish a new allocation scheme for the BSAI pollock fishery. The AFA required harvest restrictions (commonly known as “sideboards”) on the pollock fishermen who received exclusive harvesting privileges under the AFA to protect the interests of fishermen who are not directly benefitted by the AFA. Forty-one AFA vessels are endorsed to fish in the BSAI crab fisheries, but these vessels are restricted to participation in the specific fishery for which they are endorsed. The sideboards for the AFA vessels to participate in the crab fisheries are as follows.

Under regulations implementing the AFA, an AFA vessel is ineligible to participate in any BSAI crab fishery unless that specific vessel participated in a specific crab fishery during certain qualifying years. AFA vessel permits could be endorsed for the Bristol Bay red king crab, snow crab, *C. bairdi* Tanner crab, St. Matthew

blue king crab, Pribilof Islands king crab, Aleutian Islands red king crab, and Aleutian Islands golden king crab fisheries. To participate in a BSAI crab fishery, the operator of an AFA vessel would have to have a valid LLP license for that crab fishery as well as an AFA vessel permit containing an endorsement for that crab fishery.

In addition to the historic participation requirements, there is a cap on the amount of Bristol Bay red king crab and *C. bairdi* Tanner crab that the AFA vessels can harvest. The Bristol Bay red king crab harvest cap is based on the aggregate 5-year (1991-1997, excluding 1994-1995) weighted average share. Under this cap, AFA vessels may harvest up to 10.81% of the regular commercial GHL, which equals 834,937 pounds for the 2000 fishery. In 2000, 26 AFA vessels participated in the Bristol Bay red king crab fishery. The amount of the harvest cap may change if the number of AFA vessels with Bristol Bay red king crab endorsements changes. An aggregate harvest cap will be established for *C. bairdi* Tanner crab once the stock rebuilds. This harvest cap will be based on the aggregate historic catch of the endorsed *C. bairdi* Tanner crab vessels for 1995-1996. Management and implementation of these crab harvest cap sideboards is deferred to the State of Alaska.

Capacity Reduction Program: NMFS has developed a proposed rule to implement a capacity reduction program for the BSAI crab fisheries, excluding Norton Sound, pursuant to Section 144(d) of Public Law 106-554 (section 144). Section 144 mandates a specific capacity reduction program. The objective of the program is to permanently remove harvesting capacity from the BSAI crab fisheries by permanently reducing the number of license limitation program licenses issued pursuant to the FMP. The action is necessary because the BSAI crab fisheries are over capitalized. The program will: 1) prevent certain crab vessels from fishing again anywhere in the world; 2) revoke the crab LLP licenses NMFS issues based on the vessels' fishing history; 3) revoke any NMFS issued non-crab licenses that the vessels' owners still hold; and 4) revoke the vessels' fishing histories upon which NMFS based the licenses to be revoked. NMFS identified 247 vessels who will be eligible for the buyback based on criteria in section 144. The actual number of vessels that will be removed from the BSAI crab fisheries remains unknown. However, NMFS anticipates that this number would be between 30 and 90 vessels.

Observer Program: Observers are required on all vessels processing BSAI crab, which includes floater processors and catcher/processors, on 100% of the catcher vessels in specific crab fisheries, and on 10% of the catcher vessels in the remaining crab fisheries. ADF&G began the observer program for processing vessels in 1988 for BSAI king and Tanner crab fisheries. ADF&G expanded this program to include observer coverage for the processing vessels in the snow crab fishery in 1991. In 1994, ADF&G expanded the observer program to include requiring observers aboard all vessels (catcher vessels and processors) in permit fisheries targeting *C. tanneri*, *C. angulatus*, *L. couesi*, Bering Sea golden king crab, and *Paralomis* ssp. In 1995, ADF&G required observers aboard all vessels targeting red and golden king crabs in the Aleutian Islands. In 1998, ADF&G required 100% observer coverage on catcher vessels operating in the CDQ fisheries targeting red and blue king crab, snow crab, and Tanner crab (Pappas 1999). In 2000, the State expanded observer coverage to include 10% observer coverage of catcher vessels operating in the Bering Sea fisheries for snow crab, St. Matthew and Pribilof Islands king crab, Tanner crab, and Bristol Bay red king crab fisheries. In addition, ADF&G requires the AFA vessels have 10% observer coverage in the Bristol Bay red king crab fishery and the Tanner crab fishery.

ADF&G does not place observers on catcher vessels in Norton Sound. In years when a floating processor operates in Norton Sound, it has 100% observer coverage. Norton Sound vessels are exempt from observer requirements because the vessels are small (all vessels are under 60 feet and the majority are less than or equal to 32 feet, and many do not have a wheel house).

Observers are responsible for collecting biological data and monitoring vessel compliance with regulations. Observers document and communicate their information with the observer program in three ways; 1)

observers complete radio report forms, which the observer files at sea daily or weekly, depending on the length of the fishery; 2) observers keep a logbook to record information while at sea; and 3) after the observer returns to port, the observer is debriefed. The ADF&G shellfish observers are trained at the North Pacific Fisheries Observer Training Center (OTC), which also trains the observers used by NMFS.

2.2 Harvesting sector

2.2.1 Description of fleet

License Limitation Program - Fishing under the crab license limitation program (LLP) began in January 2000. Table 2.2-1 shows the number of crab LLP licenses and interim licenses issued as of December 2001. Interim licenses were issued if any part of a person's claim is contested. Interim licenses are temporary and the total numbers of licenses will decrease as interim licenses are denied or licenses are granted and made permanent. The number of LLP licenses provides an indication of the number of the maximum number of participants in the BSAI crab fisheries. The LLP license includes the mode of operation and the maximum length overall of the vessel on which the license may be used.

Table 2.2-1 LLP licenses in the Bering Sea and Aleutian Islands crab fisheries

AI Brown king endorsement: 41 licenses						
	Non-Interim C/P	Non-Interim CV	Non-Interim Total	Interim C/P	Interim CV	Interim Total
MLOA < 60	0	0	0	0	0	0
MLOA >=60 & <125	0	13	13	0	7	7
MLOA >= 125	6	8	14	2	5	7
Total	6	21	27	2	12	14
AI Red king endorsement 46 licenses						
	Non-Interim C/P	Non-Interim CV	Non-Interim Total	Interim C/P	Interim CV	Interim Total
MLOA < 60	0	0	0	0	2	2
MLOA >=60 & <125	0	17	17	0	13	13
MLOA >= 125	3	4	7	1	6	7
Total	3	21	24	1	21	22
BSAI Opilio/Bairdi Tanner endorsement 353 licenses						
	Non-Interim C/P	Non-Interim CV	Non-Interim Total	Interim C/P	Interim CV	Interim Total
MLOA < 60	0	5	5	0	9	9
MLOA >=60 & <125	1	161	162	1	55	56
MLOA >= 125	26	67	93	5	23	28
Total	27	233	260	6	87	93
BSAI Bristol Bay Red king endorsement 349 licenses						
	Non-Interim C/P	Non-Interim CV	Non-Interim Total	Interim C/P	Interim CV	Interim Total
MLOA < 60	0	2	2	0	3	3
MLOA >=60 & <125	1	165	166	1	57	58
MLOA >= 125	25	67	92	5	23	28
Total	26	234	260	6	83	89
Norton Sound red/blue king endorsement: 64 licenses						
	Non-Interim C/P	Non-Interim CV	Non-Interim Total	Interim C/P	Interim CV	Interim Total
MLOA < 60	0	57	57	0	3	3
MLOA >=60 & <125	0	2	2	0	2	2
MLOA >= 125	0	0	0	0	0	0
Total	0	59	59	0	5	5
Prinof Red/Blue king endorsement: 158 licenses						
	Non-Interim C/P	Non-Interim CV	Non-Interim Total	Interim C/P	Interim CV	Interim Total
MLOA < 60	0	9	9	0	4	4
MLOA >=60 & <125	0	74	74	0	31	31
MLOA >= 125	2	25	27	0	13	13
Total	2	108	110	0	48	48
St Matthew Blue King endorsement: 213 licenses						
	Non-Interim C/P	Non-Interim CV	Non-Interim Total	Interim C/P	Interim CV	Interim Total
MLOA < 60	0	0	0	0	0	0
MLOA >=60 & <125	1	91	92	1	37	38
MLOA >= 125	13	49	62	2	19	21
Total	14	140	154	3	56	59

As of December 2001, there were a total of 442 crab LLP licenses, 338 of which were permanent and 104 of which were interim. Of the 442 crab LLP licenses, 428 (approximately 93 percent) allow operation as a catcher vessel, while the remaining 33 (approximately 7 percent) allow operation as a catcher/processor.

Each crab LLP licenses carries one or more area/species endorsements. Approximately 80 percent of the crab LLP licenses carry an endorsement for the Bering Sea *C. opilio* and *C. bairdi* fisheries. Approximately 80

percent of crab LLP licenses also carry endorsements for the Bristol Bay red king crab fishery. Almost 50 percent of the crab LLP licenses are endorsed for St. Matthew Island blue king crab, 36 percent are endorsed for Pribilof Islands king crab, and less than 20 percent of the licenses are endorsed for the Norton Sound king, Aleutian Islands red king, and Aleutian Islands golden king crab fisheries.

2.2.2 Participation and harvests

This section provides general background information concerning the participation patterns of vessels harvesting crab in the BSAI fisheries from 1991 to 2000. The analysis examines the both participation and division of harvests between vessels that qualified for an LLP license with an endorsement in the appropriate fishery and vessels that do not meet the qualification for an LLP license in the fishery. In addition, a discussion of the ex-vessel gross revenues is included for each fishery.¹ Participation tables for each fishery appear in Appendix 2-1.

Bering Sea C. opilio

The number of qualified and non-qualified vessels in the Bering Sea *C. opilio* fishery has remained fairly constant throughout the 1990's (Figure 2.2-1). The number of qualified vessels increased slightly during the first half of the decade to a high of 231 in 1994, followed by a gradual decline to 205 vessels in the latter half of the decade. The number of non-qualified vessels was 34 in 1991 and 23 in 2000. The fleet composition is primarily catcher vessels. In 1991 there were 174 qualified catcher vessels and 17 qualified catcher/processors. Ten years later there were 197 catcher vessels and eight catcher/processors. Non-qualified catcher vessels and catcher/processors numbered 27 and nine during the 1991 season, while in 2000 there were 22 catcher vessels and one catcher/processor. Over the ten seasons, the percent of qualified to non-qualified vessels increased from 85 to 90 percent.

¹The estimated ex vessel gross revenues include estimated ex vessel gross revenues that would have been generated by catcher/processor harvests. It should be noted that catcher/processors do not generate an ex-vessel revenue. The estimate of ex-vessel gross revenue in this section assumes a proxy for the catcher/processor's ex-vessel price which is equal to the average price paid to catcher vessels. This assumption cannot be verified since catcher/processors do not purchase or sell crab, instead they harvest and process the crab onboard to a first wholesale level. This report includes the estimated ex vessel gross revenues that would have been generated by the sale of these harvests of catcher/processors, in part, to maintain consistency with the Annual Management Report of ADF&G, which includes those estimated revenues in the estimated gross revenues from harvests.

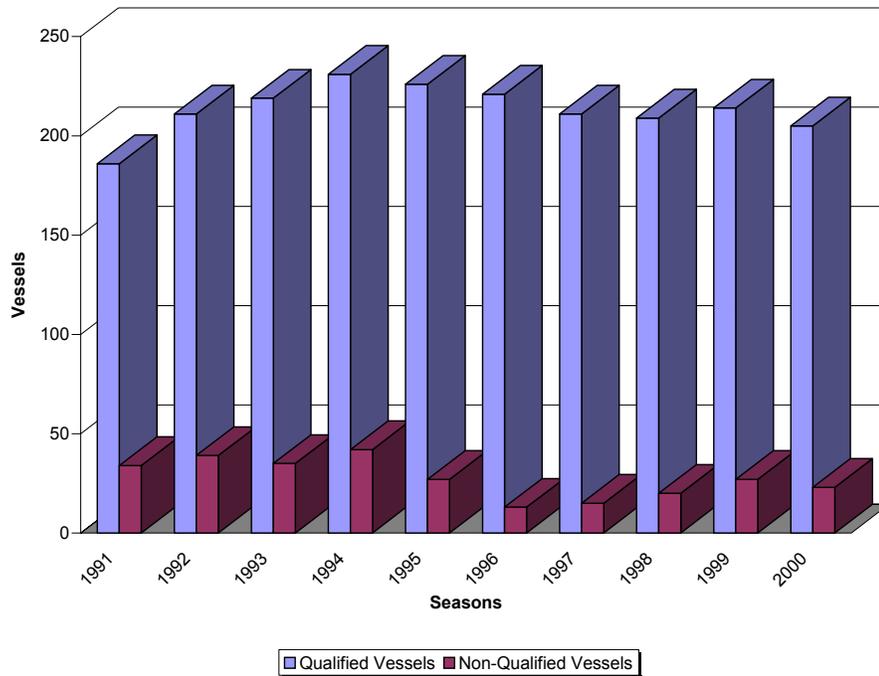


Figure 2.2-1 Number of qualified and non-qualified vessels in the Bering Sea *C. opilio* fishery by season from 1991 to 2000.

The fishery during the last ten years has seen a gradual decline in harvest and gross revenues punctuated by a short and dramatic increase in 1996 and 1997 followed by a dramatic decline in the years following (figure 2.2-2). In 1991, qualified vessels harvested 277 million pounds and non-qualified vessels harvested 48 million pounds. Ten years later, 27 million pounds and three million pounds were harvested by qualified and non-qualified vessels, respectively. In 1991, ex-vessel gross revenues of qualified vessels were \$140 million and ex-vessel revenues of non-qualified were \$24 million. Ten years later, ex-vessel revenues of qualified vessels were \$51 million and ex-vessel revenues of non-qualified vessels was \$5 million.

Over the past ten years, the percent of pounds harvested by qualified vessels in relation to non-qualified

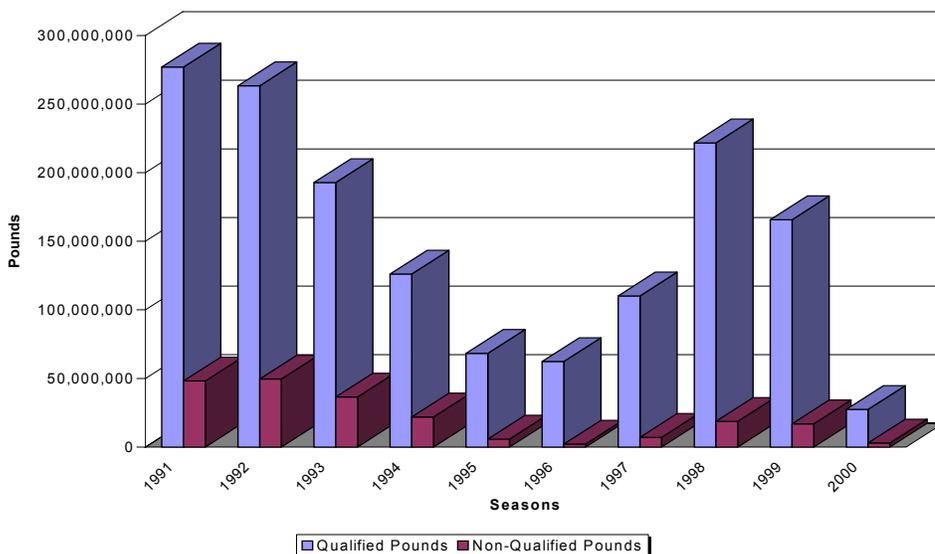


Figure 2.2-2 Qualified and non-qualified pounds of Bering Sea *C. opilio* harvested by season from 1991 to 2000.

vessels has increased moderately. During the 1991 season, 85 percent of the total pounds harvested was by qualified vessels. Ten years later, the harvest by qualified vessels increased to 90 percent.

Bristol Bay red king crab

With the exception of the 1996 season, the number of qualified and non-qualified vessels in the Bristol Bay red king fishery has remained fairly constant throughout the 1990's (Figure 2.2-3). The fishery was closed during the 1994 and 1995 season. In 1991, there were 244 qualified vessels and 54 non-qualified vessels. Following the reopening of the fishery in 1996, the number of qualified vessels dropped to 179, while non-qualified vessels declined to 15. In the years following the 1996 season, the number of qualified and non-qualified vessels increased to levels seen before the closure. In the last three years, the number of qualified vessels has declined slightly from 241 in 1998 to 213 in 2000, while non-qualified vessels declined from 33 to 31. The majority of vessels in the Bristol Bay red crab fishery are catcher vessels. In 1991, there were 232 qualified catcher vessels and 41 non-qualified catcher vessels. During the same season, there were 12 qualified and 13 non-qualified catcher/processors. However, unlike the catcher vessels which show only slight variation, the number of catcher/processors over the years has declined dramatically. During the 2000 season, there were only six qualified catcher/processors and there were no non-qualified catcher/processors.

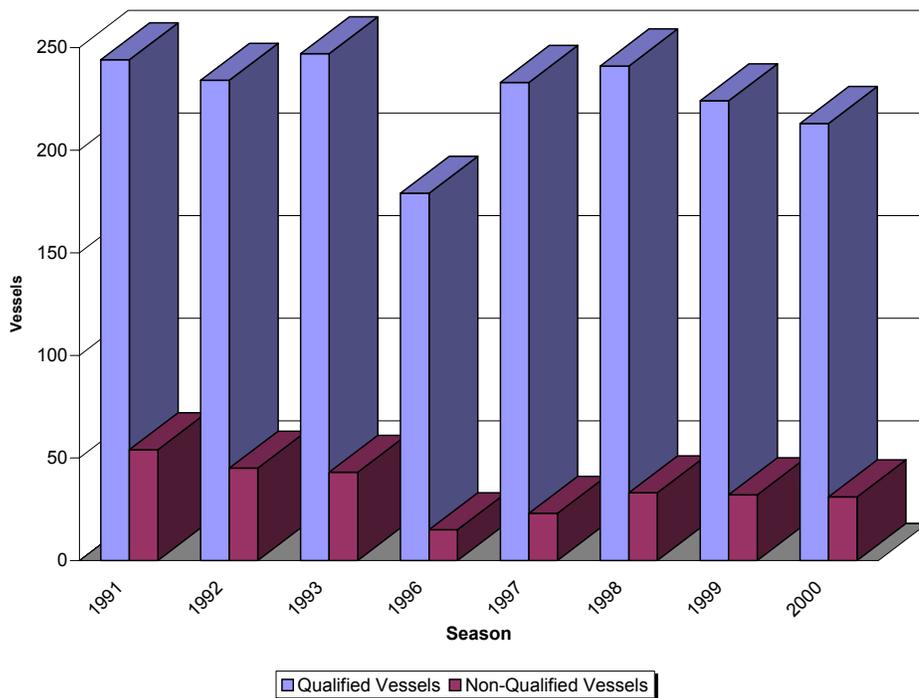


Figure 2.2-3 Number of qualified and non-qualified vessels in the Bristol Bay red king crab fishery by season from 1991 to 2000. The fishery was closed during the 1994 and 1995 season.

The Bristol Bay red king crab fishery from 1991 to 2000 has been marked with fluctuating harvests with no discernable trend (Figure 2.2-4). During this period, total harvest ranged between 7 million to 16 million pounds. In 1991, qualified vessels harvested 14 million pounds, while non-qualified vessels harvested 2.6 million pounds. In 2000, 7 million pounds and 0.8 million pounds were harvested by qualified and non-qualified vessels, respectively. In the most recent three years, total harvest declined from 14 million pounds to 7.5 million pounds. Earnings also show no discernable trend. During the 1991 season, ex-vessel revenues

of qualified vessels were \$46 million and ex-vessel revenues of non-qualified vessels were \$9 million. Ten years later, ex-vessel revenues of qualified vessels were \$32 million and ex-vessel revenues of non-qualified vessels were \$3 million.

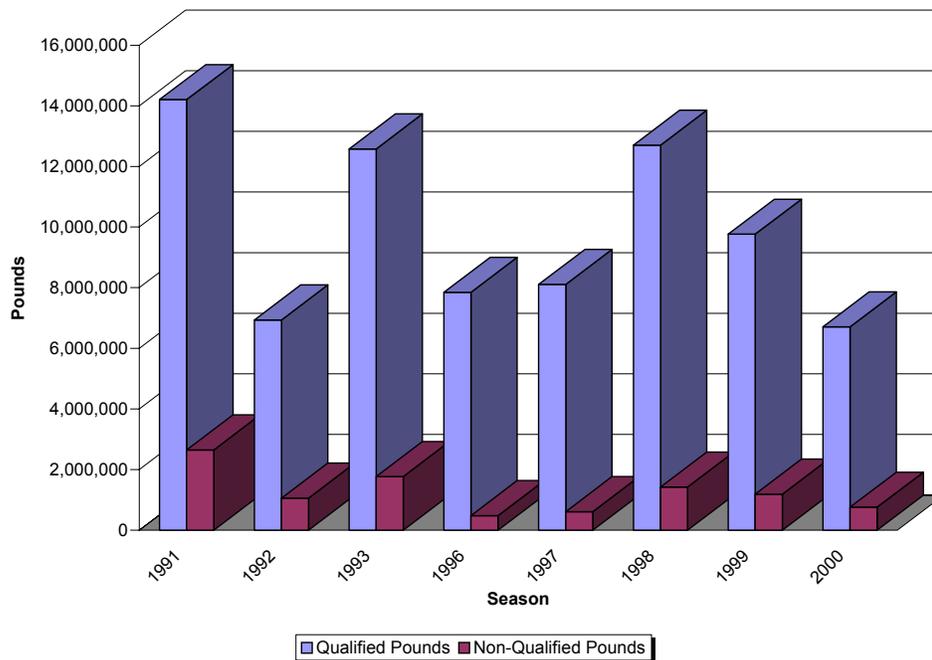


Figure 2.2-4 Qualified and non-qualified pounds of Bristol Bay red king crab by season from 1991 to 2000. The crab fishery was closed during the 1994 and 1995 seasons.

Over the past ten years, the percent of pounds harvested by qualified vessels in relation to non-qualified vessels has increased very moderately. During the 1991 season, 84 percent of the total pounds harvested was by qualified vessels. Ten years later, the harvest by qualified vessels increased to 90 percent.

Bering Sea C. bairdi

The Bering Sea *C. bairdi* fishery can be characterized as having two different participation patterns for qualified and non-qualified vessels during the 1991 to 1996 time period (Figure 2.2-5). From the 1991-1992 to 1993-1994 seasons, qualified vessel participation was between 234 to 249, while non-qualified participation was between 45 and 51. After the 1993-1994 season, qualified vessel participation was between 171 and 186, while non-qualified vessels was between 10 to 15. The fishery is composed mostly of catcher vessels. During the 1991-1992 season, there were 222 qualified and 37 non-qualified catcher vessels. During that same period, there were 14 qualified and 15 non-qualified catcher/processors. In 1996, the last year the fishery was open, there were 177 qualified and 15 non-qualified catcher vessels and four qualified and no non-qualified catcher/processors. Over the six seasons, the percent of qualified to non-qualified vessels increased from 82 to 92 percent.

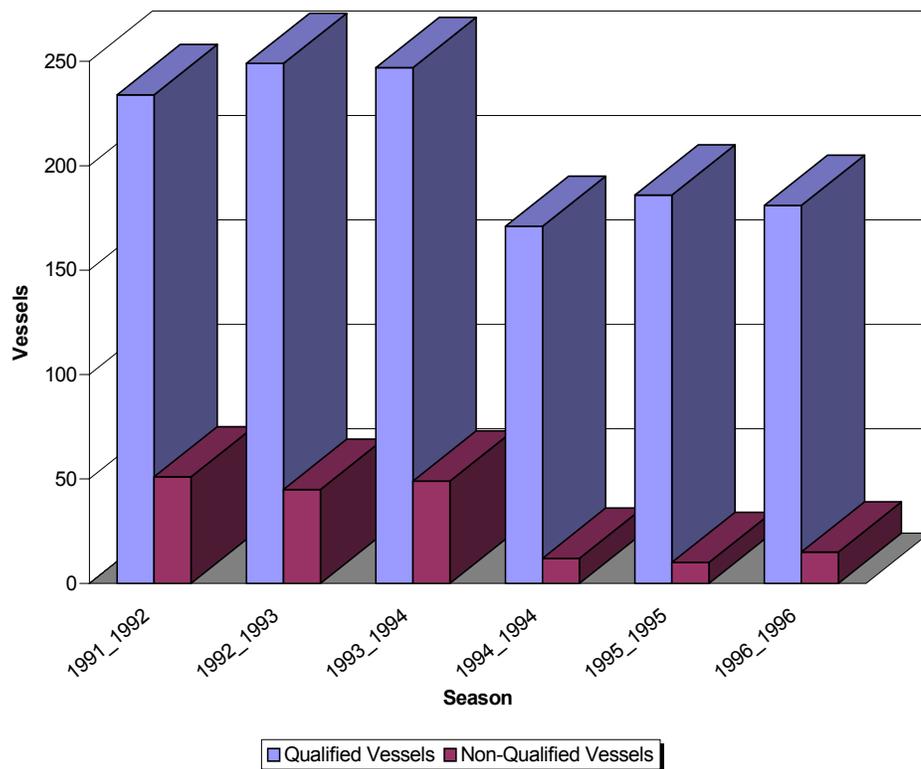


Figure 2.2-5 Number of qualified and non-qualified vessels in the Bering Sea *C. bairdi* fishery by season from 1991 to 1996.

The Bering Sea *C. bairdi* fleet has seen a dramatic decline in harvest and earnings during the 1992 to 1996 time period. Figure 2.2-6 depicts this decline for both qualified and non-qualified vessels by pounds from 1992 to 1996. The best season during the six year period was 1992-1993 where 30 million pounds was harvested by qualified vessels. During that same period, non-qualified vessels harvested 4 million pounds. Just four seasons later, 1.7 million pounds and 0.1 million pounds were harvested by qualified and non-qualified vessels, respectively. Fleet earnings fared no better. During the 1992-1993 season, ex-vessel revenues of qualified vessels were \$50 million, while ex-vessel revenues of non-qualified vessels were \$7 million. In 1996, total ex-vessel revenues of qualified vessels were \$4 million, while ex-vessel revenues of non-qualified vessels were \$0.3 million.

Over the period of six seasons, the percent of pounds harvested by qualified vessels in relation to non-qualified vessels has increased. During the 1991-1992 season, 82 percent of the total pounds harvested was by qualified vessels. Four years later, the harvest by qualified vessels increased to 94 percent.

Pribilof red king crab

During the 1993 to 1998 period, the Pribilof red king crab fishery has experienced a decline in the number of qualified vessels, while non-qualified participants has remained near the same level (Figure 2.2-7). The fishery was closed during the 1999 and 2000 seasons. During the five years the fishery was open, qualified vessels declined from a high of 93 in 1993 to 41 in 1998. Non-qualified vessel participation peaked in 1995

at 41, but during subsequent years, vessel participation ranged between 16 to 21. The percent of qualified vessels to non-qualified vessels increased over the five year period. In 1993, 80 percent of the total vessels

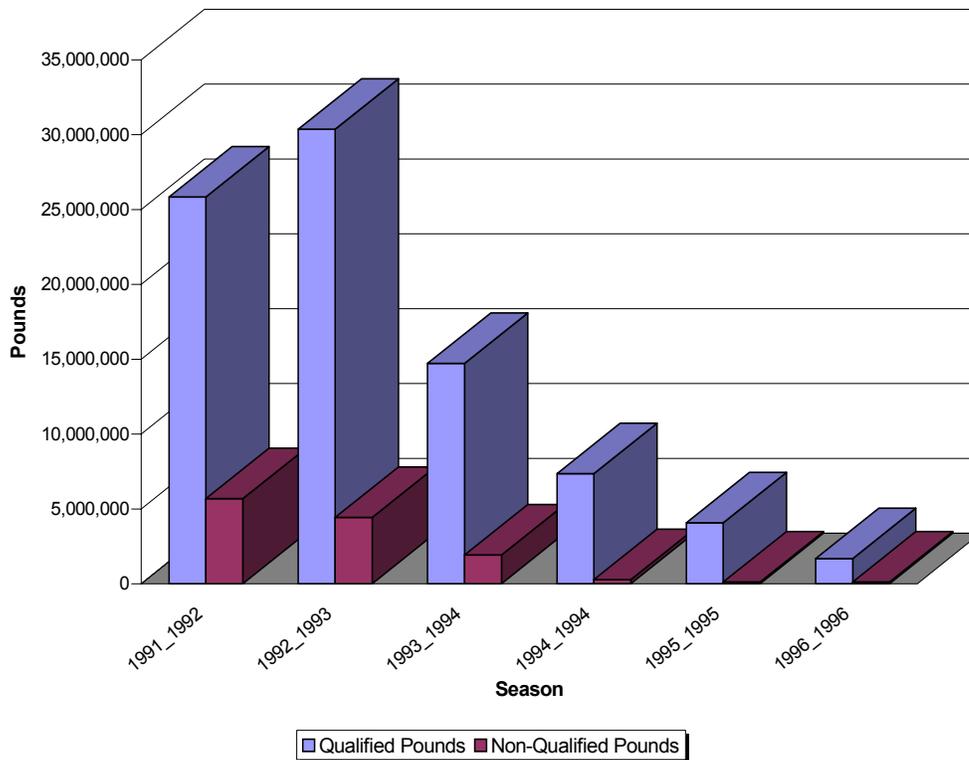


Figure 2.2-6 Qualified and non-qualified pounds of Bering Sea *C. bairdi* harvested by season from 1991 to 1996.

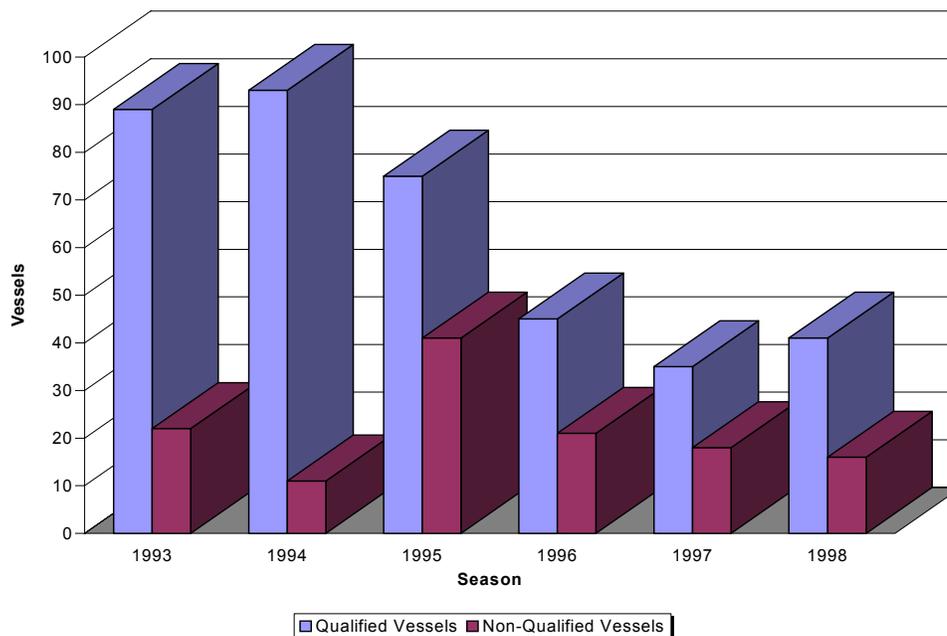


Figure 2.2-7 Number of qualified and non-qualified vessels in the Pribilof red king crab fishery by season from 1991 to 1996.

were qualified vessels, while in 1998 qualified vessels had slipped to 72 percent. The fishery is composed almost entirely of catcher vessels, with only two qualified catcher/processors participating in the 1993 fishery. There were no non-qualified catcher/processors during the 1993 to 1998 period.

Harvest and earnings during the 1993 to 1998 time period has steadily declined (Figure 2.2-8). In 1993, qualified harvest was two million pounds and non-qualified harvest was 0.3 million pounds. Six years later harvest had declined to 0.4 million for qualified vessels and 0.1 million pounds for non-qualified vessels, respectively. Ex-vessel gross revenues declined rapidly from a high of nine million dollars in 1995 to one million dollars in 1998 for qualified vessels, while ex-vessel revenues of non-qualified vessels dropped from one million dollars to \$0.3 million. The share of qualified to non-qualified pounds declined from 89 percent in 1993 to 74 percent in 1998.

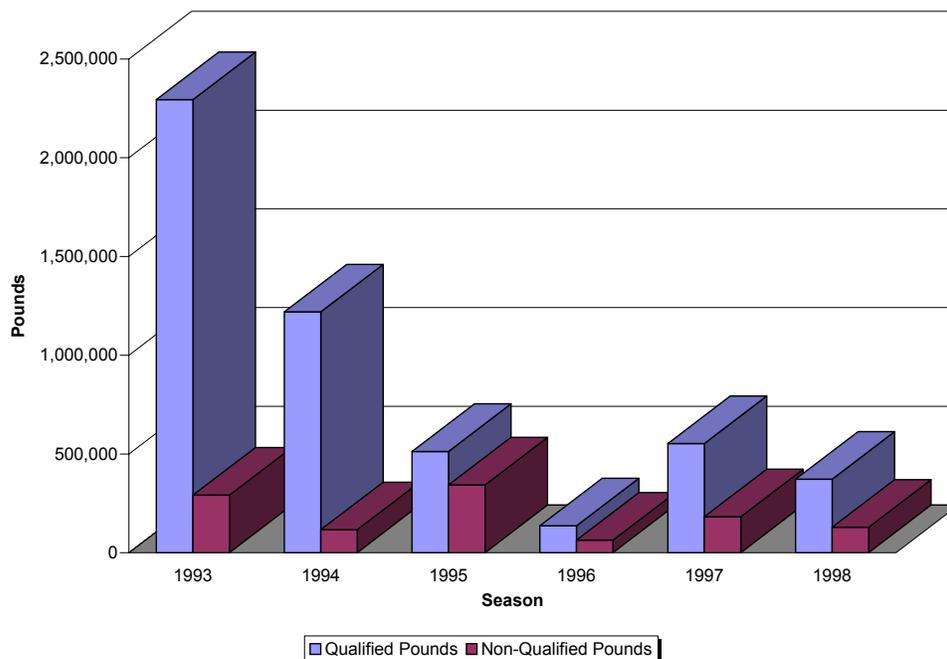


Figure 2.2-8 Qualified and non-qualified pounds of Pribilof red king crab harvested by season from 1993 to 1998.

Pribilof blue king crab

The Pribilof blue king crab (*P. platypus*) can be characterized as fishery with declining participants during the 1995 to 1998 period (Figure 2.2-9). The fishery was closed during the 1993 and 1994 seasons and again during the 1999 and 2000 seasons. During the four years the fishery was open, qualified vessels declined from a high of 76 in 1995 to 35 in 1997. Non-qualified vessels declined from a high of 42 in 1995 to 16 in 1998. The percent of qualified vessels to non-qualified vessels remained fairly constant during the four seasons at roughly a 70/30 split. The fishery is composed almost entirely of catcher vessels, with only one qualified catcher/processor having participated in the 1995 fishing season. There were no non-qualified catcher/processors during the 1995 to 1998 time period.

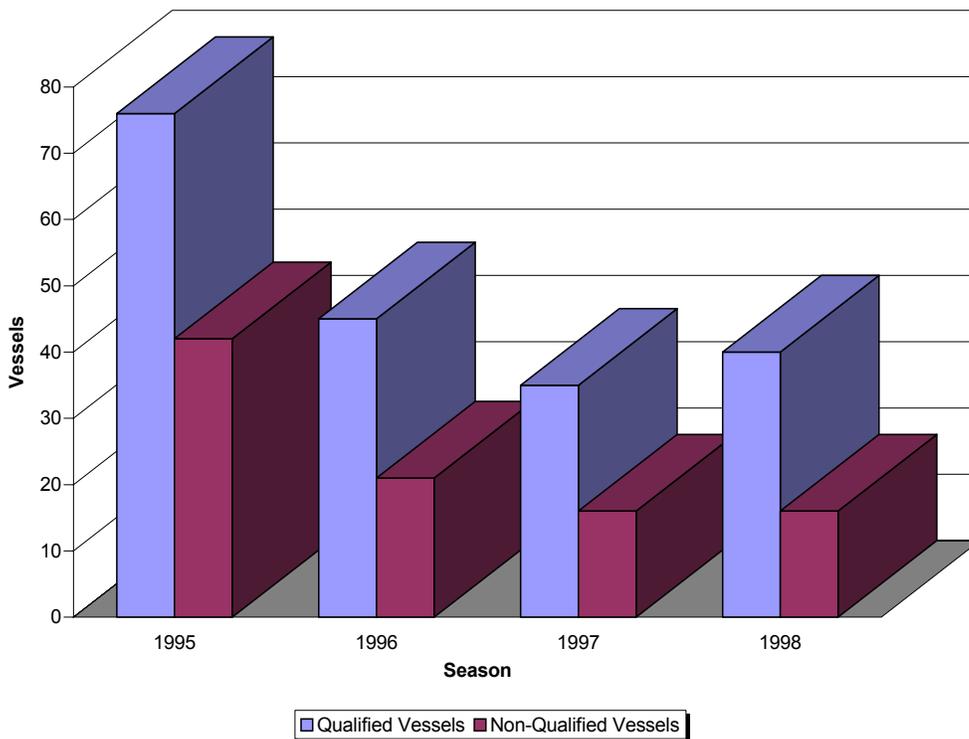


Figure 2.2-9 Number of qualified and non-qualified vessels in the Pribilof blue king crab fishery by season from 1995 to 1998.

Harvest and earnings during the 1995 to 1998 time period has steadily declined (Figure 2.2-10). In 1995, qualified vessels harvested 0.9 million pounds and non-qualified vessels harvested 0.3 million pounds. Four years later, 0.3 million and 0.1 million pounds were harvested by qualified and non-qualified vessels, respectively. Ex-vessel revenues declined from \$2.3 million in 1995 to \$0.7 million in 1998 for qualified vessels, while ex-vessel revenues of non-qualified vessels declined from \$0.6 million to \$0.3 million. The share of qualified to non-qualified pounds remained relatively constant during the four years. In 1995, 79 percent of the harvest was from qualified vessels, while four years later it decreased to 71 percent.

St. Matthew blue king crab

The St. Matthew blue king crab fishery has experienced an increase in the number of qualified and non-qualified vessels during the 1991 to 1998 period (Figure 2.2-11). The fishery was closed during the 1999 and 2000 season. Over the eight year period, qualified vessels increased from a low of 51 in 1991 to 101 in 1998. In 1992, the fishery experienced an unusual increase in the number of qualified vessels (when 154 qualified vessels participated), but the participation rate returned to levels more consistent with the trend the following year. Non-qualified vessel participation declined during the first four seasons from 17 in 1991 to only 5 vessels in 1994, but subsequently increased over the remaining four years to a high of 30 in 1998. The percent of qualified vessels to non-qualified vessels increased during the first four years from 75 percent to 94 percent, but declined to low of 77 percent in 1998.

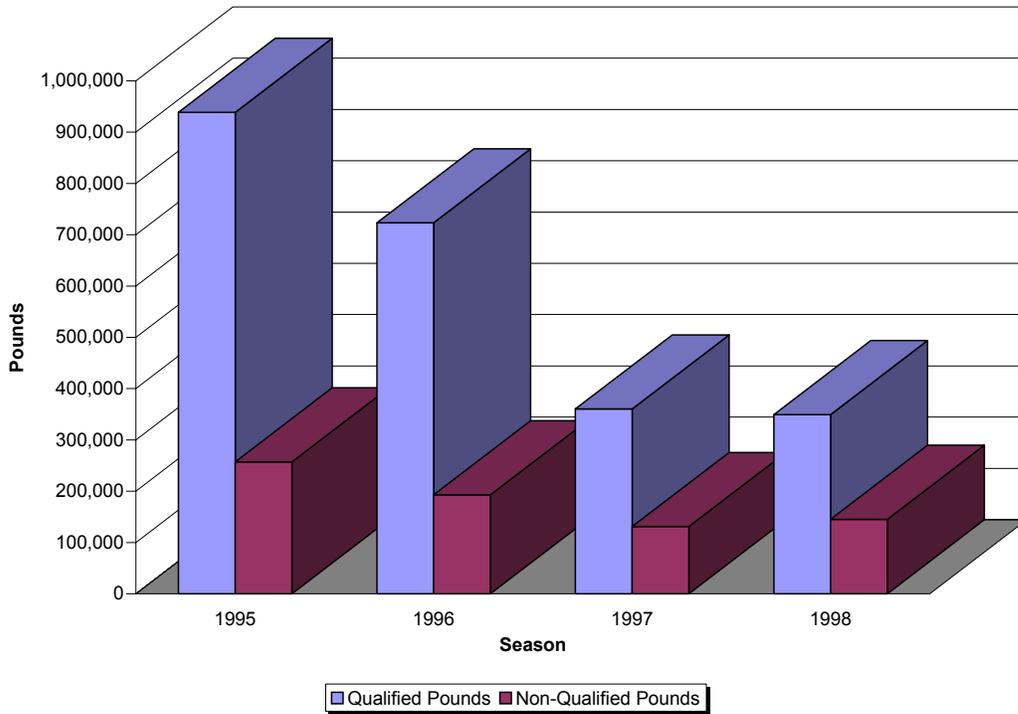


Figure 2.2-10 Qualified and non-qualified pounds for Pribilof blue king crab harvested by season from 1995 to 1998.

The majority of the St. Matthew blue king crab fleet during the eight year period was catcher vessels. During the eight year period, qualified and non-qualified catcher/processors participation declined, while qualified and non-qualified catcher vessels participation increased. In 1991, there were five qualified and four non-qualified catcher/processors, while in 1998 there was one qualified and one non-qualified catcher/processor that participated in the fishery. Qualified catcher vessel participation increased from 46 in 1991 to 100 in 1998. As noted above, the 1992 season experienced a sharp increase in the number of qualified vessels, all of which were catcher vessels. Non-qualified catcher vessel participation increased from 13 in 1991 to 29 in 1998.

Harvest and earnings has remained relatively stable over the eight years (Figure 2.2-12). In 1991, qualified harvest was 2.3 million pounds and non-qualified harvest was 0.8 million pounds. Eight years later, the harvest was 2.1 million pounds for qualified vessels and 0.7 million pounds non-qualified vessels, respectively. Ex-vessel revenues of during this period fluctuated from a high of \$13.8 million in 1994 to a low of \$4.2 million dollars in 1998 for qualified vessels, and from a high of \$2.1 million in 1991 to a low of \$0.7 million in 1994 for non-qualified vessels. The share of qualified to non-qualified pounds increased during the first four years from 75 percent to 94 percent, but subsequent years declined to previous levels.

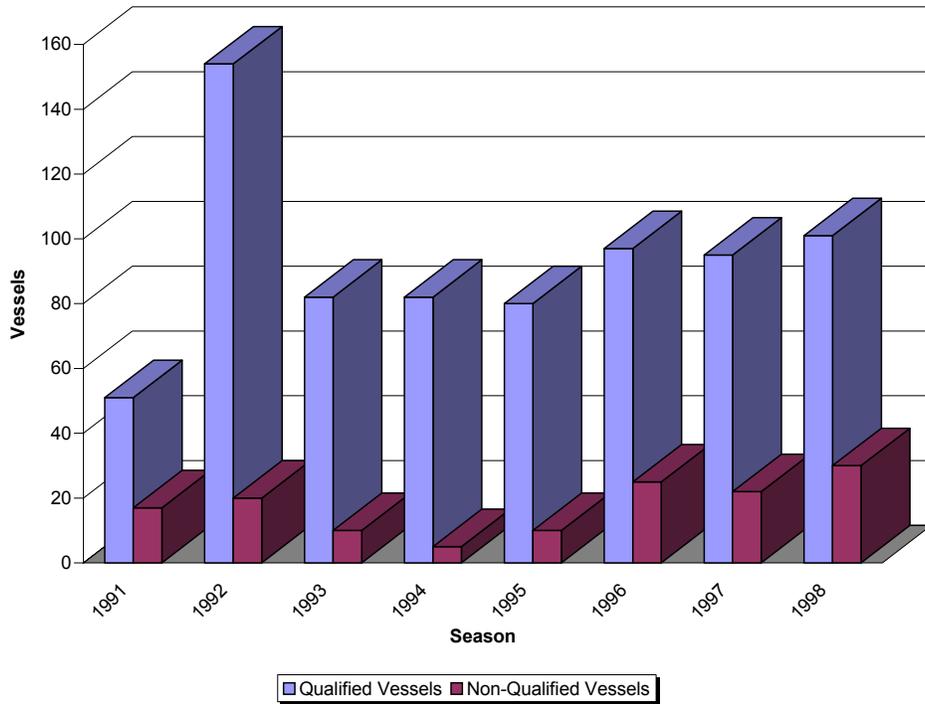


Figure 2.2-11 Number of qualified and non-qualified vessels in the St. Matthew blue king crab fishery by season from 1991 to 1998.

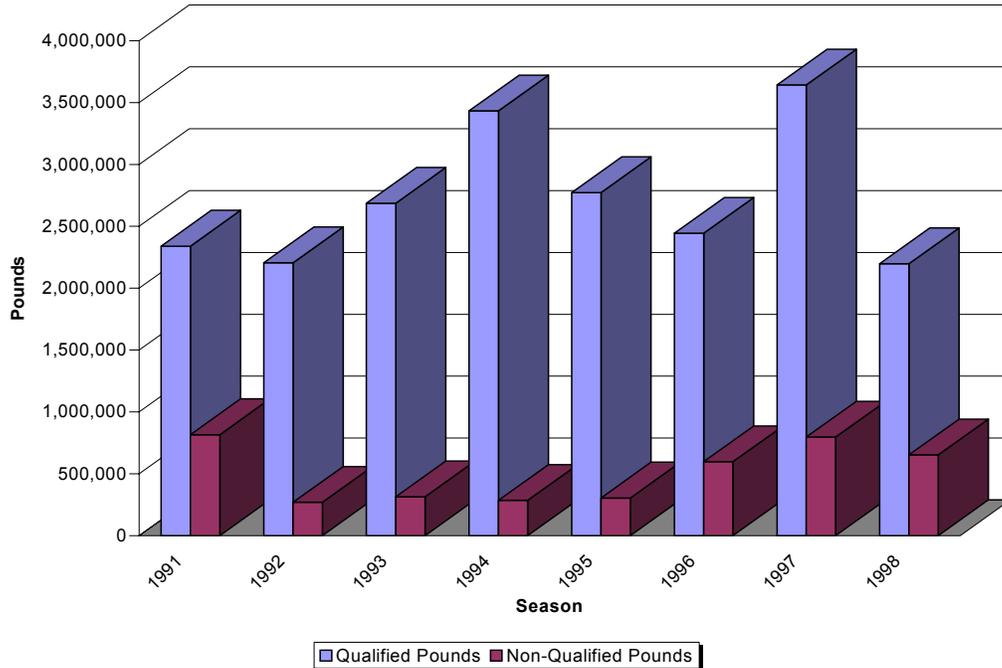


Figure 2.2-12 Qualified and non-qualified pounds of St. Matthew blue king crab harvested by season from 1991 to 1998.

EAI (Dutch Harbor) golden king crab

The Eastern Aleutian Islands (Dutch Harbor) golden king crab (*L. aequispina*) has relatively few participating vessels and has remained somewhat constant from 1991 to 2001 (Figure 2.2-13). The number of qualified vessels has ranged between 8 and 13, while the number of non-qualified vessels has ranged between 4 and 8 with the exception of the 1993-1994 season when only 1 non-qualified vessel participated in the fishery. The fleet is composed mostly of catcher vessels, while at the same time the number of qualified and non-qualified catcher/processors has diminished over the ten year period. In the 1991-1992 season, there were two qualified and four non-qualified catcher/processors, while during the 1999-2000 season there was only one catcher/processor who participated in the fishery and it was a qualified vessel.

The relative percent of qualified vessels to non-qualified vessels showed no discernable trend during the 1991 to 2001 time period. During the 1991-1992 season, 53 percent of the total vessels qualified. Immediately following the 1991-1992 season, the percent of qualified vessels to non-qualified vessels increase substantially where it peaked during the 1993-1994 season at 90 percent. In the subsequent years, the relatively percent of qualified to non-qualified vessels followed a more typically pattern of roughly a 60/30 split with the exception of the 1996-1997 season where the number of qualified and non-qualified vessels were equal.

With the exception of the 1994-1995 and 1995-1996 seasons, harvest by qualified vessels has remained relatively constant at approximately 2 million pounds (Figure 2.2-14). During the 1994-1995 and 1995-1996 season, harvest increased to 3.3 million and 3.4 million pounds, respectively. Harvest by non-qualified vessels declined from high of 2.4 million pounds during the 1991-1992 and 1992-1993 seasons to approximately 0.7

million pounds in the 1999-2000 season. Ex-vessel revenues followed a similar trend with non-qualified vessels surpassing qualified vessels during the 1991-1992 and 1992-1993 seasons. Since the

1992-1993 season, ex-vessel revenues of non-qualified vessels declined in relation to qualified vessels.

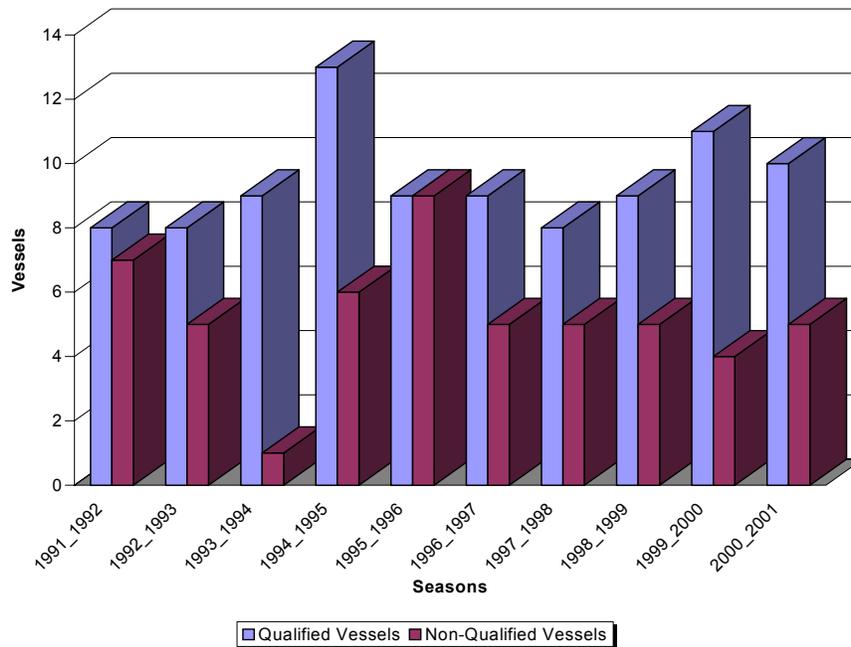


Figure 2.2-13 Number of qualified and non-qualified vessels in the Eastern Aleutian Islands (Dutch Harbor) golden king crab fishery by season from 1991 to 2001.

Qualified vessel ex-vessel revenues peaked during the 1994-1995 season at \$11 million and then subsequently declined to between \$5 and \$7 million between the 1996-1997 and 1999-2000 seasons. As evident in Figure 2.2-14, non-qualified vessels harvested more golden king crab during the first years, but then quickly declined as a percent of qualified harvest in the subsequent years. During this period, the percent of pounds harvested by qualified vessels in relation to non-qualified vessels increased moderately from 45 percent in 1991-1992 season to 68 percent in the 2000-2001 season.

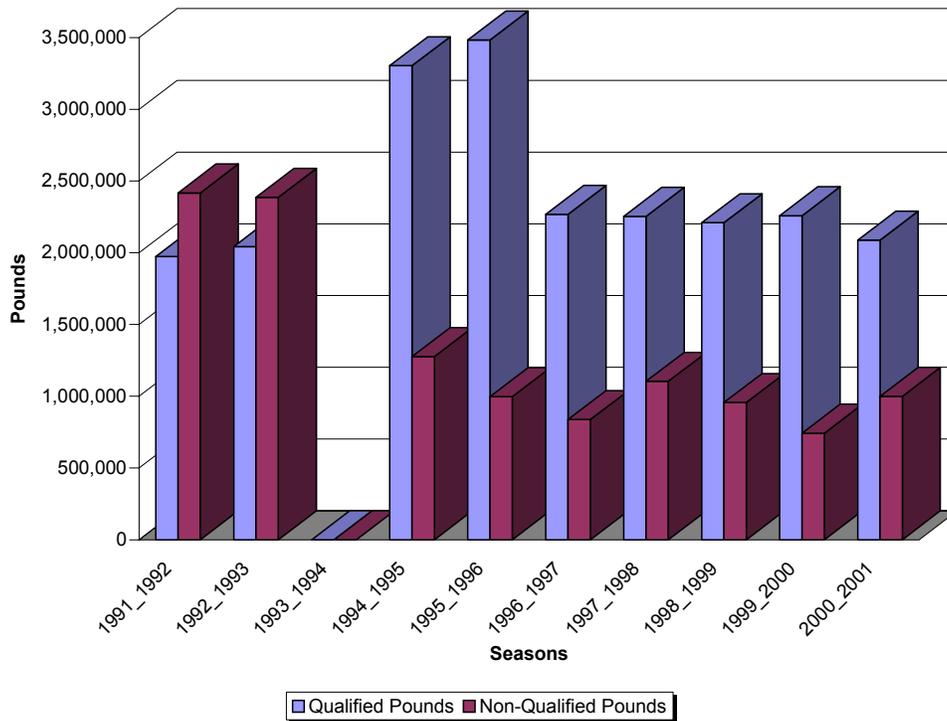


Figure 2.2-14 Qualified and non-qualified pounds of Eastern Aleutian Islands (Dutch Harbor) golden king crab harvested by season from 1991 to 2001.

Western Aleutian Islands (Adak) golden king crab

The Western Aleutian Islands golden king crab fishery has experienced shifting trends in vessel participation over the 1991 to 2001 time period (Figure 2.2-15). During the first seasons years, the number of qualified vessels increased from 9 to 16. This was followed by five years of declining participation until the 1998-1999 season when only 1 qualified vessel fished in this fishery. In the remaining two years, participation of qualified vessels increased to 9 and 10. Non-qualified vessel participation followed a similar pattern. With the exception of the 1993-1994 season, participation increased over the first four years, peaking at 13 vessels during the 1994-1995 season. Participation declined over the next 5 years to only 2 vessels during the 1998-1999 season. This was followed by a slight increase during the remaining two years.

The percent of qualified vessels to non-qualified vessels during the 1991 to 2001 period showed no discernable trend (Figure 2.2-15). During the 1991-1992 season, 73 percent of the total vessels participating in the crab fishery were qualified vessels, while during the 2000-2001 season 75 percent were qualified vessels. However, during the 1998-1999 season, only 33 percent of the total participants were qualified vessels.

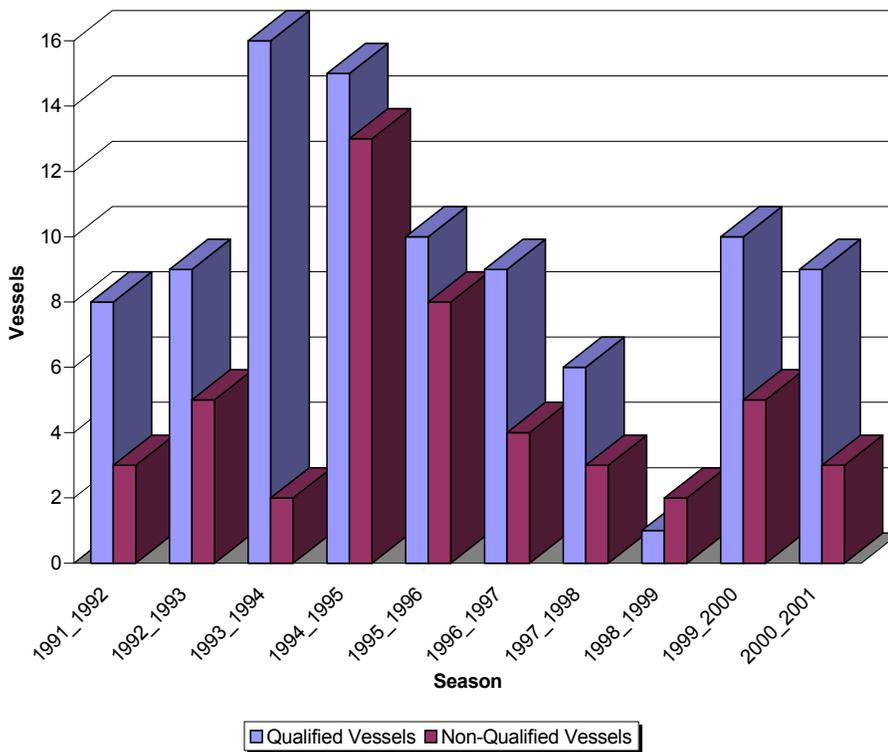


Figure 2.2-15 Number of qualified and non-qualified vessels in the Western Aleutian Islands (Adak) golden king crab fishery by season from 1991 to 2001.

The composition of the Western Aleutian Islands (Adak) golden king crab fleet has undergone some change during the 1991 to 2001 time period. Catcher/processors participation declined during the ten years, while catcher vessel participation increased during the early years followed a slow decline in subsequent years. In 1991-1992 season, there were four qualified and three non-qualified catcher/processors, while in 2000-2001 there was only one qualified and no non-qualified catcher/processors. Qualified catcher vessel participation increased from four in 1991-1992 to 16 in 1993-1994, followed by a decline to eight in 2000-2001. Non-qualified catcher vessel participation increased from no in 1991-1992 to 12 in 1994-1995 and then declined to three in 2000-2001.

Figure 2.2-16 shows qualified and non-qualified harvest for those years where data confidentially was not a problem. Unfortunately, the extent of the confidential data precludes any real trend analysis for qualified and non-qualified vessels. Detailed aggregate harvest data for each fishery are shown in Appendix 2-2.

Western Aleutian Islands (Adak) red king crab

With the exception of the 1995-1996 season, the Western Aleutian Islands red king crab fishery has experienced an increase in qualified vessel participation from 7 in 1991-1992 to 19 in 1994-1995, while non-qualified participation declined during this period from three to one vessel (Figure 2.2-17). The fishery has been closed since 1997. During the 1995-1996 season, qualified vessel participation declined to three. The percent of qualified vessels to non-qualified vessels increased during the first four seasons the fishery was open from 70 to 95 percent, but then declined to 75 percent during the 1995-1996 season. The qualified fleet was composed mostly of catcher vessels, which showed an increase during the first four of the five years from five to 17 vessels, but then declined the last year the fishery was open to three. Catcher/processors numbers

fluctuated between one and two vessels. Non-qualified catcher vessels declined from three to one participant and catcher/processors declined from one to no participants during the five years.

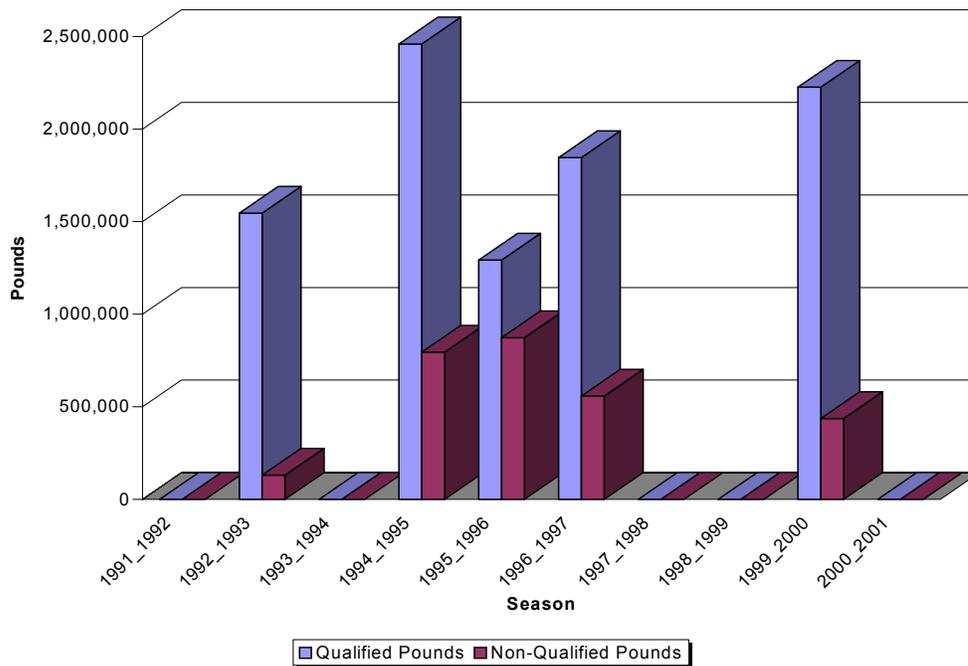


Figure 2.2-16 Qualified and non-qualified pounds of Western Aleutian Islands (Adak) golden king crab harvested by season from 1991 to 2001.

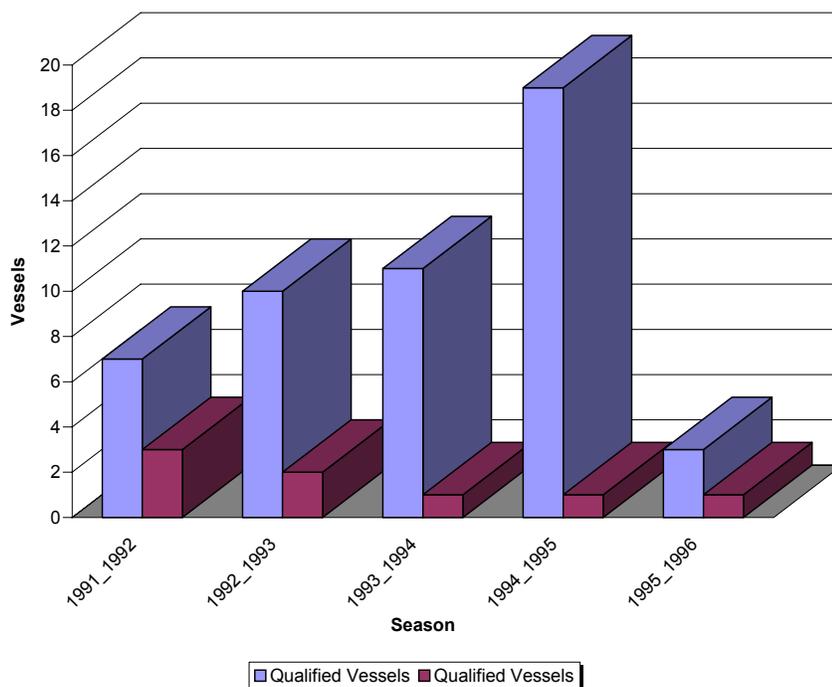


Figure 2.2-17 Number of qualified and non-qualified vessels in the Western Aleutian Islands red king crab fishery by season from 1991-1992 to 1995-1996.

As shown in Figure 2.2-17, the Adak red king crab fishery has very few participants. The limited number of participants in this fishery precludes the release of harvest data to the public.

2.3 Processor participation

This section summarizes processor participation in the different BSAI crab fisheries. For each fishery, the number of processors participating, the region of participation, and pounds of delivered are presented and discussed. To the extent permitted by rules intended to protect confidentiality, these figures are reported for qualified and unqualified processors (as defined by the rationalization program options) and for each region (as defined under the regionalization program options). In addition, Appendix 2-3 contains a brief summary of first wholesale prices received by processors of BSAI crab for products produced from these fisheries.

Bering Sea C. opilio fishery

Deliveries of Bering Sea *C. opilio* to processors have declined significantly since 1991 (Table 2.3-1). With the exception of a few years, the largest portion of deliveries were to the southern region. Processing by catcher/processors has gradually declined over the period. In 1991, 37 percent of deliveries were to the southern region, 21 percent were to catcher/processors, 7 percent were to the northern region, while 35 percent were to floating processors in locations that could not be identified for this report. Ten years later, 67 percent of the total pounds processed were processed in the southern region, 18 percent were to the northern region, 6 percent were processed by catcher/processors, and the remaining 26 percent were split between the northern processors and processors the location of which could not be established.

The number of qualified processors in the Bering Sea *C. opilio* fishery has remained relatively constant, while the number of non-qualified processors has declined throughout the 1990's (Table 2.3-1). In 1991, approximately 67 percent of the total pounds processed were processed by 37 qualified processors and 32 percent of pounds processed were processed by 35 non-qualified processors. Since 1998, all processing has been by qualified processors. Since 1998, the number of qualified processors receiving deliveries declined from 47 to 30.

Bristol Bay red king crab fishery

Total deliveries of Bristol Bay red king crab from 1991 to 2000 have fluctuated between 7 to 17 million pounds showing no discernable trend (Table X). There was no fishing during the 1994 and 1995 seasons. The largest share of deliveries during this period was made to the southern region. Processing by catcher processors has gradually declined over this period as has the number of pounds processed by floating processors that could not be categorized by region. In 1991, 60 percent of total pounds processed were processed in the southern region, while 16 percent were processed by catcher/processors. The remaining share of the fishery was processed by a single processor in the north and floating processors, the location of which could not be established. Ten years later, 96 percent of the total deliveries were to the southern region, while the remaining 4 percent went to catcher/processors, processors in the north and floating processors that could not be categorized by region.

The number of qualified processors in the Bristol Bay red king crab fishery has remained relatively constant, while the number of non-qualified processors declined throughout the 1990's (Table 2.3-2). In 1991, approximately 71 percent of the total deliveries were to 29 qualified processors, while the remaining 29 percent were delivered to 27 non-qualified processors. Only 3 unqualified processors participated in the fishery in 2000.

Table 2.3-1 Deliveries in pounds to qualified and unqualified processors and number of qualified and unqualified processors by year and region for the Bering Sea *C. opilio* fishery. Asterisk denotes confidential data.

Season	Region	Deliveries to Qualified Processors (Pounds)	Deliveries to Unqualified Processors (Pounds)	Total Deliveries (Pounds)	Qualified Processors	Unqualified Processors	Total Processors
1991	Unassigned Floaters	*	*	114,124,272	7	11	18
	Catcher Processor	41,901,229	25,514,003	67,415,232	15	13	28
	South	105,335,436	14,026,192	119,361,628	12	10	22
	North	*	*	24,282,101	3	1	4
Total	219,629,974	105,553,259	325,183,233	34	35	69	
1992	Unassigned Floaters	*	*	*	6	7	13
	Catcher Processor	29,350,068	25,051,644	54,401,712	14	17	31
	South	112,367,720	12,551,657	124,919,377	10	8	18
	North	*	*	*	2	1	3
Total	208,771,822	104,067,582	312,839,404	31	33	64	
1993	Unassigned Floaters	*	*	78,531,786	6	8	14
	Catcher Processor	25,987,533	15,839,560	41,827,093	18	12	30
	South	68,731,006	3,787,946	72,518,952	16	6	22
	North	*	*	36,295,977	3	2	5
Total	155,442,195	73,731,613	229,173,808	41	27	68	
1994	Unassigned Floaters	*	*	26,057,414	2	5	7
	Catcher Processor	15,844,157	8,000,413	23,844,570	16	8	24
	South	33,173,011	3,299,261	36,472,272	12	4	16
	North	*	*	61,618,699	10	2	12
Total	108,089,136	39,903,819	147,992,955	40	19	59	
1995	Unassigned Floaters	*	*	10,263,824	3	5	8
	Catcher Processor	5,843,305	2,482,267	8,325,572	13	6	19
	South	*	*	27,872,511	16	3	19
	North	27,543,452	0	27,543,452	10	0	10
Total	65,317,558	8,687,801	74,005,359	38	14	52	
1996	Unassigned Floaters	*	*	7,514,228	2	3	5
	Catcher Processor	*	*	10,837,812	12	3	15
	South	18,941,386	0	18,941,386	13	0	13
	North	27,069,732	0	27,069,732	11	0	11
Total	59,581,636	4,781,522	64,363,158	38	6	44	
1997	Unassigned Floaters	*	*	*	2	1	3
	Catcher Processor	*	*	12,395,552	12	2	14
	South	*	*	56,952,319	18	1	19
	North	38,912,525	0	*	8	0	8
Total	112,679,426	4,500,257	117,179,683	38	4	42	
1998	Unassigned Floaters	*	*	*	3	0	3
	Catcher Processor	16,301,645	0	16,301,645	15	0	15
	South	104,989,772	0	104,989,772	18	0	18
	North	*	*	*	11	0	11
Total	*	*	240433650	44	0	44	
1999	Unassigned Floaters	*	*	*	2	0	2
	Catcher Processor	10,038,844	0	10,038,844	11	0	11
	South	69,767,666	0	69,767,666	15	0	15
	North	*	*	*	9	0	9
Total	*	*	182,678,507	36	0	36	
2000	Unassigned Floaters	*	*	*	2	0	2
	Catcher Processor	1,939,298	0	1,939,298	9	0	9
	South	20,544,915	0	20,544,915	14	0	14
	North	*	*	*	5	0	5
Total	*	*	30,258,170	28	0	28	

Season	Region	Deliveries to Qualified Processors (Pounds)	Deliveries to Unqualified Processors (Pounds)	Total Deliveries (Pounds)	Qualified Processors	Unqualified Processors	Total Processors
1991	Unassigned Floaters	*	*	*	4	5	9
	Catcher Processors	1,350,983	1,306,013	2,656,996	12	13	25
	South	8,519,758	1,644,111	10,163,869	13	8	21
	North	*	*	*	0	1	1
	Total	11,719,501	5,130,061	16,849,562	29	27	56
1992	Unassigned Floaters	*	*	*	3	4	7
	Catcher Processors	292,494	455,273	747,767	6	9	15
	South	4,804,622	652,000	5,456,622	10	7	17
	North	*	*	*	0	1	1
	Total	5,853,956	2,123,285	7,977,241	19	21	40
1993	Unassigned Floaters	*	*	*	3	2	5
	Catcher Processors	876,080	492,344	1,368,424	12	4	16
	South	8,818,597	695,928	9,514,525	11	6	17
	North	*	*	*	0	1	1
	Total	11,818,736	2,524,302	14,343,038	26	13	39
1996	Unassigned Floaters	*	*	*	2	0	2
	Catcher Processors	*	*	*	3	1	4
	South	7,555,335	0	7,555,335	11	0	11
	Total	*	*	8,319,611	16	1	17
1997	Unassigned Floaters	*	*	*	2	0	2
	Catcher Processors	305,426	0	305,426	8	0	8
	South	7,538,524	0	7,538,524	13	0	13
	North	*	*	*	2	0	2
	Total	*	*	8,720,403	25	0	25
1998	Unassigned Floaters	*	*	*	2	0	2
	Catcher Processors	1,486,380	0	1,486,380	11	0	11
	South	11,908,145	0	11,908,145	14	0	14
	North	*	*	*	1	0	1
	Total	*	*	14,120,487	27	0	27
1999	Unassigned Floaters	*	*	*	1	0	1
	Catcher Processors	931,557	0	931,557	8	0	8
	South	9,611,242	0	9,611,242	13	0	13
	North	*	*	*	1	0	1
	Total	*	*	10,949,856	23	0	23
2000	Unassigned Floaters	*	*	*	0	2	2
	Catcher Processors	293,088	0	*	6	0	6
	South	*	*	7,172,614	14	1	15
	Total	*	*	7,468,240	20	3	23

Table 2.3-2 Deliveries in pounds to qualified and unqualified processors and number of qualified and unqualified processors by year and region for the Bristol Bay red king crab fishery. Asterisk denotes confidential data.

Bering Sea *C. bairdi* fishery

During the 1990 to 1996 period, deliveries of Bering Sea *C. bairdi* to processors has increased during the first two years followed by a dramatic decline during the last four years the fishery was open (Table 2.3-3). During

this period, deliveries to processors in the southern region increased as a percent of the total. In 1991, 51 percent of pounds were processed by processors in the southern region, 12 percent were processed by catcher/processors, and the remaining 37 percent was split between processors in the north and floating processors the region of which could not be categorized. In 1996, 96 percent of the total deliveries were to the southern region.

The number of qualified processors in the Bering Sea *C. bairdi* fishery increased slightly during the first few years and then declined the remaining three years, while the number of non-qualified processors has declined throughout the 1990s (Table 2.3-3). In 1991, approximately 69 percent of the total deliveries were to 33 qualified processors and the remaining 31 percent of deliveries were to 30 non-qualified processors. In 1996, 98 percent of the deliveries were to qualified processors.

Table 2.3-3 Deliveries in pounds to qualified and unqualified processors and number of qualified and unqualified processors by year and region for the Bering Sea *C. bairdi* fishery. Asterisk denotes confidential data.

Season	Region	Deliveries to Qualified Processors (Pounds)	Deliveries to Unqualified Processors (Pounds)	Total Deliveries (Pounds)	Qualified Processors	Unqualified Processors	Total Processors
1990-1991	Unassigned Floaters	*	*	*	7	11	18
	Catcher Processors	1,342,491	579,103	1,921,594	14	10	24
	South	6,897,490	1,108,340	8,005,830	11	8	19
	North	*	*	*	1	1	2
	Total	10,903,720	4,726,846	15,630,566	32	30	62
1991-1992	Unassigned Floaters	*	*	*	8	7	15
	Catcher Processors	3,522,039	3,216,444	6,738,483	14	17	31
	South	13,893,424	3,323,134	17,216,558	12	10	22
	North	*	*	*	0	1	1
	Total	19,212,823	12,301,522	31,514,345	34	35	69
1992-1993	Unassigned Floaters	*	*	*	8	11	19
	Catcher Processors	2,348,072	1,898,011	4,246,083	14	13	27
	South	18,336,520	2,792,984	21,129,504	15	10	25
	North	*	*	*	1	2	3
	Total	24,931,610	9,855,301	34,786,911	37	34	71
1993-1994	Unassigned Floaters	*	*	*	7	4	11
	Catcher Processors	1,443,860	755,443	2,199,303	12	5	17
	South	9,083,632	2,067,669	11,151,301	13	10	23
	North	*	*	*	0	1	1
	Total	12,849,774	3,770,205	16,619,979	31	20	51
1994	Unassigned Floaters	*	*	*	0	1	1
	Catcher Processors	402,805	228,179	630,984	5	4	9
	South	5,432,868	1,082,651	6,515,519	10	6	16
	North	*	*	*	1	1	2
	Total	6,058,890	1,575,216	7,634,106	16	12	28
1995	Unassigned Floaters	*	*	*	0	1	1
	Catcher Processors	*	*	370,209	9	2	11
	South	*	*	3,651,043	12	1	13
	North	*	*	*	2	0	2
	Total	4,108,924	75,087	4,184,011	23	4	27
1996	Unassigned Floaters	*	*	*	1	0	1
	Catcher Processors	*	*	*	3	1	4
	South	*	*	1,711,024	13	1	14
	North	*	*	*	*	*	*
	Total	*	*	1,788,102	17	2	19

Pribilof blue king crab fishery

Between 1995 and 1998 period, deliveries of Pribilof blue king crab to processors has declined (Table 2.3-4). Over these four seasons, 50 percent of deliveries were to the northern region, while deliveries to the southern region were slightly lower. The Pribilof blue king crab fishery was closed during the 1993 and 1994 seasons, and again during the 1999 and 2000 seasons. Due to the limited number of processors in the fishery, details on regional deliveries cannot be reported.

The number of qualified processors in the Pribilof blue king crab fishery has remain relatively constant, between 11 to 15 over the fours years, while their was only 1 non-qualified processor during the first two years, but then subsequently dropped out the last two (Table 2.3-4). Almost all processing was by qualified processors in this fishery, with 100 percent of processing by qualified processors in 1997 and 1998.

Table 2.3-4 Deliveries in pounds to qualified and unqualified processors and number of qualified and unqualified processors by year and region for the Pribilof blue king crab fishery. Asterisk denotes confidential data.

Season	Region	Deliveries to	Deliveries to	Total Deliveries (Pounds)	Qualified	Unqualified	Total Processors
		Qualified Processors (Pounds)	Unqualified Processors (Pounds)		Processors	Processors	
1995	Unassigned Floaters	*	*	*	0	1	1
	Catcher Processors	*	*	*	1	0	1
	South	531,840	0	531,840	6	0	6
	North	622,546	0	622,546	4	0	4
	Total	*	*	1,195,861	11	1	12
1996	Unassigned Floaters	*	*	*	0	1	1
	South	416,039	0	416,039	6	0	6
	North	*	*	*	4	0	4
	Total	*	*	916,474	10	1	11
1997	Unassigned Floaters	*	*	*	1	0	1
	South	73,913	0	73,913	7	0	7
	North	*	*	*	4	0	4
	Total	*	*	491,434	12	0	12
1998	Unassigned Floaters	*	*	*	1	0	1
	South	169,508	0	169,508	10	0	10
	North	*	*	*	4	0	4
	Total	*	*	494,424	15	0	15

Pribilof red king crab fishery

Between 1993 and 1998, processing of Pribilof red king crab has declined (Table 2.3-5). The limited number of processors in the fishery have created confidentiality problems for disclosing data making general statements concerning the regional distribution of processing difficult. Generally speaking, deliveries to floaters that cannot be regionally categorized and catcher/processor processing have been minor during the six year period. Catcher/processors have not participated in the processing sector of this fishery since 1993 season. The fishery was closed during the 1999 and 2000 seasons.

Between 1993 and 1998, the number of qualified processors in the Pribilof blue king crab fishery has ranged from 11 to 14, while the number of non-qualified processors has declined from 5 during the first three years to none during the last three years (Table 2.3-5). The majority of crab was processed by qualified processors during the five year period. In 1993, 71 percent of crab was processed by 12 qualified processors and the

remaining 29 percent was processed by 5 non-qualified processors. In 1996 and continuing through 1998, 100 percent crab was processed by qualified processors.

Table 2.3-5 Deliveries in pounds to qualified and unqualified processors and number of qualified and unqualified processors by year and region for the Pribilof red king crab fishery. Asterisk denotes confidential data.

Season	Region	Deliveries to Qualified Processors (Pounds)	Deliveries to Unqualified Processors (Pounds)	Total Deliveries (Pounds)	Qualified Processors	Unqualified Processors	Total Processors
1993	Unassigned Floaters	*	*	*	1	1	2
	Catcher Processors	*	*	*	2	0	2
	South	*	*	1,531,674	8	3	11
	North	*	*	*	1	1	2
	Total	1,829,968	755,998	2,585,966	12	5	17
1994	Unassigned Floaters	*	*	*	0	1	1
	South	*	*	692,746	8	3	11
	North	*	*	*	3	1	4
	Total	994,934	341,090	1,336,024	11	5	16
1995	Unassigned Floaters	*	*	*	0	1	1
	South	353,123	0	353,123	7	0	7
	North	*	*	*	4	0	4
	Total	*	*	855,063	11	1	12
1996	South	96,558	0	96,558	6	0	6
	North	103,160	0	103,160	4	0	4
	Total	*	*	199,718	10	0	10
1997	Unassigned Floaters	*	*	*	1	0	1
	South	117,803	0	117,803	7	0	7
	North	*	*	*	4	0	4
	Total	*	*	735,109	12	0	12
1998	Unassigned Floaters	*	*	*	2	0	2
	South	207,997	0	207,997	9	0	9
	North	*	*	*	3	0	3
	Total	*	*	501,042	14	0	14

St. Matthew blue king crab fishery

During the 1991 to 1998 period, the distribution of processing in the St. Matthew blue king crab has remained relatively constant (Table 2.3-6). During the first two years floaters at unknown locations captured the largest portion of deliveries. However, in the following years, the northern region captured the largest portion of deliveries. Deliveries to floaters and catcher/processors declined during the entire period. The fishery was closed in 1999 and 2000.

The number of qualified processors in the St. Matthew blue king crab fishery has increased from 7 in 1991 to 14 in 1998, while the number of non-qualified processors has declined from 8 to 0 (Table 2.3-6). During the first two years, processing was fairly evenly divided between qualified and non-qualified processors, but in subsequent years processing by qualified processors surpassed non-qualified processors. In 1991, 51 percent of processing was by 7 qualified processors and the remaining 49 percent was by 8 non-qualified processors.

Table 2.3-6 Deliveries in pounds to qualified and unqualified processors and number of qualified and unqualified processors by year and region for the St. Matthew blue king crab fishery. Asterisk denotes confidential data.

Season	Region	Deliveries to Qualified Processors (Pounds)	Deliveries to Unqualified Processors (Pounds)	Total Deliveries (Pounds)	Qualified Processors	Unqualified Processors	Total Processors
1991	Unassigned Floaters	*	*	*	1	1	2
	Catcher Processors	319,415	669,579	988,994	4	5	9
	South	*	*	*	2	1	3
	North	*	*	*	0	1	1
		1,596,512	1,559,095	3,155,607	7	8	15
1992	Unassigned Floaters	*	*	1,227,886	3	4	7
	Catcher Processors	*	*	361,425	2	5	7
	South	*	*	*	3	0	3
	North	*	*	*	1	1	2
		1,170,406	1,303,674	2,474,080	9	10	19
1993	Unassigned Floaters	*	*	*	2	1	3
	Catcher Processors	*	*	*	2	1	3
	South	*	*	613,964	5	1	6
	North	*	*	1,465,770	2	2	4
		2,126,501	873,420	2,999,921	11	5	16
1994	Unassigned Floaters	*	*	*	0	1	1
	Catcher Processors	*	*	*	3	3	6
	South	*	*	839,266	6	2	8
	North	*	*	2,354,833	5	2	7
		2,723,506	994,057	3,717,563	14	8	22
1995	Unassigned Floaters	*	*	*	0	1	1
	Catcher Processors	*	*	*	1	0	1
	South	870,376	0	870,376	4	0	4
	North	1,776,004	0	1,776,004	5	0	5
		*	*	3,075,902	10	1	11
1996	Catcher Processors	*	*	*	2	1	3
	South	703,131	0	703,131	7	0	7
	North	*	*	*	5	0	5
		*	*	3,040,766	14	1	15
1997	Unassigned Floaters	*	*	*	1	0	1
	Catcher Processors	*	*	*	1	0	1
	South	1,068,101	0	1,068,101	6	0	6
	North	3,016,829	0	3,016,829	5	0	5
		*	*	4,438,395	13	0	13
1998	Unassigned Floaters	*	*	*	1	0	1
	Catcher Processors	*	*	*	2	0	2
	South	415,025	0	415,025	6	0	6
	North	2,134,456	0	2,134,456	5	0	5
		*	*	2,849,574	14	0	14

Western Aleutian Islands (Adak) golden (brown) king crab fishery

During the 1990 to 2001 period, the distribution of processing of Adak brown king crab has remained relatively constant (Table 2.3-7). During the 1991-2 and 1992-3 seasons, catcher/processors processed the majority of the crab in this fishery. In subsequent years, the processing distribution could not be shown because of confidentiality. No processing occurred in the northern region during the period,

The number of qualified processors in the Adak brown king crab fishery has remained relatively constant during the 11 year period, while the number of non-qualified processors has declined from 3 to 0 (Table 2.3-7).

Table 2.3-7 Deliveries in pounds to qualified and unqualified processors and number of qualified and unqualified processors by year and region for the Western Aleutian Islands (Adak) golden (brown) king crab fishery. Asterisk denotes confidential data.

Season	Region	Deliveries to Qualified Processors (Pounds)	Deliveries to Unqualified Processors (Pounds)	Total Deliveries (Pounds)	Qualified Processors	Unqualified Processors	Total Processors
1990-1991	Catcher Processors	*	*	*	1	3	4
	South	*	*	*	3	0	3
	Total	*	*	2,593,196	4	3	7
1991-1992	Catcher Processors	*	*	2,929,066	3	4	7
	South	*	*	214,325	4	0	4
	Total	2,265,251	878,140	3,143,391	7	4	11
1992-1993	Catcher Processors	*	*	1,213,312	4	0	4
	South	*	*	463,598	5	1	6
	Total	*	*	1,676,910	9	1	10
1993-1994	Unassigned Floaters	*	*	*	0	1	1
	Catcher Processors	*	*	*	1	0	1
	South	821,520	0	821,520	5	0	5
	Total	*	*	2,119,067	6	1	7
1994-1995	Unassigned Floaters	*	*	*	0	1	1
	Catcher Processors	*	*	*	1	1	2
	South	*	*	2,118,806	6	1	7
	Total	*	*	3,255,116	7	3	10
1995-1996	Catcher Processors	*	*	*	1	0	1
	South	*	*	*	5	0	5
	Total	*	*	2,165,941	6	0	6
1996-1997	Catcher Processors	*	*	*	2	0	2
	South	*	*	*	5	0	5
	Total	*	*	2,403,721	7	0	7
1997-1998	Unassigned Floaters	*	*	*	2	0	2
	Catcher Processors	*	*	*	2	0	2
	South	1,223,269	0	1,223,269	4	0	4
	Total	*	*	2,405,622	8	0	8
1998-1999	Catcher Processors	*	*	*	1	0	1
	South	*	*	*	2	0	2
	Total	*	*	1,670,167	3	0	3
1999-2000	Catcher Processors	*	*	*	1	0	1
	South	*	*	*	5	0	5
	Total	*	*	2,663,281	6	0	6
2000-2001	Catcher Processors	*	*	*	1	0	1
	South	*	*	*	7	0	7
	Total	*	*	2,902,518	8	0	8

Eastern Aleutian Islands (Dutch Harbor) golden (brown) king crab fishery

During the 1990 to 2001 period, the southern region has processed an increasing amount of crab from the Eastern Aleutian Islands (Dutch Harbor) golden king crab fishery (Table 2.3-8). No deliveries were made to northern region processors during this period. Due to the limited number of processors, little more on the distribution of processing can be reported.

The number of qualified processors has remain relatively constant, while the number of non-qualified processors has declined in this fishery (Table 2.3-8). The majority of processing was by qualified processors during the ten year period, with all processing since the 1996-1997 season, being by qualified processors.

Table 2.3-8 Deliveries in pounds to qualified and unqualified processors and number of qualified and unqualified processors by year and region for the Eastern Aleutian Islands (Dutch Harbor) golden (brown) king crab fishery. Asterisk denotes confidential data.

Season	Region	Deliveries to Qualified Processors (Pounds)	Deliveries to Unqualified Processors (Pounds)	Total Deliveries (Pounds)	Qualified Processors	Unqualified Processors	Total Processors
1990-1991	Unassigned Floaters	*	*	*	0	1	1
	Catcher Processors	*	*	*	0	2	2
	South	1,349,812	0	1,349,812	4	0	4
	Total	*	*	1,626,661	4	3	7
1991-1992	Catcher Processors	*	*	1,016,230	2	4	6
	South	*	*	3,374,623	4	1	5
	Total	3,689,454	701,399	4,390,853	6	5	11
1992-1993	Unassigned Floaters	*	*	*	1	0	1
	Catcher Processors	*	*	993,451	2	3	5
	South	*	*	*	3	1	4
	Total	4,082,604	346,940	4,429,544	6	4	10
1993-1994	Unassigned Floaters	*	*	*	0	1	1
	South	*	*	*	5	1	6
	Total	*	*	3,259,394	5	2	7
1994-1995	Unassigned Floaters	*	*	*	0	2	2
	South	*	*	*	5	1	6
	Total	*	*	4,579,823	5	3	8
1995-1996	Catcher Processors	*	*	*	0	1	1
	South	*	*	*	4	0	4
	Total	*	*	4,479,463	4	1	5
1996-1997	South	3,105,659	0	3,105,659	5	0	5
	Total	*	*	3105659	5	0	5
1997-1998	Catcher Processors	*	*	*	2	0	2
	South	*	*	*	4	0	4
	Total	*	*	3,357,867	6	0	6
1998-1999	Catcher Processors	*	*	*	1	0	1
	South	*	*	*	6	0	6
	Total	*	*	3,165,020	7	0	7
1999-2000	Catcher Processors	*	*	*	1	0	1
	South	*	*	*	6	0	6
	Total	*	*	2,999,890	7	0	7
2000-2001	South	3,086,890	0	3,086,890	4	0	4
	Total	*	*	3,086,890	4	0	4

Western Aleutian Islands (Adak) red king crab fishery

Between 1990 and 1996 period, processing of Western Aleutian Islands (Adak) red king crab increased rapidly and then declined rapidly (Table 2.3-9). Due to the limited number of processors, in the fishery little can be said about the regional distribution of processing.

The number of qualified processors in the Adak red king crab fishery increased from 2 in the 1990-1991 season to 9 during the 1994-1995 season, followed by a decline to 4 in the 1995-6 season, the last season the fishery was open (Table 2.3-9). The number of unqualified processors has declined during the six years from a high of 5 during the 1991-1992 season to none in the 1995-1996 season.

Table 2.3-9 Deliveries in pounds to qualified and unqualified processors and number of qualified and unqualified processors by year and region for the Western Aleutian Islands (Adak) red king crab fishery. Asterisk denotes confidential data.

Season	Region	Deliveries to Qualified Processors (Pounds)	Deliveries to Unqualified Processors (Pounds)	Total Deliveries (Pounds)	Qualified Processors	Unqualified Processors	Total Processors
1990-1991	Catcher Processors	*	*	*	2	1	3
	Total	*	*	169,102	2	1	3
1991-1992	Unassigned Floaters	*	*	*	0	1	1
	Catcher Processors	*	*	*	2	1	3
	South	*	*	266,344	4	3	7
	Total	935,123	16,155	951,278	6	5	11
1992-1993	Catcher Processors	*	*	*	1	1	2
	South	*	*	*	6	1	7
	Total	*	*	1,281,424	7	2	9
1993-1994	Unassigned Floaters	*	*	*	1	0	1
	Catcher Processors	*	*	*	1	0	1
	South	*	*	303,393	5	2	7
	North	*	*	*	0	1	1
	Total	*	*	690,675	7	3	10
1994-1995	Unassigned Floaters	*	*	*	0	1	1
	Catcher Processors	*	*	*	2	0	2
	South	97,382	0	97,382	7	0	7
	Total	*	*	195,537	9	1	10
1995-1996	Catcher Processors	*	*	*	1	0	1
	South	*	*	*	3	0	3
	Total	*	*	38,706	4	0	4

2.4 The relationship between harvesters and processors

Harvesters and processors in the crab fisheries are related on several levels ranging from common ownership to simply repeated transactions in the buying and selling of crab. Since the relationships are often manifold, their dynamics are also quite complicated. Understanding these relationships, however, is critical to understanding the applicability of a rationalization program in a fishery. A cooperative program may exploit strong ties and close working relationships between processors and vessels to the benefit of all parties. A system of cooperatives, however, may constrain participants in a fishery, if relationships between harvesters and processors are transitory and fluid. This section describes the various relationships between harvesters and processors. This material is used later in the analysis to develop an understanding of the practicability of the different rationalization alternatives and to assess the market power between harvesters and processors under the different alternatives.

2.4.1 Common ownership of harvesters and processors

Common ownership of vessels and processors will have a strong influence on the relationship between harvesters and processors and the coordination of activities in the two sectors. Common ownership will also affect the nature of transactions between the sectors and the dependence of one sector on the other. In a fishery with expansive common ownership of the harvesting and processing sectors, participants in either sector that are not vertically integrated will have a different position in the market from those participants that are vertically integrated.

A portion of the crab industry is vertically integrated (either a processor owns an interest in a vessel or a vessel owner owns an interest in a processor). Representatives of the major processors in the fisheries provided the analysts with a list of vessels owned by processors that participate in the BSAI crab fisheries. That list is attached hereto as Appendix 2-4. Table 2.4-1 shows the number of vessels that a processor or a processor subsidiary or affiliate owns at least 10 percent² of and the harvest histories of those vessels in the fisheries under consideration for rationalization between 1991 and 2000. The table includes only harvests of vessels (including catcher/processors) that are affiliated with shoreside processors.

Table 2.4-1: Participation of shoreside processor affiliated vessels in BSAI crab fisheries, 1991-2000.

Fishery	Processor with affiliated vessels	Vessels affiliated with processors	Pounds Caught by	
			Vessels Vertically Integrated (in thousands)	Total Pounds (in thousands)
WAI (Adak) golden king crab	2	6	*	26,998.9
WAI (Adak) red king crab	1	1	*	3,326.7
Bristol Bay red king crab	6	37	11,564.5	88,761.2
Bering Sea <i>C. opilio</i>	6	30	212,759.2	1,724,107.9
Bering Sea <i>C. bairdi</i>	6	36	12,908.0	112,158.0
EAI (Dutch Harbor) golden king crab	2	3	*	38,481.1
Pribilof blue king crab	3	8	*	3,098.2
Pribilof red king crab	4	12	*	6,212.9
St. Matthew blue king crab	6	21	1,844.8	25,751.8

* Withheld to protect confidentiality.

Includes all harvests (including those by unqualified vessels) from seasons which began between January 1, 1991 and January 31, 2000, and harvests from the Aleutian Islands golden king crab fishery from the 2000-2001 season.

Sources: Summarized from the NPFMC Bering Sea Crab Data Base (2001 Version 1) using vessel list provided by processor representatives.

The amount of vertical integration varies by fishery. In the several of the fisheries harvests could not be revealed because of confidentiality protections. In the Bristol Bay red king crab, the Bering Sea *C. opilio*, and the Bering Sea *C. bairdi* fisheries processor affiliated vessels have caught between 11 and 13 percent of the total catch in the seasons considered. In the St. Matthew blue king crab fishery processor affiliated vessels harvested 7 percent of the total fleet harvests.

2.4.2 Support relationships between harvesters and processors

Harvesters and processors also have support relationships that are important to both sectors. Some processors sell bait, fuel, and food to vessels (often on credit) and store gear for vessels during the offseason. At times,

² This level of ownership and the ownership of affiliates is intended to capture all relationships and influences and was used for determining ownership under the AFA.

vessel owners with large debts to processors will give the lending processor a lien on their vessels. Whether a lien is taken is dependent on the relationship between the vessel owner and the processor. Because of confidentiality, the number of these liens and whether and the extent to which they are used to exert pressure on vessel operators is not known. Vessel owners also enter contracts to tender salmon and herring for processors outside of the crab season. Both vessel owners and processors contend that tendering relationships are important to their businesses. The extent to which either side exploits the other based on these tendering contracts is also not known. These relationships are discussed more fully in Section 3.16 below.

2.4.3 Harvest delivery patterns and processor purchasing patterns

Patterns of harvest deliveries and processor purchases can influence the applicability of different rationalization programs to a fishery. Fisheries in which fishermen consistently delivery harvests to a single processor, both during and across seasons, show a strong harvester/processor relationships that can benefit from the coordination of AFA style cooperative management. Fisheries in which harvesters deliver to several processors in the course of a season and change processors across seasons might be more suitable for a system of individual quotas or a cooperative program that provides greater flexibility in delivery patterns than AFA style cooperatives.

2.5 Ex-vessel pricing

The interaction between harvesters and processors is critical to the distribution of rents in a fishery. This section describes the current methods by which ex-vessel prices are determined in the BSAI crab fisheries. The discussion is intended to describe the general procedures used to establish ex-vessel prices. If known, exceptions to these general procedures are discussed.

2.5.1 Pricing practices

Pricing practices differ somewhat between fisheries with relatively short seasons and a relatively high number of participants (such as the Bristol Bay red king crab and the BS *C. opilio* fisheries) and fisheries with fewer participants and longer seasons (such as the Aleutian Islands golden king crab fisheries). Pricing practices in these different fisheries are therefore discussed separately.

Pricing in the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries

In recent years, harvesters in the BSAI crab fisheries have coordinated most price negotiations. Since the early 1990s, the Alaska Marketing Association (the AMA) has represented a substantial share of fishers in price negotiations in the largest BSAI fisheries– the Bristol Bay red king crab, the BS *C. opilio*, and the BS *C. bairdi* fisheries. Informal discussions have indicated that AMA membership has ranged from 25 percent to 95 percent of crab vessel owners.

Approximately one month prior to each season opening, AMA representatives meet with each of the major crab processors informally to discuss the markets for crab products. Based on this information and information gathered through its own market research, the AMA determines an expected price for crab, which it communicates to the processors. The AMA then solicits price offers from each processor, which it submits to its members for a vote. This process of soliciting prices continues until a price offer acceptable to AMA members is received. Receipt of an acceptable offer from a single processor has typically driven pricing of all processors. In the current fisheries, with unrestricted deliveries, processors have matched the accepted

offer to maintain market share.³ Prices generally remain constant in the current, short season fisheries. To create an incentive for higher offers, in the 2001 Bristol Bay red king crab fishery AMA members informally agreed to reward the processor that offered the accepted price with additional deliveries. This was the first time AMA members had offered such an arrangement. A similar arrangement was offered in the 2002 Bering Sea *C. opilio* fishery.

If an acceptable price is not received prior to the seasoning opening, catcher vessels will not begin fishing. In the 2000 and 2001 Bering Sea *C. opilio* season fishers did not begin fishing until several days after the announced opening because an acceptable price offer was not received from a processor. Although not all vessel owners are members of the AMA, in recent years all catcher vessels have remained at port after season openings until an acceptable price has been received by the AMA. Catcher/processors, on the other hand, have not abided by these “stand downs” but have begun fishing at the opening of the season. Catcher/processors do not receive an ex-vessel price so they are unaffected by the price negotiations. Fishing by catcher/processors, however, may weaken the negotiating position of catcher vessels since their harvests will reduce the amount of catch remaining after a price agreement is reached.

The pricing process typically establishes two prices– the main price applies to higher value new shell crab (grade 1) and a secondary, lower price for lower value, old shell crab (grade 2). These different grades bring different prices in ex-vessel, wholesale, and consumer markets. The price variation between grades can vary greatly between processors. The price difference averages approximately 25 percent of the grade 1 price (\$1.00 per pound for red king crab and \$0.25 for *C. opilio*) but difference in practices among processors can be extreme, defying generalization. The grade 2 price is important to fishers, but the grade 1 price negotiation is paramount.

Although this informal system establishes a single price for each grade of crab, price competition exists on a minor scale. Occasionally, processors offer small bonuses (e.g., \$0.05 per pound) to attract additional vessels. Processors also use different grading practices to attract vessels. Some fishers will select processors based on grading practices to realize better returns on harvests. In addition, a few harvesters continue to handle their own price negotiations (separate from the AMA negotiations).

Pricing also varies regionally among processors in the crab fisheries. Regional price differences have several sources. In fisheries where vessels make several deliveries, the availability of goods and services in a location can be important to fishers. Food, bait, fuel, and a good port facilities can make a processor more attractive to vessels wishing to offload harvests. Processors in locations that offer less goods and services may pay price premiums to induce fishers to sell their harvests. Processors that are distant from grounds may also need to pay a premium price to compensate fishers for time away from the grounds while making deliveries. Proximity to consumer markets can also influence ex-vessel prices. Processors with less access to consumer markets may pay slightly less for crab inputs than processors closer to end markets since they must bear the cost of delivering the crab to the market.

Generalizations concerning the spatial distribution of ex-vessel prices may be difficult to make. Dutch Harbor, where the most processors are located can be used as the basis for determining prices. The prices in Kodiak are higher (approximately \$0.20 in the recent Bristol Bay red king crab fishery) because of the longer distance to the fishing grounds and the proximity to consumer markets. The St. Paul processors are thought to pay slightly less for crab (less than \$0.05 less than the Dutch Harbor price for *C. opilio*) possibly as a result of the close proximity of the port to the fishing grounds. These minor price differences between ports are

³ Not all processors have participate in the AMA pricing activities. Although some fishers believe that the AFA has reduced participation of AFA processors, in the most recent *C. opilio* fishery an AFA processor made the price offer accepted by the fishers.

thought to have little effect on the competitiveness of vessels that deliver to the facilities at the different ports, when the other costs are considered.

Pricing in the Aleutian Islands golden king crab fisheries.

The AI golden king crab fisheries have many fewer participants than the Bristol Bay red king crab and BS *C. opilio* fisheries. Seasons in these golden king crab fisheries also last several months, in contrast to seasons shorter than one month in the Bristol Bay red king and BS *C. opilio* fisheries. As a result, ex-vessel pricing practices differ substantially in the AI golden king crab fisheries.

Traditionally, participants in the AI golden king crab fisheries have negotiated prices independently. Only recently have fishers in the AI golden king crab fisheries used collective action to negotiate ex-vessel prices for the fleet. Notwithstanding these efforts, some fishers continue to negotiate prices for their harvests independent of any collective negotiations. Longer seasons in the AI golden king crab fisheries allow for substantial in-season price fluctuations, which are uncommon in the short season fisheries. The long seasons with fluctuating prices have also complicated organizing collective action in the fishery.

Other influences on prices

To an unknown extent, price negotiations and delivery patterns are influenced by relationships between harvesters and processors. Some harvesters tender salmon and herring for processors. Maintaining this contract might require the harvester to continue to deliver crab to the processor. Similarly, some harvesters receive financial support from processors. Whether formalized or not, some of these harvesters have a perceived obligation to deliver crab harvests to the processor with whom they have the financial relationship. The extent of the impact of these relationships and obligations on prices and delivery patterns is not known.

2.5.2 Estimated ex-vessel prices

Ex-vessel prices for the fisheries and years under consideration are reported in Table 2.5-1 below. Catch and value data from catcher processor harvests and fish tickets reported by catcher/sellers are excluded. Those fish tickets were excluded because they do not generate a true ex-vessel price.

Table 2.5-1 Overview of Weighted Fish Ticket Prices by Fishery and Season (Catcher Processors and Catcher/sellers Excluded)

Fishery	Season	Total Landed Pounds	Percent Pounds Priced	Weighted Total Value	Ex-vessel Price
WAI Golden King	1990-1991	1,796,371	--	\$0.00	--
	1991-1992	2,431,180	68.35	\$3,297,409	\$1.984
	1992-1993	3,632,021	63.93	\$4,497,049	\$1.937
	1993-1994	3,905,984	64.84	\$6,940,551	\$2.740
	1994-1995	5,190,845	98.68	\$16,832,515	\$3.286
	1995-1996	4,392,003	99.97	\$9,190,622	\$2.093
	1996-1997	1,327,012	99.99	\$2,951,160	\$2.224
	1997-1998	1,249,377	99.73	\$2,663,475	\$2.138
	1998-1999	577,648	100.00	\$1,178,628	\$2.040
	1999-2000	1,697,941	99.99	\$5,326,299	\$3.137
2000-2001	1,993,874	100.00	\$6,272,350	\$3.146	
Adak Red King	1991-1992	266,383	70.26	\$624,597	3.337
	1991-1992	266,383	70.26	\$624,597	\$3.337
	1992-1993	806,524	31.12	\$1,197,547	\$4.772
	1993-1994	465,651	97.03	\$1,590,137	\$3.519
	1994-1995	98,102	84.21	\$453,539	\$5.490
	1995-1996	22,272	96.67	\$56,834	\$2.640
Bristol Bay Red King	1991-1991	14,360,990	--	\$0.00	--
	1992-1992	7,186,419	48.43	\$17,279,406	\$4.965
	1993-1993	13,053,109	10.49	\$5,241,765	\$3.828
	1996-1996	7,897,131	97.54	\$30,908,556	\$4.013
	1997-1997	8,493,704	96.92	\$26,821,854	\$3.258
	1998-1998	12,634,107	97.55	\$32,184,792	\$2.612
	1999-1999	10,018,299	96.20	\$60,357,026	\$6.262
	2000-2000	7,172,614	90.70	\$31,271,920	\$4.807
Bering Sea <i>C. Opilio</i>	1991-1991	257,523,354	--	\$0.00	--
	1992-1992	259,777,128	84.04	\$109,075,160	\$0.500
	1993-1993	187,346,715	85.70	\$104,157,710	\$0.649
	1994-1994	126,126,831	87.41	\$138,077,985	\$1.253
	1995-1995	66,087,115	88.62	\$142,271,956	\$2.429
	1996-1996	54,738,161	91.34	\$66,295,848	\$1.326
	1997-1997	106,126,849	97.02	\$80,851,245	\$0.785
	1998-1998	224,132,005	97.01	\$122,044,686	\$0.561
	1999-1999	172,639,663	99.79	\$151,841,907	\$0.881
	2000-2000	28,318,872	97.06	\$50,748,270	\$1.846
Bering Sea <i>C. Bairdi</i>	1990-1991	13,633,166	--	\$0.00	--
	1991-1992	25,177,190	28.37	\$11,968,818	\$1.676
	1992-1993	30,354,794	76.15	\$35,208,809	\$1.523
	1993-1994	14,524,022	74.36	\$19,370,649	\$1.794
	1994-1994	7,003,122	88.47	\$22,811,242	\$3.682
	1995-1995	3,831,529	74.89	\$7,958,508	\$2.773
	1996-1996	1,754,467	87.28	\$3,823,354	\$2.497

Table 2.5-1(Cont.) Overview of Weighted Fish Ticket Prices by Fishery and Season (Catcher Processors and Catcher/sellers Excluded)

Fishery	Season	Total Landed Pounds	Percent Pounds Priced	Weighted Total Value	Ex-vessel Price
Eastern Aleutian Islands Golden King	1991-1991	838,620	--	\$0.00	--
	1992-1992	546,984	98.76	\$1,205,709	\$2.232
	1993-1994	908,136	100.00	\$1,928,674	\$2.124
	1994-1995	1,720,359	95.96	\$6,412,973	\$3.885
	1995-1995	1,649,978	95.66	\$4,041,812	\$2.561
	1996-1996	3,105,659	100.00	\$6,938,551	\$2.234
	1997-1998	2,981,457	100.00	\$6,708,306	\$2.250
	1998-1999	2,925,915	100.00	\$5,466,986	\$1.868
	1999-2000	2,755,684	100.00	\$8,883,247	\$3.224
	2000-2001	3,086,890	100.00	\$10,812,630	\$3.503
Pribilof Blue King	1995-1995	1,154,386	2.46	\$3,120,211	\$2.923
	1996-1996	909,713	92.40	\$2,233,280	\$2.657
	1997-1997	491,434	96.62	\$1,337,639	\$2.817
	1998-1998	494,424	95.94	\$1,111,172	\$2.343
Pribilof Red King	1993-1993	2,542,592	69.13	\$7,915,389	\$4.503
	1994-1994	1,336,024	88.47	\$7,618,788	\$6.446
	1995-1995	796,543	91.47	\$2,452,168	\$3.366
	1996-1996	199,718	96.64	\$532,459	\$2.759
	1997-1997	735,109	98.05	\$2,224,857	\$3.087
	1998-1998	501,042	99.56	\$1,192,881	\$2.391
St. Matthew Blue King	1991-1991	2,166,613	--	\$0.00	--
	1992-1992	2,087,645	46.98	\$2,752,901	\$2.807
	1993-1993	2,834,296	58.29	\$4,389,127	\$2.657
	1994-1994	3,366,915	91.26	\$12,749,429	\$4.149
	1995-1995	3,022,097	95.77	\$6,715,195	\$2.320
	1996-1996	2,866,705	73.95	\$4,664,292	\$2.200
	1997-1997	4,426,626	100.00	\$9,796,323	\$2.213
	1998-1998	2,645,489	96.19	\$4,752,367	\$1.867

Details of the ex-vessel price calculations and data included/excluded are provided in Appendix 2-5. That Appendix also contains a discussion of the methods and assumptions that were used to generate these ex-vessel prices.

2.6 Community and social existing conditions

Community and social existing conditions are discussed in this section and in an appendix to this volume (Social Impact Assessment: Overview and Community Profiles). These two discussions, taken together, comprise the Social Impact Assessment (SIA) for this RIR. These two discussions provide separate perspectives on the community and social context for the potential differential distribution of impacts associated with rationalization alternative approach being analyzed in this RIR.

In this section, information from quantitative fisheries data sources for harvesting and processing is presented where those data can meaningfully be attributed to communities or regions. As discussed below, there are fundamental problems with sector-based community discussions for a number of the sectors, based upon data confidentiality considerations. Within the constraints imposed by the data, this section focuses on the pattern of engagement of the crab fishery sectors across communities and regions, with the purpose of allowing a subsequent analysis of how alternative associated changes within a given sector would result in a differential distribution of impacts between communities and regions. In this section, the frame of reference or unit of

analysis is the fishery sector (harvester, catcher processor, processor) and the human geographies associated with each sector.

Within the quantitative data, assignment of a region or community of ownership for harvest vessels and catcher/processors is based on the vessel ownership and address information as listed in CFEC vessel registration files or NOAA Fisheries federal permit data. As a result, some caution in the interpretation of this information is warranted. It is not unusual for vessels to have complex ownership structures involving more than one entity in more than one region (or for some of the vessels from the Pacific Northwest that spend a great deal of time in Alaska ports to hire at least a few crew members from these ports), but the region or community of ownership provides a rough indicator of the direction or nature of ownership ties (and associated employment and economic activity) when patterns are viewed at the sector or vessel class level. For shoreplant and floating processing entities, regional or community designation was based on the location of the plant or floater itself (rather than ownership address) in order to provide a relative indicator of the local volume of fishery related economic activity, which can also serve as a rough proxy for the relative level of associated employment and local government revenues.

The SIA Appendix takes a different approach and contains community-specific information to provide a detailed context for the community and social impact assessment. The frame of reference or unit of analysis in the appendix is the community or region. Within that frame, the attributes of the locally occurring crab fishery sectors and associated support sectors are detailed and put in a local social and economic context to allow a subsequent assessment of how the proposed management alternative for the crab fisheries are likely to impact the social and economic base of the relevant communities. This appendix also contains an overview of community experience with previous fishery rationalization programs and provides a summary of community level impacts of those programs likely to be useful as analogs for anticipating impacts associated with the proposed rationalization alternative. In detailing the localized nature and intensity of engagement with and dependency on the crab fishery, the community profiles also contain an analysis of the direction and magnitude of the social impacts likely to result from the proposed alternative. In addition to covering a broad range of social impact issues for directly engaged communities, the appendix also features a discussion of CDQ region existing conditions and social impacts likely to be associated with crab rationalization.

The social impact assessment thus utilizes a two-pronged approach to understanding the nature and distribution of potential impacts. This section (Section 2.6) focuses on quantitative sector-related data. The SIA Appendix focuses more on narrative descriptions of community and regional socioeconomics using both qualitative and quantitative information.

In terms of organization, this section contains a series of discussions and tables that cover harvest vessel (catcher vessel plus catcher processor), catcher processor, and processing (shore plant, floater) sector information. Each of these, and their ties to particular communities as shown through quantitative data, are presented in turn. Harvest vessels are much more numerous than are processors, so that confidentiality concerns are much less problematic for harvest vessels than for processors. As a result, the quantitative tables that were produced are more comprehensive for the harvesting sector than the processing sector.

2.6.1 Harvest sector existing conditions

This section presents a series of tables that show different attributes and patterns of distribution of vessels and harvest volume and values for the crab harvesting sector. The first series of tables focuses on crab vessels and their participation in the individual crab fisheries as well as in other non-crab fisheries.

Table 2.6-1 provides summary information on the distribution by community of BSAI crab catcher vessels (including catcher processors) over the period 1991-2000 on an annual average basis. Not all of the listed fisheries were open each year, and the average number of vessels for the relevant individual fisheries was

calculated in this table using years open during 1991-2000. For volume and value tables that appear in this section, figures for 1991-2000 are annualized on a 10-year basis, no matter how many years each fishery was actually open. The intent of this approach is to approximate the "worth" or "benefit" of each fishery to the relevant communities or regions on a comparable basis over the 1991-2000 period. The time span 1991-2000 was chosen for analysis because this encompasses the entirety of the available data. For readers interested in trends of change within the 1991-2000 decade (and there were fundamentally important changes in individual fisheries) or for specific subsets of years, such as those corresponding to various qualifying periods, detailed data tables are presented in an attachment (Attachment 3) to the SIA Appendix of this document.

As with other summary tables in this section, Table 2.6-1 provides individual species information for only the three largest BSAI crab fisheries (Bristol Bay red king crab, Bering Sea opilio crab, and Bering Sea tanner crab), a combined total for those three fisheries, a combined total for the "other six" relevant BSAI crab fisheries, and a combined total of all nine BSAI crab fisheries included in the proposed management approaches analyzed in this RIR.⁴ This lumping of the quantitative information from smaller volume/participation fisheries is due primarily to confidentiality considerations. Information for each of the fisheries by species or group of species is presented for the entire fishery category, lumping together landings that would be "qualified" and "non-qualified" with respect to the rationalization alternative. To provide some context on the distinction between non-qualified vessels and landings, Table 2.6-1 provides separate rows displaying the number of vessels with non-qualified landings and the number of "overlap" vessels with qualified landings in at least one relevant crab fishery and non-qualified landings in at least one other relevant crab fishery. (Analogous rows do not appear in subsequent harvest volume or value tables, yet again due primarily to confidentiality considerations.) The table row labeled "All fisheries other than PMA Crab" provides a measure of participation of crab vessels in other fisheries. In other words, this row provides a look at "dependency" of crab vessels on crab compared to other fisheries in which they are engaged. For readers interested in analogous detailed breakouts on the same fisheries categories, tables displaying the full annual time series data appear at the end of the community profile document (SIA Appendix 3, Attachment 3).

Due to confidentiality restrictions, availability of information by community is somewhat limited. For Alaska, data are sufficient to provide information on a community basis in this table series for Anchorage, Homer, King Cove/Sand Point, Kodiak, and a residual category "other Alaska." For Washington, the Seattle-Tacoma Consolidated Metropolitan Statistical Area (CMSA) is used as the unit of analysis for the greater Seattle area, and an "other Washington" residual category is also used. For Oregon, data for Newport and "other Oregon" are displayed. Due to confidentiality restrictions, data from vessels from states other than Alaska, Washington, and Oregon are not displayed. By examining Table 2.6-1, the relative distribution of the fleet by place of ownership can be determined. Table 2.6-2 shows these same data as a percentage of the

⁴ In this section, "PMA crab" is used in data tables as an abbreviated reference to relevant BSAI crab species that are being considered for inclusion in the proposed management alternative in this RIR. Crab species and stocks included in the proposed management alternative include Adak (Western Aleutian Islands [WAI]) brown (golden) king crab (*Lithodes aequispina*), Adak (WAI) red king crab (*Paralithodes camtschaticus*), Bristol Bay red king crab (*P. camtschaticus*), Bering Sea opilio (snow) crab (*Chionoecetes opilio*), Bering Sea tanner (*C. bairdi*), Dutch Harbor (Eastern Aleutian Islands [EAI]) brown (golden) king crab (*L. aequispina*), Pribilof blue king crab (*P. platypus*), Pribilof red king crab (*P. camtschaticus*), and St. Matthew blue king crab (*P. platypus*). Three additional species or stocks were originally proposed for inclusion in the rationalization program but were later excluded (and do not appear in the quantitative data tables in this section) due to low levels of harvest and/or recent multi-year closures: Dutch Harbor (EAI) red king crab (*P. camtschaticus*), EAI tanner (*C. bairdi*), and WAI tanner (*C. bairdi*). The rationalization program includes Adak red king crab west of 179° W Longitude and excludes it east of this line, but the tables in this section include data for this species/stock from both sides of the line. In the tables, the "non-PMA" crab designation includes all crab species not covered by the proposed management alternative including, among others, species covered by the BSAI crab FMP but managed under state discretion via an ADF&G commissioner's permit (e.g., AI scarlet king crab [*L. couesi*]), BSAI federal waters fishery crab managed by the state and not included in the FMP (e.g., Korean hair crab [*Erimacrus isenbeckii*]), low-volume primarily state water fisheries (e.g., Aleutian District Dungeness [*Cancer magister*]), or non-BSAI FMP area federal fisheries (e.g., multiple Gulf of Alaska crab fisheries).

individual species or species group. This table shows, for example, that within the Bristol Bay red king crab fishery, of the total vessels in the fishery 56.8 percent of the vessels were owned by residents of the Seattle-Tacoma CMSA, 17.2 percent were owned in Kodiak, 3.6 percent were owned by residents of Newport, and so on. The clear dominance of Seattle within the overall harvest sector and of Kodiak within the portion of the fleet owned by Alaska residents is readily apparent for each of the fisheries listed.

Tables 2.6-3 through 2.6-5 provide information on the absolute and relative average annual value of harvest by these same fishery and community categories. Table 2.6-3 provides information on the value of the summary fishery categories by community on an annual average basis in terms of dollars. Table 2.6-4 provides information on harvest value as a percentage of the total species listed for an individual community or community group in order to provide a quick means of gauging the importance of each individual fishery for that community relative to the other fisheries listed. For example, for Kodiak, Bristol Bay red king crab accounted for 12.2 percent of the average annual value of the combined relevant species harvested by vessels owned in the community, while Bering Sea opilio accounted for 46.7 percent, and so on. In each case the percentages for the community or place columns total 100 percent. This table can also be used to show the relative dependence of local crab vessels on crab itself. For example, crab vessels from King Cove and Sand Point derive 31.7 percent of their annual harvest value from fisheries other than the relevant BSAI crab fisheries. No other local Alaska crab fleet derives more than 20 percent of harvest value from non-BSAI crab species. Crab vessels from Anchorage and Homer are more dependent on the relevant BSAI crab species (94 and 89 percent of annual average harvest value, respectively) than other Alaska communities or areas shown (ranging from 68 to 82 percent). Dependency ranged from 71 to 90 percent for Pacific Northwest BSAI crab vessels, but it is important to note that BSAI crab vessels from the Pacific Northwest may also fish outside of Alaska EEZ or Alaska state waters, and that activity would not show up in these data.

Table 2.6-5 provides information on the harvest value from locally owned vessels for each place as a percentage of the total value for that fishery. In other words, in this table the fishery rows (not the place columns) total to 100 percent. This information allows an at-a-glance comparison of the distribution of harvest value for each species by place. For example, for Bristol Bay red king crab, 2.3 percent of total value

Table 2.6-1 Average number of relevant BSAI species crab vessels in various fisheries categories, by fisheries category and community of vessel owner – Alaska, Washington, and Oregon, 1991-2000

Fishery Category	Alaska					Washington		Oregon		Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	
Bristol Bay Red King Crab	5.8	9.3	7.0	44.3	15.9	145.9	13.1	9.3	6.4	256.8
Bering Sea Opilio Crab	5.7	8.1	5.3	37.8	14.7	138.4	12.1	8.4	5.3	235.8
Bering Sea Tanner Crab	4.8	9.3	6.3	43.7	13.3	139.3	11.8	8.5	6.7	243.8
BBR/BSO/BST Crab group	6.5	9.6	7.3	45.8	18.1	162.0	14.4	10.4	6.8	280.9
Other 6 PMA Crab group	3.9	6.0	10.5	25.9	11.4	81.6	8.8	5.8	3.6	149.4
All 9 PMA Crab group	6.7	9.6	11.4	48.1	19.1	163.2	14.8	11.1	6.8	290.8
Non-Qualified PMA Crab (all 9)	1.2	1.3	5.1	11.3	6.7	26.1	5.8	2.3	2.3	62.1
"Overlap" Vessels, all 9 PMA Crab	0.6	0.0	1.1	1.8	2.1	9.7	2.0	1.8	0.7	19.8
All Fisheries other than PMA Crab	3.5	8.1	8.4	34.4	10.9	80.5	7.3	7.5	4.8	165.4

Notes: PMA crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
PMA crab fishery and group vessel counts include all landings (qualified and non-qualified).
Average vessel counts for individual fisheries are computed using years open during 1991-2000.
Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community.
Vessels fishing multiple fisheries have been counted only once in combined categories.
Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns.
"Overlap" vessels have both qualified and non-qualified PMA crab fisheries landings but are counted only once in combined groups.
"All Fisheries other than PMA Crab" represents that subset of PMA crab vessels that also fish other fisheries.
Data from vessels owned by residents of states other than Alaska, Washington, and Oregon have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-2 Average number of relevant BSAI species crab vessels in various fisheries categories, by fisheries category and community of vessel owner, by percent of total vessels in the fishery – Alaska, Washington, and Oregon, 1991-2000

Data	Alaska					Washington		Oregon		Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	
Bristol Bay Red King Crab	2.2%	3.6%	2.7%	17.2%	6.2%	56.8%	5.1%	3.6%	2.5%	100.0%
Bering Sea Opilio Crab	2.4%	3.4%	2.2%	16.0%	6.2%	58.7%	5.1%	3.6%	2.2%	100.0%
Bering Sea Tanner Crab	2.0%	3.8%	2.6%	17.9%	5.5%	57.1%	4.9%	3.5%	2.7%	100.0%
BBR/BSO/BST Crab group	2.3%	3.4%	2.6%	16.3%	6.4%	57.7%	5.1%	3.7%	2.4%	100.0%
Other 6 PMA Crab group	2.6%	3.2%	5.6%	17.3%	6.1%	54.6%	4.7%	3.9%	1.7%	100.0%
All 9 PMA Crab group	2.3%	3.3%	3.9%	16.5%	6.6%	56.1%	5.1%	3.8%	2.3%	100.0%
Non-Qualified PMA Crab (all 9)	1.9%	2.1%	8.2%	18.2%	10.8%	42.0%	9.3%	3.7%	3.7%	100.0%
"Overlap" Vessels, all 9 PMA Crab	3.0%	0.0%	5.6%	9.1%	10.6%	49.0%	10.1%	9.1%	3.5%	100.0%
All fisheries other than PMA Crab	2.1%	4.9%	5.1%	20.8%	6.6%	48.7%	4.4%	4.5%	2.9%	100.0%

Notes: PMA crab fishery and group vessel counts are not mutually exclusive, and therefore do not sum to column totals, as some vessels fish several fisheries. PMA crab fishery and group vessel counts include all landings (qualified and non-qualified). Average vessel counts for individual fisheries are computed using years open during 1991-2000. Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community. Vessels fishing multiple fisheries have been counted only once in combined categories. Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns. "Overlap" vessels have both qualified and non-qualified PMA crab fisheries landings but are counted only once in combined groups. "All Fisheries other than PMA Crab" represents that subset of PMA crab vessels that also fish other fisheries. Data from vessels owned by residents of states other than Alaska, Washington, and Oregon have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-3 Average annual value of harvest for relevant BSAI species crab vessels in various fisheries categories, by fisheries category and community of vessel owner – Alaska, Washington, and Oregon, 1991-2000

Data	Alaska					Washington		Oregon		Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	
Bristol Bay Red King Crab	\$827,311	\$1,167,033	\$782,112	\$5,240,622	\$1,589,774	\$21,857,948	\$1,557,482	\$1,466,012	\$775,679	\$35,263,972
Bering Sea Opilio Crab	\$2,539,097	\$3,725,622	\$2,705,133	\$20,081,371	\$6,158,292	\$89,969,977	\$6,426,721	\$5,151,151	\$2,636,270	\$139,393,633
Bering Sea Tanner Crab	\$216,299	\$615,159	\$429,111	\$3,593,507	\$685,572	\$13,163,108	\$765,462	\$740,503	\$512,954	\$20,721,673
BBR/BSO/BST Crab group	\$3,582,707	\$5,507,813	\$3,916,357	\$28,915,500	\$8,433,638	\$124,991,034	\$8,749,665	\$7,357,666	\$3,924,903	\$195,379,282
Other 6 PMA Crab group	\$730,890	\$302,773	\$537,166	\$5,390,614	\$761,770	\$16,168,524	\$831,041	\$3,798,493	\$205,249	\$28,726,520
All 9 PMA Crab group	\$4,313,597	\$5,810,586	\$4,453,523	\$34,306,113	\$9,195,408	\$141,159,558	\$9,580,705	\$11,156,159	\$4,130,153	\$224,105,802
All fisheries other than PMA Crab	\$260,445	\$742,913	\$2,064,507	\$8,711,223	\$2,030,719	\$31,632,523	\$1,032,300	\$4,529,452	\$1,581,269	\$52,585,352
Total All Fisheries	\$4,574,041	\$6,553,499	\$6,518,030	\$43,017,337	\$11,226,127	\$172,792,081	\$10,613,005	\$15,685,611	\$5,711,421	\$276,691,153

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
"All Fisheries other than PMA Crab" represents the value of non-PMA crab harvests by PMA crab vessels (that is, the other fisheries in which they participate).
"Other States" have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-4 Average annual value of harvest for relevant BSAI species crab vessels in various fisheries categories, by fisheries category and community of vessel owner – Alaska, Washington, and Oregon as percent of total harvest value of community crab vessels, 1991-2000

Data	Alaska					Washington		Oregon		Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle- Tacoma CMSA	Other Washington	Newport	Other Oregon	
Bristol Bay Red King Crab	18.1%	17.8%	12.0%	12.2%	14.2%	12.6%	14.7%	9.3%	13.6%	12.7%
Bering Sea Opilio Crab	55.5%	56.8%	41.5%	46.7%	54.9%	52.1%	60.6%	32.8%	46.2%	50.4%
Bering Sea Tanner Crab	4.7%	9.4%	6.6%	8.4%	6.1%	7.6%	7.2%	4.7%	9.0%	7.5%
BBR/BSO/BST Crab group	78.3%	84.0%	60.1%	67.2%	75.1%	72.3%	82.4%	46.9%	68.7%	70.6%
Other 6 PMA Crab group	16.0%	4.6%	8.2%	12.5%	6.8%	9.4%	7.8%	24.2%	3.6%	10.4%
All 9 PMA Crab group	94.3%	88.7%	68.3%	79.7%	81.9%	81.7%	90.3%	71.1%	72.3%	81.0%
All fisheries other than PMA Crab	5.7%	11.3%	31.7%	20.3%	18.1%	18.3%	9.7%	28.9%	27.7%	19.0%
Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
"All Fisheries other than PMA Crab" represents the value of non-PMA crab harvests by PMA crab vessels (that is, the other fisheries in which they participate).
"Other States" have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-5 Average annual value of harvest for relevant BSAI species crab vessels in various fisheries categories, by fisheries category and community of vessel owner as percent of total fishery harvest value for crab vessels from Alaska, Washington, and Oregon, 1991-2000

Data	Alaska					Washington		Oregon		Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle- Tacoma CMSA	Other Washington	Newport	Other Oregon	
Bristol Bay Red King Crab	2.3%	3.3%	2.2%	14.9%	4.5%	62.0%	4.4%	4.2%	2.2%	100.0%
Bering Sea Opilio Crab	1.8%	2.7%	1.9%	14.4%	4.4%	64.5%	4.6%	3.7%	1.9%	100.0%
Bering Sea Tanner Crab	1.0%	3.0%	2.1%	17.3%	3.3%	63.5%	3.7%	3.6%	2.5%	100.0%
BBR/BSO/BST Crab group	1.8%	2.8%	2.0%	14.8%	4.3%	64.0%	4.5%	3.8%	2.0%	100.0%
Other 6 PMA Crab group	2.5%	1.1%	1.9%	18.8%	2.7%	56.3%	2.9%	13.2%	0.7%	100.0%
All 9 PMA Crab group	1.9%	2.6%	2.0%	15.3%	4.1%	63.0%	4.3%	5.0%	1.8%	100.0%
All fisheries other than PMA Crab	0.5%	1.4%	3.9%	16.6%	3.9%	60.2%	2.0%	8.6%	3.0%	100.0%
Total All Fisheries	1.7%	2.4%	2.4%	15.5%	4.1%	62.4%	3.8%	5.7%	2.1%	100.0%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
"All Fisheries other than PMA Crab" represents the value of non-PMA crab harvests by PMA crab vessels (that is, the other fisheries in which they participate).
"Other States" have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

for the species on an annual average basis is harvested by vessels owned by residents of Anchorage, 3.3 percent by residents of Homer, 2.2 percent by residents of King Cove and Sand Point, and so on. The relative dominance of Seattle-Tacoma and Kodiak is again clear, but the importance of Newport, Oregon, is also apparent as the third largest "BSAI crab port" in terms of vessel harvests.

The next series of tables presents information on the total locally owned harvest vessel fleet, not just crab vessels as was the case in the previous table series. This "total local fleet" information allows an assessment of the relative "worth" or "benefit" of the relevant BSAI crab fisheries compared to all other fisheries pursued by the local fleet. This is a more accurate reflection of the importance of crab from a community level perspective, in terms of engagement in and dependence upon the BSAI crab fisheries.

Table 2.6-6 provides information on the total harvester fleet by community for the period 1991-2000. Table 2.6-7 provides this information in the form of percentages, which allows an at-a-glance look at the relative participation of the overall local fleet in the BSAI crab fisheries in comparison to other fisheries. Table 2.6-8 also provides percentage information, but in this case as a function of the overall participation in the individual fisheries, allowing an at-a-glance look at the relative participation in individual fisheries by the fleets from different communities.

Table 2.6-9 provides information on the value in dollars of crab and non-crab species harvested by catcher vessels owned by residents of the relevant communities for the period 1991-2000. The fisheries listed are PMA crab, non-PMA crab, pollock, Pacific cod, other groundfish, salmon, "non-vessel,"⁵ fisheries, and other fisheries. This information can be used to gauge the relative dependence of the community fleet (both crab and non-crab vessels) on any particular species group. Table 2.6-10 provides parallel information for harvest volume.

Table 2.6-11 provides the same information as in Table 2.6-9, but in percentage of value for the overall fishery for each species or species group rather than in absolute dollars. This display allows an easy comparison of distribution of harvested value, by community, for the individual fishery. For example, in terms of value for the combined relevant BSAI crab fisheries, Kodiak-owned vessels harvested 15.1 percent of the grand total value of these fisheries over the years shown, while vessels owned in the Seattle-Tacoma CMSA accounted for 62.1 percent of these same fisheries, with the species group rows in this table summing to 100 percent. The "Total Community Value" row allows a quick comparison of the combined value of all fisheries listed for each community relative to all of the other communities listed. Table 2.6-12 provides analogous percentage of total fishery information by harvest volume by community of vessel owner rather than by value. Volume figures are useful for comparing effort within fisheries, but not particularly useful for summing across fisheries, given the sharp differences in both volume and value per unit in the different fisheries.

⁵"Non-vessel" fisheries are included in local harvest totals for the sake of completeness. Non-vessel harvests are harvests that appear in the Fish Ticket database and are assigned a location but have no associated vessel information. The vast majority of this harvest is salmon and derives from non-vessel gear (e.g., beach set nets). Some of these fisheries may, in fact, involve vessels (such as skiffs), but no information on these vessels appears in the harvest data set. These "non-vessel" landings may be more or less important to the total value of landings by residents of a given community and are provided to better place relevant crab landings in a context of total landings by community residents.

Table 2.6-6 Average annual number of vessels participating in commercial fisheries in Alaskan waters, by community and fishery category, 1991-2000

Fishery	Alaska					Washington		Oregon		Other States	Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle- Tacoma CMSA	Other Washington	Newport	Other Oregon		
PMA Crab	6.7	9.6	11.6	48.1	18.9	163.2	14.8	11.1	6.8	5.9	296.7
non-PMA Crab	4.1*	30.5	0.8*	55.8	380.7	31.0	35.1	1.9*	4.1	16.3	560.3
Salmon	277.1	267.5	138.5*	209.5	3,290.7	628.5	801.4	3.4*	219.4	1,055.0	6,891.0
Pollock	2.0*	9.3	14.6*	53.0	25.6	69.8	15.3	16.2	10.7	5.0	221.5
Pacific Cod	28.4	94.4	62.3	161.9	466.0	140.2	52.0	20.8	25.6	19.3	1,070.9
Other Groundfish	40.5	105.6	23.9	134.8	843.6	159.4	100.6	18.1	45.7	24.1	1,496.3
Other Fisheries	136.4	208.0	79.5	263.9	2,779.9	231.7	312.3	10.4	84.4	127.1	4,233.6
Total Community Fleet	361.1	354.1	161.4	417.3	4,816.4	919.9	956.0	30.2	262.9	1,160.1	9,439.4

Notes: Offshore harvest (and value) not included, which affects mainly groundfish and Seattle-Tacoma CMSA (but also some other communities). Database as provided combines all PMA fisheries.

"PMA Crab" includes both qualified and non-qualified vessels.

"Non-PMA Crab" includes all crab (federal and state waters) other than PMA crab.

Counts by fishery within individual communities are not mutually exclusive as some vessels participate in more than one listed fishery.

"Total Community Fleet" represents unique vessels.

Cells with values marked * are suppressed in subsequent harvest value and volume tables to protect confidentiality.

Vessel numbers are not identical to those shown in Table 2.6-1 due to slightly different data sets, so should be used to examine relative levels of participation rather than absolute or comparative measurements.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-7 Percentage of community-owned vessels participating in commercial fisheries in Alaskan waters, by fishery category, 1991-2000

Fishery	Alaska					Washington		Oregon		Other States	Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle- Tacoma CMSA	Other Washington	Newport	Other Oregon		
PMA Crab	1.9%	2.7%	7.2%	11.5%	0.4%	17.7%	1.5%	36.8%	2.6%	0.5%	3.1%
non-PMA Crab	1.1%	8.6%	0.5%	13.4%	7.9%	3.4%	3.7%	6.3%	1.6%	1.4%	5.9%
Salmon	76.7%	75.5%	85.8%	50.2%	68.3%	68.3%	83.8%	11.3%	83.5%	90.9%	73.0%
Pollock	0.6%	2.6%	9.0%	12.7%	0.5%	7.6%	1.6%	53.6%	4.1%	0.4%	2.3%
Pacific Cod	7.9%	26.7%	38.6%	38.8%	9.7%	15.2%	5.4%	68.9%	9.7%	1.7%	11.3%
Other Groundfish	11.0%	29.8%	14.8%	32.3%	17.5%	17.3%	10.5%	59.9%	17.4%	2.1%	15.9%
Other Fisheries	37.8%	58.7%	49.3%	63.2%	57.7%	25.2%	32.7%	34.4%	32.1%	11.0%	44.9%
Total Community Fleet	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Notes: Offshore harvest (and value) not included, which affects mainly groundfish and Seattle-Tacoma CMSA (but also some other communities).
 Database as provided combines all PMA fisheries.
 "PMA Crab" includes both qualified and non-qualified vessels.
 "Non-PMA Crab" includes all crab (federal and state waters) other than PMA crab.
 Counts by fishery within individual communities are not mutually exclusive as some vessels participate in more than one listed fishery.
 "Total Community Fleet" represents unique vessels.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-8 Percentage of vessels participating in selected commercial fisheries in Alaskan waters, by community of ownership, 1991-2000

Fishery	Alaska					Washington		Oregon		Other States	Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon		
PMA Crab	2.3%	3.2%	3.9%	16.2%	6.4%	55.0%	5.0%	3.7%	2.3%	2.0%	100.0%
non-PMA Crab	0.7%	5.4%	0.1%	10.0%	67.9%	5.5%	6.3%	0.3%	0.7%	2.9%	100.0%
Salmon	4.0%	3.9%	2.0%	3.0%	47.8%	9.1%	11.6%	0.0%	3.2%	15.3%	100.0%
Pollock	0.9%	4.2%	6.6%	23.9%	11.6%	31.5%	6.9%	7.3%	4.8%	2.3%	100.0%
Pacific Cod	2.7%	8.8%	5.8%	15.1%	43.5%	13.1%	4.9%	1.9%	2.4%	1.8%	100.0%
Other Groundfish	2.7%	7.1%	1.6%	9.0%	56.4%	10.7%	6.7%	1.2%	3.1%	1.6%	100.0%
Other Fisheries	3.2%	4.9%	1.9%	6.2%	65.7%	5.5%	7.4%	0.2%	2.0%	3.0%	100.0%
Total Community Fleet	3.8%	3.8%	1.7%	4.4%	51.0%	9.7%	10.1%	0.3%	2.8%	12.3%	100.0%

Notes: Offshore harvest (and value) not included, which affects mainly groundfish and Seattle-Tacoma CMSA (but also some other communities).

Database as provided combines all PMA fisheries.

"PMA Crab" includes both qualified and non-qualified vessels.

"Non-PMA Crab" includes all crab (federal and state waters) other than PMA crab.

Counts by fishery within individual communities are not mutually exclusive as some vessels participate in more than one listed fishery.

"Total Community Fleet" represents unique vessels.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-9 Average annual value (in dollars) of commercial fisheries harvest from Alaskan waters, by community and fishery category, 1991-2000

Fishery	Alaska					Washington		Oregon		Other States	Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon		
PMA Crab	\$4,313,597	\$5,810,586	\$4,587,926	\$34,306,113	\$9,061,006	\$141,159,558	\$9,580,706	\$11,156,159	\$4,130,153	\$3,224,107	\$227,329,909
non-PMA Crab	*	\$276,040	*	\$1,879,682	\$11,468,042	\$3,428,402	\$1,438,342	*	\$156,602	\$287,643	\$19,220,047
Salmon	\$14,727,345	\$14,723,836	*	\$15,815,247	\$128,672,683	\$47,636,036	\$52,557,339	*	\$10,921,412	\$22,893,700	\$320,808,279
Pollock	*	\$107,704	*	\$6,005,876	\$791,729	\$53,995,031	\$10,665,645	\$6,745,705	\$3,242,185	\$4,453,312	\$87,302,404
Pacific Cod	\$340,576	\$1,827,514	\$4,982,291	\$10,308,203	\$3,932,386	\$13,419,197	\$3,050,236	\$5,001,739	\$2,430,722	\$921,241	\$46,214,104
Other Groundfish	\$868,950	\$2,057,026	\$235,271	\$7,144,549	\$31,966,447	\$15,267,487	\$6,883,516	\$531,274	\$2,700,291	\$1,699,582	\$69,354,393
Other Fisheries	\$2,692,853	\$8,228,277	\$1,780,749	\$17,398,694	\$45,216,286	\$11,681,963	\$9,156,290	\$1,017,593	\$3,047,420	\$4,255,919	\$104,476,043
"Non-vessel" Fisheries	\$6,328,785	\$1,278,131	\$636,580	\$3,779,779	\$33,774,137	\$2,696,724	\$4,403,224	\$11,001	\$1,713,504	\$5,215,035	\$59,836,898
Total Community Value	\$29,510,744	\$34,309,114	\$26,099,302	\$96,638,141	\$264,882,716	\$289,284,397	\$97,735,297	\$24,789,538	\$28,342,289	\$42,950,539	\$934,542,077

Notes: Offshore harvest (and value) not included, which affects mainly groundfish and Seattle-Tacoma CMSA (but also some other communities). Database as provided combines all PMA fisheries.
 "PMA Crab" includes both qualified and non-qualified vessels.
 "Non-PMA Crab" includes all crab (federal and state waters) other than PMA crab.
 "Other Fisheries" include all harvests associated with vessels attributed to a community, including halibut, exclusive of crab, salmon, pollock, Pacific cod, and other groundfish.
 "Non-vessel" fisheries represent fish ticket landings attributable to residents of a community, but that do not have an associated vessel record (see text).
 Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-10 Average annual volume (in pounds) of commercial fisheries harvest from Alaskan waters, by community and fishery category, 1991-2000

Fishery	Alaska					Washington		Oregon		Other States	Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle- Tacoma CMSA	Other Washington	Newport	Other Oregon		
PMA Crab	3,292,360	5,062,135	4,012,913	30,146,663	8,307,660	128,940,296	8,399,699	8,207,446	3,523,907	2,832,604	202,725,683
non-PMA Crab	*	143,737	*	1,097,065	5,971,964	1,770,543	967,223	*	112,621	186,822	10,412,633
Salmon	24,022,264	24,258,110	*	40,266,848	256,476,193	112,129,986	105,528,064	*	14,762,643	36,222,593	647,369,850
Pollock	*	1,313,831	*	68,321,595	8,757,773	623,965,654	119,922,540	76,889,832	37,769,105	49,953,114	1,002,378,430
Pacific Cod	1,445,915	7,136,265	26,630,638	45,586,871	15,913,174	71,605,318	15,603,709	26,852,414	11,898,341	4,841,239	227,513,883
Other Groundfish	1,067,436	1,769,931	608,592	19,240,712	22,092,178	22,527,337	8,797,458	2,918,791	6,261,156	1,749,690	87,033,281
Other Fisheries	5,280,218	13,595,750	2,829,117	19,511,615	66,595,299	16,103,408	18,904,012	699,378	2,826,116	4,021,936	150,366,849
"Non-vessel" Fisheries	7,217,411	1,491,641	*	6,536,465	41,437,616	3,180,870	5,330,636	13,006	2,049,978	6,160,106	74,298,811
Total Community Volume	42,325,604	54,771,399	67,605,059	230,707,832	425,551,856	980,223,412	283,453,340	115,747,211	79,203,867	105,968,106	2,402,099,419

Notes: Offshore harvest (and value) not included, which affects mainly groundfish and Seattle-Tacoma CMSA (but also some other communities).
 Database as provided combines all PMA fisheries.
 "PMA Crab" includes both qualified and non-qualified vessels.
 "Non-PMA Crab" includes all crab (federal and state waters) other than PMA crab.
 "Other Fisheries" include all harvests associated with vessels attributed to a community, including halibut, exclusive of crab, salmon, pollock, Pacific cod, and other groundfish.
 "Non-vessel" fisheries represent fish ticket landings attributable to residents of a community, but that do not have an associated vessel record (see text).
 Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-11 Total value of commercial fisheries harvest from Alaskan waters, by community and fishery category, 1991-2000 as percent of total fishery value

Fishery	Alaska					Washington		Oregon		Other States	Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle- Tacoma CMSA	Other Washington	Newport	Other Oregon		
PMA Crab	1.9%	2.6%	2.0%	15.1%	4.0%	62.1%	4.2%	4.9%	1.8%	1.4%	100.0%
non-PMA Crab	*	1.4%	*	9.8%	59.7%	17.8%	7.5%	*	0.8%	1.5%	100.0%
Salmon	4.6%	4.6%	0	4.9%	40.1%	14.8%	16.4%	*	3.4%	7.1%	100.0%
Pollock	*	0.1%	*	6.9%	0.9%	61.8%	12.2%	7.7%	3.7%	5.1%	100.0%
Pacific Cod	0.7%	4.0%	10.8%	22.3%	8.5%	29.0%	6.6%	10.8%	5.3%	2.0%	100.0%
Other Groundfish	1.3%	3.0%	0.3%	10.3%	46.1%	22.0%	9.9%	0.8%	3.9%	2.5%	100.0%
Other Fisheries	2.6%	7.9%	1.7%	16.7%	43.3%	11.2%	8.8%	1.0%	2.9%	4.1%	100.0%
"Non-vessel" Fisheries	10.6%	2.1%	1.1%	6.3%	56.4%	4.5%	7.4%	0.0%	2.9%	8.7%	100.0%
Total Community Value	3.2%	3.7%	2.8%	10.3%	28.3%	31.0%	10.5%	2.7%	3.0%	4.6%	100.0%

Notes: Offshore harvest (and value) not included, which affects mainly groundfish and Seattle-Tacoma CMSA (but also some other communities). Database as provided combines all PMA fisheries.
 "PMA Crab" includes both qualified and non-qualified vessels.
 "Non-PMA Crab" includes all crab (federal and state waters) other than PMA crab.
 "Other Fisheries" include all harvests associated with vessels attributed to a community, including halibut, exclusive of crab, salmon, pollock, Pacific cod, and other groundfish.
 "Non-vessel" fisheries represent fish ticket landings attributable to residents of a community, but that do not have an associated vessel record (see text).
 Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-12 Total volume of commercial fisheries harvest from Alaskan waters, by community and fishery category, 1991-2000 as percent of total fishery harvest

Fishery	Alaska					Washington		Oregon		Other States	Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle- Tacoma CMSA	Other Washington	Newport	Other Oregon		
PMA Crab	1.6%	2.5%	2.0%	14.9%	4.1%	63.6%	4.1%	4.0%	1.7%	1.4%	100.0%
non-PMA Crab	*	1.4%	*	10.5%	57.4%	17.0%	9.3%	*	1.1%	1.8%	100.0%
Salmon	3.7%	3.7%	*	6.2%	39.6%	17.3%	16.3%	*	2.3%	5.6%	100.0%
Pollock	*	0.1%	*	6.8%	0.9%	62.2%	12.0%	7.7%	3.8%	5.0%	100.0%
Pacific Cod	0.6%	3.1%	11.7%	20.0%	7.0%	31.5%	6.9%	11.8%	5.2%	2.1%	100.0%
Other Groundfish	1.2%	2.0%	0.7%	22.1%	25.4%	25.9%	10.1%	3.4%	7.2%	2.0%	100.0%
Other Fisheries	3.5%	9.0%	1.9%	13.0%	44.3%	10.7%	12.6%	0.5%	1.9%	2.7%	100.0%
"Non-vessel" Fisheries	9.7%	2.0%	1.2%	8.8%	55.8%	4.3%	7.2%	0.0%	2.8%	8.3%	100.0%
Total Community Volume	1.8%	2.3%	2.8%	9.6%	17.7%	40.8%	11.8%	4.8%	3.3%	4.4%	100.0%

Notes: Offshore harvest (and value) not included, which affects mainly groundfish and Seattle-Tacoma CMSA (but also some other communities). Database as provided combines all PMA fisheries.
 "PMA Crab" includes both qualified and non-qualified vessels.
 "Non-PMA Crab" includes all crab (federal and state waters) other than PMA crab.
 "Other Fisheries" include all harvests associated with vessels attributed to a community, including halibut, exclusive of crab, salmon, pollock, Pacific cod, and other groundfish.
 "Non-vessel" fisheries represent fish ticket landings attributable to residents of a community, but that do not have an associated vessel record (see text).
 Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-13 provides the same information as in Table 2.6-11, but in percentage of value in terms of the overall fisheries for each place rather than for each fishery. In this table, the community columns sum to 100 percent, rather than the species rows. This allows for a quick comparison of the patterns of dependency by community catcher vessel fleets across the various fisheries. This table indicates, for example, that relevant BSAI crab species account for 35.5 percent of the total value harvested by the combined Kodiak fleet. As shown, although Kodiak has a large and diversified fleet, the Kodiak community fleet is relatively more dependent on the relevant BSAI crab species (by far) than any other local Alaskan Fleet. It should be clearly noted, however, that these dependency figures are for Alaska waters fisheries (Alaska EEZ plus Alaska state waters) and thus mean different things for the fleets from Alaska versus those from other states. Presumably, a very high percentage of Alaska-owned vessels direct their effort exclusively toward fisheries off of Alaska. For Washington-owned vessels, on the other hand, there is presumed to be a greater likelihood that, among the total vessels in any given community, there would be greater additional effort directed toward non-Alaska waters fisheries than is the case for Alaska-owned vessels. In other words, these dependency figures apply to the universe of vessels that participate in the Alaska fisheries, and for Alaska communities this is assumed to approximate the total community fleet, but for specific Pacific Northwest communities the total local fleet is likely to include vessels that fish other waters as well. Table 2.6-14 provides similar catcher vessel fleet relative dependency information, but by volume rather than value. Again, however, the utility of this information is limited compared to the value figures.

2.6.2 Catcher processor sector existing conditions

This section provides information on BSAI crab catcher processors. This sector has far fewer entities than seen in the harvest sector, and a very different distribution pattern by community and region than seen in the harvest sector.

Table 2.6-15 provides an annual average number of catcher processors by fishery and community of ownership for the period 1991-2000. This table provides an at-a-glance summary of the distribution of the catcher processor fleet. As shown, the fleet is highly concentrated in the Seattle-Tacoma CMSA, such that potential social or community impacts associated with this fleet under the proposed alternative would accrue in large part to the greater Seattle area.

2.6.3 Processing sector existing conditions

The amount of community-specific information that can be shown for the processing sector is very limited due to confidentiality restrictions. For example, because other Alaskan communities have fewer than four processing entities, only Kodiak and Unalaska/Dutch Harbor can be discussed in stand-alone terms. Tables 2.6-16 through 2.6-22 provide information on the BSAI crab processing sector by community or region.

Table 2.6-16 provides a count of processing entities by community, on an average annual basis for the period 1991-2000, for Kodiak processors, Unalaska/Dutch Harbor processors, other South region processors, total South region processors, and North region processors.⁶ Catcher processor and some floating processor information does not have the same type of geographically referenced data as for the shore processors, so the direct applicability of this information in terms of community impact assessment of processing activity is limited. (These data appear under "Processing Activity without Area Designation" in the following table series.) As shown, even within these highly aggregated community and region categories, there are few

⁶Where location information is available for floating processors, these processors are lumped with shore processors in relevant community totals.

Table 2.6-13 Total value of commercial fisheries harvest from Alaskan waters, by community and fishery category, 1991-2000 as percent of total value of fish harvested in Alaskan water fisheries by vessels owned by community residents

Fishery	Alaska					Washington		Oregon		Other States	Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon		
PMA Crab	14.6%	16.9%	17.6%	35.5%	3.4%	48.8%	9.8%	45.0%	14.6%	7.5%	24.3%
non-PMA Crab	*	0.8%	*	1.9%	4.3%	1.2%	1.5%	*	0.6%	0.7%	2.1%
Salmon	49.9%	42.9%	*	16.4%	48.6%	16.5%	53.8%	*	38.5%	53.3%	34.3%
Pollock	*	0.3%	*	6.2%	0.3%	18.7%	10.9%	27.2%	11.4%	10.4%	9.3%
Pacific Cod	1.2%	5.3%	19.1%	10.7%	1.5%	4.6%	3.1%	20.2%	8.6%	2.1%	4.9%
Other Groundfish	2.9%	6.0%	0.9%	7.4%	12.1%	5.3%	7.0%	2.1%	9.5%	4.0%	7.4%
Other Fisheries	9.1%	24.0%	6.8%	18.0%	17.1%	4.0%	9.4%	4.1%	10.8%	9.9%	11.2%
"Non-vessel" Fisheries	21.4%	3.7%	2.4%	3.9%	12.8%	0.9%	4.5%	0.0%	6.0%	12.1%	6.4%
Total Community Value	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Offshore harvest (and value) not included, which affects mainly groundfish and Seattle-Tacoma CMSA (but also some other communities).

Database as provided combines all PMA fisheries.

"PMA Crab" includes both qualified and non-qualified vessels.

"Non-PMA Crab" includes all crab (federal and state waters) other than PMA crab.

"Other Fisheries" include all harvests associated with vessels attributed to a community, including halibut, exclusive of crab, salmon, pollock, Pacific cod, and other groundfish.

"Non-vessel" fisheries represent fish ticket landings attributable to residents of a community, but that do not have an associated vessel record (see text).

Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-14 Total volume of commercial fisheries harvest from Alaskan waters, by community and fishery category, 1991-2000 as percent of total value of fish harvested in Alaskan water fisheries by vessels owned by community residents

Fishery	Alaska					Washington		Oregon		Other States	Grand Total
	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle- Tacoma CMSA	Other Washington	Newport	Other Oregon		
PMA Crab	7.8%	9.2%	5.9%	13.1%	2.0%	13.2%	3.0%	7.1%	4.4%	2.7%	8.4%
non-PMA Crab	*	0.3%	*	0.5%	1.4%	0.2%	0.3%	*	0.1%	0.2%	0.4%
Salmon	56.8%	44.3%	*	17.5%	60.3%	11.4%	37.2%	*	18.6%	34.2%	27.0%
Pollock	*	2.4%	*	29.6%	2.1%	63.7%	42.3%	66.4%	47.7%	47.1%	41.7%
Pacific Cod	3.4%	13.0%	39.4%	19.8%	3.7%	7.3%	5.5%	23.2%	15.0%	4.6%	9.5%
Other Groundfish	2.5%	3.2%	0.9%	8.3%	5.2%	2.3%	3.1%	2.5%	7.9%	1.7%	3.6%
Other Fisheries	12.5%	24.8%	4.2%	8.5%	15.6%	1.6%	6.7%	0.6%	3.6%	3.8%	6.3%
"Non-vessel" Fisheries	17.1%	2.7%	1.1%	2.8%	9.7%	0.3%	1.9%	0.0%	2.6%	5.8%	3.1%
Total Community Volume	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Offshore harvest (and value) not included, which affects mainly groundfish and Seattle-Tacoma CMSA (but also some other communities).

Database as provided combines all PMA fisheries.

"PMA Crab" includes both qualified and non-qualified vessels.

"Non-PMA Crab" includes all crab (federal and state waters) other than PMA crab.

"Other Fisheries" include all harvests associated with vessels attributed to a community, including halibut, exclusive of crab, salmon, pollock, Pacific cod, and other groundfish.

"Non-vessel" fisheries represent fish ticket landings attributable to residents of a community, but that do not have an associated vessel record (see text).

Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-15 Annual average number of qualified catcher/processors by relevant BSAI crab fishery and location of owner of vessel, 1991-2000

Data	Alaska		Washington	Oregon	Grand Total
	Anchorage	Kodiak	Seattle-Tacoma CMSA	Newport	
Bering Sea Opilio	0.1	1.1	8.6	0.0	9.9
Bering Sea Tanner	0.0	0.7	6.7	0.0	7.3
Bristol Bay Red	0.0	0.9	6.0	0.0	6.9
St. Matthew Blue	0.0	0.5	1.4	0.0	1.9
Adak Brown	0.0	1.0	0.2	0.0	1.2
Adak Red	0.0	0.8	0.3	0.0	1.2
Dutch Harbor Brown	0.0	0.1	0.0	0.0	0.1
Pribilof Blue	0.0	0.0	0.3	0.0	0.3
Pribilof Red	0.0	0.0	0.3	0.0	0.3
Total Non-Qualified (all 9 PMA Crab)	0.0	0.1	9.1	0.2	9.4
"Overlap" Vessels (all 9 PMA Crab)	0.0	0.1	0.3	0.0	0.4

Notes: Includes all Catcher Processors, locations with zero excluded.
 Annual averages based on the participation in open years for each fishery.
 Over the 1991-2000 span a total number of unique qualified catcher processors from each community for any and all years were:
 Anchorage, 1; Kodiak, 2; Seattle-Tacoma CMSA, 8; Newport, 0 (Grand Total, 11).
 Non-qualified were: Anchorage, 0; Kodiak, 0; Seattle-Tacoma CMSA, 25; Newport, 2 (Grand Total, 27).
 Geographical ownership of some vessels changed over time, accounting for Anchorage and S-T CMSA opilio numbers.
 "Overlap" vessels have both qualified and non-qualified PMA crab fisheries landings.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

processing entities for many of the cells. While count information is not confidential, value and volume data for entities in the low-count cells must be suppressed due to confidentiality concerns.

Table 2.6-17 provides processing volume information (in pounds) for the sectors, communities, and species shown in Table 2.6-16. This table provides a quick reference for the relative level of processing effort for the different fisheries by location, as measured by the volume of harvest. Table 2.6-18 shows this same information, but expressed as a percentage of each fishery by location. In other words, the fishery columns sum to 100 percent, allowing an at-a-glance perspective on the relative harvest volume within each fishery by place. For example, for the Bering Sea opilio fishery, 29.7 percent of the total fishery volume is processed in Unalaska, 39.2 percent in all locations within the south region combined, 26.8 percent in the north region, and so on. Table 2.6-19 also presents the information in terms of percentage, but in this case the place rows sum (rather than the fishery columns), allowing an easy reference for examining the relative processing volumes of the different BSAI crab fisheries for any given location. For example, Adak brown king crab comprises 1.7 percent of all the BSAI crab processed in Unalaska, Bristol Bay red king crab comprises 5.9 percent of the total BSAI crab processed in the community, the local volume dominance of opilio is seen in the fact that it makes up 79.8 percent of local BSAI crab processing, and so on.

Table 2.6-16 Annual average number of processors, 1991-2000, by city/port category and BSAI crab fishery

Species	Processing Activity with Area Designation				Processing Activity without Area Designation		Grand Total	
	South Region				North Region	Catcher Processors		Undesignated Floaters
	Kodiak	Unalaska	Other South	Total South				
Adak Brown	0.0*	4.2	0.8*	5.0*	0.0*	2.5*	0.4*	7.9
Adak Red	0.5*	3.5*	1.3*	5.3*	0.2*	1.7*	0.5*	7.7
Bristol Bay Red	3.4*	7.1	4.3*	14.8	0.9*	10.8	3.4*	29.8
Bering Sea Opilio	3.0*	9.1	4.5*	16.6	6.6	16.0	5.1	44.3
Bering Sea Tanner	6.2	8.5	5.3	20.0	2.0*	15.7	7.0*	44.7
Dutch Harbor Brown	0.0*	4.7	0.6*	5.3*	0.0*	1.6*	0.4*	7.3
Pribilof Blue	1.0*	3.8*	2.5*	7.3*	4.0*	0.3*	1.0*	12.5
Pribilof Red	1.3*	4.5	2.5*	8.3*	3.5*	0.3*	1.2*	13.3
St. Matthew Blue	0.3*	4.0	1.0*	5.3*	3.6*	4.0	1.8*	14.6

Notes: Catcher processor data do not have area designations.
 "Undesignated Floaters" are mobile processors that could not be assigned city or port locations.
 "Other South" includes all southern locations except Kodiak and Unalaska.
 "North Region" includes St. George, St. Matthew, and St. Paul.
 Averages are computed using years that each fishery was actually open 1991-2000.
 Cells with values marked * are suppressed in subsequent volume and value tables due to confidentiality.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-17 Annual average of pounds processed, 1991-2000, by city/port category and BSAI crab fishery

Species	Processing Activity with Area Designation					Processing Activity without Area Designation		Grand Total
	South Region				North Region	Catcher Processors	Undesignated Floaters	
	Kodiak	Unalaska	Other South	Total South				
Adak Brown	*	1,078,931	*	*	*	*	*	26,998,930
Adak Red	*	*	*	*	*	*	*	3,326,722
Bristol Bay Red	*	3,762,629	*	6,892,088	*	821,212	*	88,761,237
Bering Sea Opilio	*	51,229,673	*	67,607,801	46,192,962	24,732,733	33,877,297	1,724,107,927
Bering Sea Tanner	561,414	3,986,754	2,570,940	7,119,107	*	1,614,029	*	112,158,020
Dutch Harbor Brown	*	3,372,344	*	*	*	*	*	38,481,064
Pribilof Blue	*	*	*	*	*	*	*	3,098,193
Pribilof Red	*	175,223	*	*	*	*	*	6,212,922
St. Matthew Blue	*	437,785	*	*	*	231,041	*	25,751,808
Grand Total	1,516,279	64,210,611	21,649,062	87,375,952	48,733,900	29,226,286	37,553,545	2,028,896,823

Notes: Catcher processor data do not have area designations.
 "Undesignated Floaters" are mobile processors that could not be assigned city or port locations.
 "Other South" includes all southern locations except Kodiak and Unalaska.
 "North Region" includes St. George, St. Matthew, and St. Paul.
 Annual average obtained by dividing decade total by 10 (i.e., for all years, not just open years) to provide for comparability across all fisheries and all years for the communities and regions.
 * = cells must be suppressed due to confidentiality due to individual or a combination of cell characteristics.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-18 Volume processed, 1991-2000, by city/port category as percentage of individual BSAI crab fishery

Species	Processing Activity with Area Designation				Processing Activity without Area Designation		Grand Total	
	South Region				North Region	Catcher Processors		Undesignated Floaters
	Kodiak	Unalaska	Other South	Total South				
Adak Brown	0.0%	40.0%	*	*	0.0%	*	*	100.0%
Adak Red	*	*	*	*	*	*	*	100.0%
Bristol Bay Red	*	42.4%	*	77.6%	*	9.3%	*	100.0%
Bering Sea Opilio	*	29.7%	*	39.2%	26.8%	14.3%	19.6%	100.0%
Bering Sea Tanner	5.0%	35.5%	22.9%	63.5%	*	14.4%	*	100.0%
Dutch Harbor Brown	0.0%	87.6%	*	*	0.0%	*	*	100.0%
Pribilof Blue	*	*	*	*	*	*	*	100.0%
Pribilof Red	*	28.2%	*	*	*	*	*	100.0%
St. Matthew Blue	*	17.0%	*	*	*	9.0%	*	100.0%
Grand Total	0.7%	31.6%	10.7%	43.1%	24.0%	14.4%	18.5%	100.0%

Notes: Catcher processor data do not have area designations.
 "Undesignated Floaters" are mobile processors that could not be assigned city or port locations.
 "Other South" includes all southern locations except Kodiak and Unalaska.
 "North Region" includes St. George, St. Matthew, and St. Paul.
 Annual average obtained by dividing decade total by 10 (i.e., for all years, not just open years) to provide for comparability across all fisheries and all years for the communities and regions.
 * = cells must be suppressed due to confidentiality due to individual or a combination of cell characteristics.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-19 Volume processed, 1991-2000, by city/port category as a percentage of total BSAI crab fisheries

Species	Processing Activity with Area Designation				Processing Activity without Area Designation		Grand Total	
	South Region				North Region	Catcher Processors		Undesignated Floaters
	Kodiak	Unalaska	Other South	Total South				
Adak Brown	0.0%	1.7%	*	*	0.0%	*	*	1.3%
Adak Red	*	*	*	*	*	*	*	0.2%
Bristol Bay Red	*	5.9%	*	7.9%	*	2.8%	*	4.4%
Bering Sea Opilio	*	79.8%	*	77.4%	94.8%	84.6%	90.2%	85.0%
Bering Sea Tanner	37.0%	6.2%	11.9%	8.1%	*	5.5%	*	5.5%
Dutch Harbor Brown	0.0%	5.3%	*	*	0.0%	*	*	1.9%
Pribilof Blue	*	*	*	*	*	*	*	0.2%
Pribilof Red	*	0.3%	*	*	*	*	*	0.3%
St. Matthew Blue	*	0.7%	*	*	*	0.0%	*	1.3%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Catcher processor data do not have area designations.
 "Undesignated Floaters" are mobile processors that could not be assigned city or port locations.
 "Other South" includes all southern locations except Kodiak and Unalaska.
 "North Region" includes St. George, St. Matthew, and St. Paul.
 Annual average obtained by dividing decade total by 10 (i.e., for all years, not just open years) to provide for comparability across all fisheries and all years for the communities and regions.
 * = cells must be suppressed due to confidentiality due to individual or a combination of cell characteristics.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-20 provides processing value information (in dollars) for the sectors, communities, and species shown in Table 2.6-16. This table provides a quick reference for the relative level of processing value for the different BSAI crab fisheries by location. Table 2.6-21 provides this same information as a percentage of the total processing value for each fishery (i.e., the fishery columns sum to 100 percent, in the way that volumes do in Table 2.6-18). This table is useful for determining how much of the total processing value of each BSAI crab species accrues to the individual locations listed. In Table 2.6-22, value information is presented in terms of individual species as percent of total BSAI crab processing value by location (i.e., the sector/location rows sum to 100 percent, in the way that volumes do in Table 2.6-19). Using this table, the value of individual crab species relative to all BSAI crab processed in that same location can be easily determined.

The next series of tables (Tables 2.6-23 through 2.6-25) represents an attempt to characterize "processor dependency" on the relevant BSAI crab species encompassed in the proposed management alternative relative to other fisheries. To support this effort, NPFMC staff prepared a data file containing all fish ticket information for all processors (not only those that process at least some volume of the relevant crab species⁷), and linked this to a file containing specific processor attribute information. However, information on the location of processing proved difficult to determine for more than a few processors and was especially problematic for a number of floating processors.⁸ Further, catcher processors do not have areas of operation analogous to shore based processors, or even floaters, meaning that a significant amount of processing effort cannot be geographically referenced in a way useful for community or social impact analysis.

Because of these locational problems, it was thought desirable to check the extent to which the database adequately represents the processing activity of any given community in order to be able to interpret the apparent results of the dependency analysis. The most readily available (and most relevant) processing information with which to make this test is the BSAI crab database itself. This database contains geographic reference information for approximately 93 percent of BSAI crab processed and was constructed by NPFMC staff in order to analyze the regionalization aspects of the proposed alternative. Both databases contain the same amount of crab in terms of pounds and value; however, the BSAI crab-only database is much more complete in terms of attributing location to the processing. This is largely due to the complexity of designing a database that can organize information on an entity (i.e., floater or catcher processor) that can potentially process many different species in many different areas. Not surprisingly, locational information for communities with a preponderance of shoreplants (Kodiak and Unalaska) are those for which information for the two databases is most nearly the same – a 100 percent match for Kodiak and about a 78 to 82 percent correspondence for Unalaska as well as the "Other South" category (i.e., the residual south region exclusive of Kodiak and Unalaska). This contrasts sharply with the northern region, where most processors are floaters

⁷In the harvest vessel discussion in Section 2.6.1, diversity or dependency for local fleets was discussed both in terms of community crab fleets and community total (crab and non-crab) fleets. This processing discussion only covers community total processing and not community crab processors. A discussion of diversity or dependency for only crab processors in specific locations was not practical with the available data, as data by entity included facilities in multiple communities and regions.

⁸Tables 2.6-23 through 2.6-25 are based on a different data set than Tables 2.6-16 through 2.6-22, which also cover processing by location. Tables in the latter series cover crab species only, while tables in the former series cover many commercial fisheries. A directed effort was made for this analysis to specifically clean up location information for crab processing in the data set focused on crab species (i.e., the data that underlies Tables 2.6-16 through 2.6-22). As a result, location information for crab differs between the two data sets, with the crab-specific distribution tables containing fewer "unknown" records than the multi-fisheries data set. As a result, more crab processing is assigned, for example, to Unalaska and Other South in Tables 2.6-16 through 2.6-22 than in 2.6-23 through 2.6-25 (where there is more crab in the "Other/Unknown" category). This being the case, these table series should be used independently and for comparison purposes internal to each table set, avoiding apparent inconsistencies between the two sets.

Table 2.6-20 Annual average of value in dollars of crab processed, 1991-2000, by city/port category and BSAI crab fishery

Species	Processing Activity with Area Designation				Processing Activity without Area Designation		Grand Total	
	South Region			North Region	Catcher Processors	Undesignated Floaters		
	Kodiak	Unalaska	Other South					Total South
Adak Brown	*	\$2,648,595	*	*	*	*	\$6,837,538	
Adak Red	*	*	*	*	*	*	\$1,349,400	
Bristol Bay Red	*	\$15,069,715	*	\$28,088,680	*	\$3,191,166	\$35,781,442	
Bering Sea Opilio	*	\$40,233,123	*	\$54,415,414	\$44,504,637	\$19,174,922	\$141,714,765	
Bering Sea Tanner	\$1,170,659	\$7,589,340	\$5,279,072	\$14,039,070	*	\$2,778,785	\$20,922,829	
Dutch Harbor Brown	*	\$8,902,323	*	*	*	*	\$10,215,680	
Pribilof Blue	*	*	*	*	*	*	\$747,600	
Pribilof Red	*	\$764,114	*	*	*	*	\$2,690,481	
St. Matthew Blue	*	\$1,205,264	*	*	*	\$638,736	\$7,070,174	
Grand Total	\$3,542,039	\$76,942,759	\$31,857,603	\$112,342,401	\$51,582,835	\$30,541,540	\$32,863,133	\$227,329,909

Notes: Catcher processor data do not have area designations.
 "Undesignated Floaters" are mobile processors that could not be assigned city or port locations.
 "Other South" includes all southern locations except Kodiak and Unalaska.
 "North Region" includes St. George, St. Matthew, and St. Paul.
 Annual average obtained by dividing decade total by 10 (i.e., for all years, not just open years) to provide for comparability across all fisheries and all years for the communities and regions.
 * = cells must be suppressed due to confidentiality due to individual or a combination of cell characteristics.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-21 Value of crab processed, 1991-2000, by city/port category as percentage of individual BSAI crab fishery

Species	Processing Activity with Area Designation				Processing Activity without Area Designation		Grand Total	
	South Region				North Region	Catcher Processors		Undesignated Floaters
	Kodiak	Unalaska	Other South	Total South				
Adak Brown	0.0%	38.7%	*	*	0.0%	*	*	100.0%
Adak Red	*	*	*	*	*	*	*	100.0%
Bristol Bay Red	*	42.1%	*	78.5%	*	8.9%	*	100.0%
Bering Sea Opilio	*	28.4%	*	38.4%	31.4%	13.5%	*	100.0%
Bering Sea Tanner	5.6%	36.3%	25.2%	67.1%	*	13.3%	16.7%	100.0%
Dutch Harbor Brown	0.0%	87.1%	*	*	0.0%	*	*	100.0%
Pribilof Blue	*	*	*	*	*	*	*	100.0%
Pribilof Red	*	28.4%	*	*	*	*	*	100.0%
St. Matthew Blue	*	17.0%	*	*	*	9.0%	*	100.0%
Grand Total	1.6%	33.8%	14.0%	49.4%	22.7%	13.4%	14.5%	100.0%

Notes: Catcher processor data do not have area designations.
 "Undesignated Floaters" are mobile processors that could not be assigned city or port locations.
 "Other South" includes all southern locations except Kodiak and Unalaska.
 "North Region" includes St. George, St. Matthew, and St. Paul.
 Annual average obtained by dividing decade total by 10 (i.e., for all years, not just open years) to provide for comparability across all fisheries and all years for the communities and regions.
 * = cells must be suppressed due to confidentiality due to individual or a combination of cell characteristics.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-22 Value of crab processed, 1991-2000, by city/port category as a percentage of total BSAI crab fisheries

Species	Processing Activity with Area Designation				Processing Activity without Area Designation		Grand Total	
	South Region				North Region	Catcher Processors		Undesignated Floaters
	Kodiak	Unalaska	Other South	Total South				
Adak Brown	0.0%	3.4%	*	*	0.0%	*	*	3.0%
Adak Red	*	*	*	*	*	*	*	0.6%
Bristol Bay Red	*	19.6%	*	25.0%	*	10.4%	*	15.7%
Bering Sea Opilio	*	52.3%	*	48.4%	86.3%	62.8%	71.9%	62.3%
Bering Sea Tanner	33.1%	9.9%	16.6%	12.5%	*	9.1%	*	9.2%
Dutch Harbor Brown	0.0%	11.6%	*	*	0.0%	*	*	4.5%
Pribilof Blue	*	*	*	*	*	*	*	0.3%
Pribilof Red	*	1.0%	*	*	*	*	*	1.2%
St. Matthew Blue	*	1.6%	*	*	*	2.1%	*	3.1%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Catcher processor data do not have area designations.
 "Undesignated Floaters" are mobile processors that could not be assigned city or port locations.
 "Other South" includes all southern locations except Kodiak and Unalaska.
 "North Region" includes St. George, St. Matthew, and St. Paul.
 Annual average obtained by dividing decade total by 10 (i.e., for all years, not just open years) to provide for comparability across all fisheries and all years for the communities and regions.
 * = cells must be suppressed due to confidentiality due to individual or a combination of cell characteristics.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-23 Annual average value of processing by species by place, 1991-2000

City	PMA Crab	Non-PMA Crab	Salmon	Halibut*	Sablefish	Pollock	Pacific Cod	Other Groundfish	All Other Fisheries	Non-Commercial	TOTAL all Fisheries
Kodiak	\$3,542,040	\$2,512,134	\$26,575,772	\$14,220,043	\$7,292,082	\$10,204,100	\$14,357,799	\$3,287,010	\$2,168,172	\$634,245	\$84,793,396
Unalaska	\$62,852,299	\$2,158,182	\$6,585,749	\$4,631,533	\$2,446,047	\$55,274,719	\$9,079,646	\$1,032,549	\$855,197	\$1,438,979	\$146,354,900
Other South	\$26,255,324	\$948,210	\$138,004,815	\$12,441,264	\$6,054,635	\$25,413,947	\$17,815,591	\$481,978	\$5,325,998	\$2,729,178	\$235,470,941
Other/Unknown	\$134,680,283	\$14,628,485	\$209,186,010	\$42,712,902	\$46,120,675	\$717,195	\$4,881,809	\$2,614,089	\$30,524,351	\$18,330,793	\$504,396,591
Grand Total	\$227,329,946	\$20,247,010	\$380,352,346	\$74,005,742	\$61,913,439	\$91,609,960	\$46,134,845	\$7,415,627	\$38,873,718	\$23,133,195	\$971,015,828

Notes: "Non-commercial" includes forfeited bycatch, test fisheries, CDQ, etc.
 "Other/Unknown" includes Northern Region, catcher processors, floaters without a geographic designation, or any processing entity without a geographic reference in the database.
 * Note 2000 halibut data missing from the database; therefore, halibut values are understated.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-24 Annual average value of processing by species as a percentage of total by place, 1991-2000

City	PMA Crab	Non-PMA Crab	Salmon	Halibut*	Sablefish	Pollock	Pacific Cod	Other Groundfish	All Other Fisheries	Non-Commercial	TOTAL all Fisheries
Kodiak	4.2%	3.0%	31.3%	16.8%	8.6%	12.0%	16.9%	3.9%	2.6%	0.7%	100.0%
Unalaska	42.9%	1.5%	4.5%	3.2%	1.7%	37.8%	6.2%	0.7%	0.6%	1.0%	100.0%
Other South	11.2%	0.4%	58.6%	5.3%	2.6%	10.8%	7.6%	0.2%	2.3%	1.2%	100.0%
Other/Unknown	26.7%	2.9%	41.5%	8.5%	9.1%	0.1%	1.0%	0.5%	6.1%	3.6%	100.0%
Grand Total	23.4%	2.1%	39.2%	7.6%	6.4%	9.4%	4.8%	0.8%	4.0%	2.4%	100.0%

Notes: "Non-commercial" includes forfeited bycatch, test fisheries, CDQ, etc.

"Other/Unknown" includes Northern Region, catcher processors, floaters without a geographic designation, or any processing entity without a geographic reference in the database.

* Note 2000 halibut data missing from the database; therefore, halibut values are understated.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.6-25 Annual average value of processing by place as a percentage of total by species, 1991-2000

City	PMA Crab	Non-PMA Crab	Salmon	Halibut*	Sablefish	Pollock	Pacific Cod	Other Groundfish	All Other Fisheries	Non-Commercial	TOTAL all Fisheries
Kodiak	1.6%	12.4%	7.0%	19.2%	11.8%	11.1%	31.1%	44.3%	5.6%	2.7%	8.7%
Unalaska	27.6%	10.7%	1.7%	6.3%	4.0%	60.3%	19.7%	13.9%	2.2%	6.2%	15.1%
Other South	11.5%	4.7%	36.3%	16.8%	9.8%	27.7%	38.6%	6.5%	13.7%	11.8%	24.2%
Other/Unknown	59.2%	72.3%	55.0%	57.7%	74.5%	0.8%	10.6%	35.3%	78.5%	79.2%	51.9%
Grand Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: "Non-commercial" includes forfeited bycatch, test fisheries, CDQ, etc.

"Other/Unknown" includes Northern Region, catcher processors, floaters without a geographic designation, or any processing entity without a geographic reference in the database.

* Note 2000 halibut data missing from the database; therefore, halibut values are understated.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

or catcher processors, and the two databases only have about a 32 percent correspondence. In practical terms, this means that it is reasonable to use these data to discuss dependency for Kodiak, Unalaska, and "Other South," but not for other areas.

Another important caveat is that the data correspondence test was performed only for BSAI crab, and different fisheries could exhibit different patterns. (It does, however, make intuitive sense that shoreplants, and locations where they are concentrated, may be better documented in terms of location of processing than are more mobile operations.) It is also important to note that given these and other known limitations of the data, the "dependency figures" shown in the tables are, at best, rough approximations. Further, it is important to bear in mind that these data cover the full spectrum of processing operations in a given locality, and not only those that process BSAI crab. It thus represents community dependence on BSAI crab at a relatively high level of abstraction and may not reflect any specific operation in the community, and the data may represent more in the way of collective entity dependency rather than community dependency. Community dependency specifically for Unalaska and Kodiak is discussed in the relevant community profiles in the SIA Appendix, but confidentiality restrictions prevent parallel discussions for other communities. Data for the northern region, catcher processors, floating processors without a geographic designation, and other processors that lacked a geographic reference in the database are lumped into the "Other/Unknown" category in the tables.

Table 2.6-23 presents annual average value data for the various species run by BSAI crab processors over the period 1991-2000. Table 2.6-24 provides this information expressed in terms of percentage of total value by place, and the rows of this table provide a quick look at the relative value by species for the geographic locations specified. As shown, Unalaska crab processors are heavily dependent on BSAI crab and pollock, with Pacific cod and salmon in (quite distant) third and fourth places. "Other South" locations are very dependent (nearly 59 percent of total value) on salmon but also process a significant amount of BSAI crab, pollock, Pacific cod, and halibut (in order of descending percentage of total value processed). Kodiak processors also relied more on salmon than on any other species during this period, but at only about half of the percentage of "Other South" processors. Kodiak processors demonstrated somewhat more diversified and balanced operations dependent on Pacific cod, halibut, pollock, sablefish, and crab. Time series information is presented in the data appendix and is also summarized in the community profiles and possible dynamics (and their significance) are discussed there. Table 2.6-25 provides the same type of information, but expressed as a percentage of the individual fisheries distributed by community. In this case, the columns in the table provide a useful summary of the distribution of processing of any given species or species group. For example, for the relevant BSAI crab species, about 2 percent is processed in Kodiak, 28 percent in Unalaska, and 12 percent in "Other South," and 59 percent falls into the residual "Other/Unknown" category. For most categories, the "unknown" locational category comprises a large part of the data.

Although quantitative processing dependency information for the north region is not well developed and would be confidential in any case, it is common knowledge that the relevant BSAI crab species (and especially opilio crab) and halibut are the two most important fisheries for communities in that region. The former is a fundamental part of the tax base of regional communities through the raw fish tax, and the latter is a fishery in which local fishermen are significantly engaged. More detailed qualitative information is provided in the community profiles for St. Paul and St. George in the SIA Appendix.

2.6.4 Detailed community existing conditions

Community profiles for Unalaska/Dutch Harbor, Akutan, King Cove, Sand Point, Adak, St. Paul, St. George, Kodiak, and Seattle may be found in the SIA Appendix. These profiles contain detailed descriptions of the existing conditions in these communities, as well as overview treatments of potential social impact issues relative to BSAI crab rationalization for the particular communities.

2.7 Other rationalization programs

Managers of several fisheries in the US and the world have rationalized fisheries as a means to increase stocks, decrease capitalization, increase safety, reduce bycatch, and improve product quality. Several rationalization programs have been developed, each unique to the fishery regulated and the social structure of the fishery. Programs typically rely on some form of individual quotas or cooperative management. Examining some these programs will provide a background on which to build a successful rationalization program. Brief summaries describing the rationalization programs in the Icelandic fisheries, the Netherlands fisheries, the Newfoundland snow crab fishery, Alaskan halibut and sablefish fisheries, the Pacific whiting fishery, and the Atlantic surf clam and ocean quahog fishery appear in Appendix 2-6.

A purported advantage of rationalization of a fishery is a gain in efficiency in the fishery. Although increases in technical efficiency reflect additional output produced by inputs, other notions of efficiency are applied by economists to gain insight into production technologies. A recent study of changes in efficiency conducted by Dr. Ron Felthoven of the NMFS Alaska Fisheries Science Center found improvements in efficiency and capacity utilization in the BSAI pollock fisheries caused by the implementation of the AFA. Dr. Felthoven has examined the applicability of those findings to the BSAI crab fishery to determine whether similar gains might be expected in a rationalized crab fishery. That analysis appears as Appendix 2-7. Dr. Felthoven's study generally concludes that a change from the current race for fish to a rationalized fishery presents an opportunity for short-run increases in both capacity utilization and technical efficiency in both harvesting and processing sectors. Whether these improvements will continue in the long run depends largely on whether the institutions developed by the rationalization program facilitate a competitive market for shares in the fishery. The choice of institutions, however, must consider social consequences beyond economic efficiency and capacity, including equity and the distribution of benefits of rationalization.

2.8 Product markets and prices

Few rigorous economic studies of the BSAI crab fishery have been conducted to date (some examples of studies are Bibb and Matulich, 1994, and Greenberg, Hermann, and McCracken, 1995). Studies of prices, as well as anecdotal information from participants, suggest that US production competes in a world market for crab with production from other countries, particularly Russia and Canada. Appendix 2-8 provides a brief summary of crab production and prices. That appendix is intended to provide some background concerning the role of the US producers in the current world market and a historical description of the markets for crab.

2.9 National Research Council Recommendations

As a part of the Sustainable Fisheries Act, enacted in 1996, Congress commissioned the National Academy of Sciences to examine the use of individual fishing quotas in fisheries management. The result of that action is the report "Sharing the Fish: Toward a National Policy on IFQs". The report contains several recommendations concerning the development of IFQ programs. This section briefly reviews those recommendations.

Most pertinent to the alternatives under consideration is the recommendation that Congress lift the moratorium on the development and implementation of IFQ programs. The committee, however, cautioned that IFQs are one of many tools useful for fishery management and that The committee generally advised that:

IFQs can be used in a preventative manner with stocks that are not overfished or to remedy existing overfishing, overcapitalization, and incentives to fish under dangerous conditions. (p. 192)

And that IFQ programs will achieve greater success if:

- *The TAC can be specified with reasonable certainty.*
- *The goals of improving economic efficiency and reducing the numbers of firms, vessels, and people in the fishery have a high priority.*
- *Broad stakeholder support and participation is present.*
- *The fishery is amenable to cost-effective monitoring and enforcement.*
- *Adequate data exist...[that are] sufficient....to assess and allow the mitigation of, insofar as possible, the potential social and economic impacts of IFQs on individuals and communities.*
- *The likelihood for spillover of fishing activities into other fisheries is recognized and provision is made to minimize its negative effects. (pp. 192-3)*

The committee also recommended that regional councils consider the impacts of the program on state fishery management and work with state agencies to coordinate management activities.

In addition to these general recommendations, the committee made several recommendations that are specific to elements of any proposed IFQ program. Discussion of these specific recommendations appears in the appropriate sections throughout this analysis.

3.0 Analysis of alternatives

This section provides the analysis of the three structural alternatives: (1) No Action, (2) Crab IFQ Program, and (3) Crab Cooperative Program. From these analyses, the Council has identified a preferred alternative, which includes elements of both an IFQ program and a cooperative program. The preferred alternative is analyzed in Section 4 of this document. The first subsection is a brief introduction that provides a description of the alternatives to frame the analysis. In this introduction to the section, the models and program elements are briefly reviewed and a decision process that the Council can follow in the process of identifying a rationalization program is outlined. The decision process is intended as a guide to ensure that all necessary elements and options are decided and to ensure consistency of the adopted program elements.

Subsection 3.1 is an analysis of the status quo, continued management of the BSAI crab fisheries under existing regulations and regulations pending implementation. The status quo is used as the backdrop for comparison of the alternative management regimes. The subsection is very brief, since pertinent information concerning the status quo in the fisheries is contained in Section 2.

Subsection 3.2 provides a detailed analysis of the biological and management implications of rationalization of the crab fisheries, including the effects of rationalization on stock conservation and rebuilding, potential changes in bycatch, possible changes in season openings and lengths, and the potential for high grading. Each of these factors is discussed from both a biological perspective and from a management perspective. Since the rationalization alternatives have similar biological and management effects, the discussion of these factors is consolidated.

Section 3.3 is an analysis of the share allocations under the IFQ and cooperative program options. These elements are common to both the IFQ and cooperative program alternatives and are most efficiently discussed in a single section. Section 3.4 is an analysis of elements and options that are applicable only to the IFQ program. These include provisions for the transfer of QS and IFQs, ownership, and use caps. A separate subsection is devoted to the IFQ alternative that includes processor shares. Section 3.5 is an analysis of all elements and options applicable to the cooperative program alternatives. Separate subsections are devoted to the voluntary cooperative model proposed by the State of Alaska and the plurality assignment cooperative model. Section 3.6 is an analysis of the regionalization options under both the IFQ program alternatives and the cooperative program alternatives. Section 3.7 is an analysis of options for binding arbitration for pricing crab deliveries. Section 3.8 is an analysis of options for allocating shares to or the purchase of shares by skippers and crewmembers. Section 3.9 is an analysis of the CDQ program options. Section 3.10 is an analysis of other management and allocation options under consideration. These include options concerning the duration and review of the program and the treatment of AFA sideboards. Section 3.11 is an analysis of the effects of the rationalization alternatives on consumers. Section 3.12 is an analysis of the vessel buyback program. Section 3.13 is an analysis of the possibility of “stranded capital” in the processing sector and the potential of a buyback program to remove capital from that sector. Section 3.14 is an analysis of foreign ownership of harvest vessels and processing facilities in the BSAI crab fisheries. Section 3.15 is an analysis of custom processing in the BSAI crab fisheries. Section 3.16 is a comparative analysis of the status quo and the alternative crab rationalization programs, including a discussion of the implications for industry structure and competition.

Possible rationalization programs

Several institutional structures could be used to rationalize the BSAI crab fisheries. Each structure has strengths and weaknesses, making some more appropriate management tools for these fisheries than others. Generally, the different types of institutions can be categorized as individual entitlement programs or

collective entitlement programs. Collective entitlement programs include cooperatives, allocations to communities, and community control of harvest areas. Individual entitlement programs include individual quotas, individual transferable pot quotas, individual territorial use rights (or range style management).

Individual entitlements often appeal to economists because of their potential to increase economic efficiency. Individual transferable quotas provide participants with a harvest allocation in the fishery. Transferability of allocations is thought to improve efficiency by allowing low cost producers to purchase allocations from high cost producers. If quotas impart both current and future harvest privileges, they are thought to create an incentive for users to protect and conserve stocks, and limit effort.

Individual transferable pot quotas could also be used to limit effort in the fisheries. Pot quotas would allow an efficient distribution of effort among harvesters by developing a market in which efficient harvesters purchase rights to employ effort from less efficient harvesters. Pot quotas and similar quotas on effort, however, suffer from a few shortcomings. Stock changes that require changes in effort can lead to inefficiency and overcapitalization. In crab fisheries, managers might be required to annually adjust the pot quota allocations. In addition, pot quotas would permit increases in unregulated inputs and therefore may be ineffective in limiting effort in the fisheries. Individual territorial use rights (or range-style management regulations) allow participants to select efficient levels of effort, but would limit the area in which they could employ that effort. This management method, however, could be ineffective in preserving stocks, if future stock levels are uncertain or stocks tend to migrate. Stock fluctuations or migrations (like those found in the crab fisheries) might induce participants to overexploit stocks in periods of high abundance (Criddle, Herrman, and Greenberg, 2001; see also, Macinko and Raymond, 2001).

Collective entitlement programs attempt to realize the benefits of organized and coordinated activities. Cooperative programs attempt to realize benefits from the coordination of activities among members of a fleet that share common interests. The allocation to the cooperative is similar to the allocation to individuals, but the cooperative program relies, in part, on cooperative monitoring and enforcement (Criddle and Macinko, 2000; Holland and Ginter, 2001). Community-based programs attempt to build on existing institutions and the locational advantages of communities that are proximate to fisheries. Community interests are important in the BSAI crab fisheries and several options in the rationalization programs under consideration have community-based components. These community-based components are options within broader programs, rather than comprehensive management programs in and of themselves. Inclusion of these community-based components in a rationalization program would be intended to “appropriately” balance community interests with those of the fleets and processors that dominate the BSAI crab fisheries.

In consideration of the strengths and weaknesses of these various alternatives for rationalization of the BSAI crab fisheries, the Council has chosen to examine two types of rationalization programs, cooperative programs and individual quotas. Two forms of each are included in the analysis and will be considered by the Council.

Under the harvester only IFQ program alternative, quota shares (QS) would only be issued to the harvesting sector. Under a so-called two-pie IFQ program alternative, separate pools of quota shares would be allocated to the harvesting sector and the processing sector.

Under one cooperative alternative, voluntary, multispecies cooperatives, with independent harvesting and processing allocations would be created. Under the other cooperative alternative each vessel would be eligible to join a cooperative associated with the processor to which it delivered the most pounds of crab, from a single fishery, during the qualifying period.

Under all of the alternatives, coastal community concerns could be addressed under options to restrict crab deliveries to certain geographical regions or communities and/or options for increasing the crab allocations to the existing CDQ groups.

In reaching a complete decision on the management of the fisheries, the Council will have several decision points. Figure 3.1-1 is a decision tree showing the most critical decision points of the Council in the rationalization process. The decision tree is intended only as a guide to the Council. The initial decision point is the selection of fisheries for inclusion in the rationalization program. Once fisheries are identified, a type of rationalization program can be selected – an IFQ-based program or one of the cooperative programs. If the Council elects to proceed with the development of an IFQ program or the voluntary cooperative program, a choice must be made between a program with only harvester shares (one-pie) or a program with both harvester shares and processor shares (two-pie). – and elements specific to that type of program. For example, in an IFQ program, provisions limiting transfer and use of QS would need to be decided. If the plurality cooperative program is chosen, the Council would need to adopt rules to guide the formation of cooperatives and the relationship of cooperatives to processors. Under either rationalization program, harvester interests must be decided. Processor specific program elements must be determined under either a cooperative program or an IFQ program with both harvester shares and processor shares. In addition to the program specifics, the Council must also decide on CDQ provisions, regionalization, and the duration and sunset provisions.

Figure 3.1-1 Decision Tree for Rationalization of the BSAI Crab Fisheries.

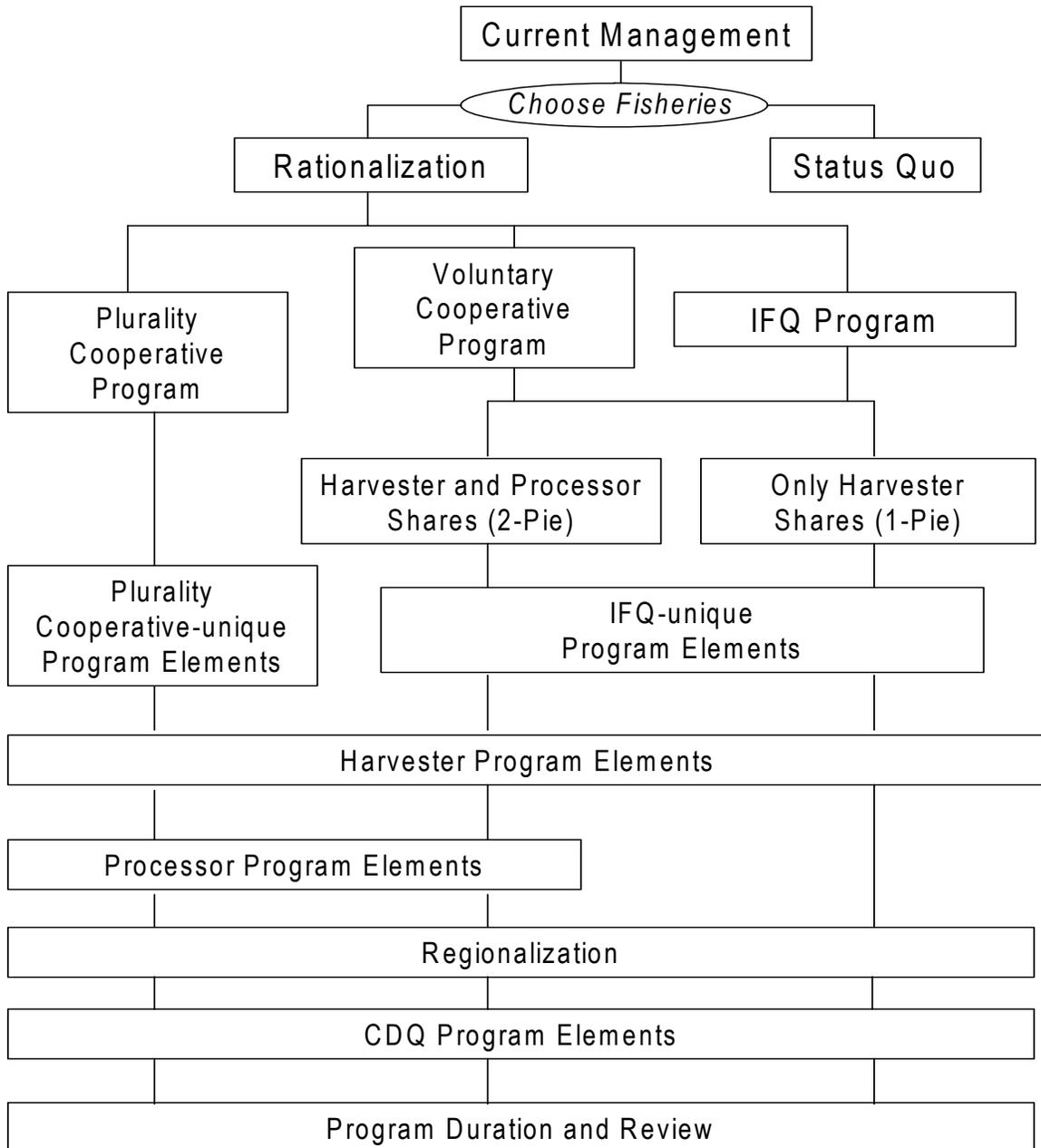


Table 3.1-1 lists each of the elements and options, and summarizes the programs that each element and option is a part. Relating the specific program elements and options to the general programs is intended to help guide the Council in determining which elements and options would be decided for each program option. The status quo option will require no changes from the current management, so none of the elements and options apply to that alternative.

Table 3.1-1 Table of Elements and Options for Rationalization of the BSAI Crab Fisheries.

Element	Description	1-Pie IFQ	2-Pie IFQ	Voluntary Co-op	Plurality Co-op	Element	Description	1-Pie IFQ	2-Pie IFQ	Voluntary Co-op	Plurality Co-op
1	Harvesting Sector					1.8.3	AFA Harvester Sideboards	x	x	x	x
1.1	Included Crab Fisheries	x	x	x	x	1.8.4	Season Opening/Closings	x	x	x	x
1.2	Eligibility for Initial Allocation	x	x	x	x						
1.3	Categories of QS/IFQ/Co-op Share					2	Processing Sector				
1.3.1	by Crab Fishery	x	x	x	x	2.1	Eligible Processors		x	x	x
1.3.2	by Harvesting Sector (CV, C/P)	x	x	x	x	2.2	Categories of Processing Shares		x	x	x
1.3.3	by Processor Delivery		x	x	x	2.3	Initial Allocation		x	x	
1.3.4	by Region	x	x	x	x	2.4	Percentage of GHL or TAC		x	x	x
1.4	Initial Allocation					2.5	Implementation of Open Access				x
1.4.1	Calculation	x	x	x	x	2.6	Transferability		x	x	x
1.4.2	Qualifying Periods	x	x	x	x	2.7	Ownership and Use Caps		x	x	
1.5	Annual Allocation (GHL vs. TAC)	x	x	x	x	2.8	Other Optional Provisions				
1.6	Transferability/Ownership Caps					2.8.1	AFA Processing Sideboards	x	x	x	x
1.6.1	Eligibility to Receive Transfers	x	x	x		2.8.2	Penalties		x	x	x
1.6.2	Leasing	x	x	x		2.8.3	Binding Arbitration	x	x	x	x
1.6.3	Ownership Caps	x	x	x							
1.6.4	Vertical Integration Controls	x	x	x		3	Regionalization				
1.7	Use of Quotas					3.1	Regions	x	x	x	x
1.7.1	Use by Harvesting Sector	x	x	x		3.2	Categorization by Region	x	x	x	x
1.7.2	C/P Provisions		x	x		3.3	Delivery/Processing Restrictions	x	x	x	x
1.7.3	Catch Accounting	x	x	x							
1.7.4	Vessel Use Caps	x	x	x		4	CDQ Allocations	x	x	x	x
1.8	Other Optional Provisions										
1.8.1	Skipper/Crew Options	x	x	x	x	5	Program Duration/Review	x	x	x	x
1.8.2	Overage Provisions	x	x	x	x						

3.1 Alternative 1. Status quo (no action)

The status quo in the BSAI crab fisheries is defined in the previous section of this document. Management and biological conditions in the fishery are described in Section 2.1. The harvesting sectors and processing sector are described in Section 2.2 and 2.3. Section 2.4 describes the interactions between the harvesting and processing sectors. Section 2.5 describes the ex vessel pricing of crab. Section 2.6 describes the social impacts of the fishery on communities. A brief description of the global market for crab and the position of the BSAI fisheries in that market is contained in Section 2.8. These sections collectively define the existing conditions in the fishery.

Because of the difficulty projecting fluctuations in GHUs in the BSAI crab fishery, no projections in future harvest levels or revenues are presented in this section. Instead, the historical fisheries are used as the basis for understanding what future fisheries might look like under the status quo. In reality, however, the levels of participation and the structure of the fleet would be expected to change from those seen in the past. Low harvest levels in the Bristol Bay red king crab fishery and the *C. opilio* fishery have substantially reduced revenues to the fleet. In 2000, the fleet generated about \$55 million in ex vessel revenues from those two fisheries. That is well under half of the ex vessel revenues (in nominal dollars) that the fleet had generated from these fisheries, on average, since 1988. The *C. bairdi* fishery has been closed since 1997. Also, other Bering Sea red and blue king crab fisheries were closed in 2000. Given that participation has not fallen as drastically as revenue has declined, it is unlikely that the current economic conditions will support a fleet the size of the qualified vessels under the current LLP. That being said, if current conditions were to continue into the future we would expect to see substantial amounts of capacity exit and/or turnover in the BSAI crab fisheries. However, given our current knowledge of future harvests, prices, and cost structures quantitative estimates cannot be provided. The conditions in the fishery could also be changed by the proposed vessel buyback program. That program is discussed in Section 3.12.

3.2 Direct and indirect effects of rationalization on management, the fisheries, crab stocks, and the environment

Rationalization programs would have the direct and indirect effects on crab fisheries management, the prosecution of the BSAI crab fisheries, the crab stocks, and the environment. A rationalization program may remove the need for many management measures that focus on controlling effort and providing a fair start. On the other hand, a rationalization program will increase the need for sophisticated monitoring, catch accounting, recordkeeping, reporting, and enforcement procedures. Changes to management tie together with changes to the prosecution of the fishery. Under rationalization, we predict fishermen will change fishing behavior to fish slower, allow gear to soak longer, and avoid fishing in rough weather. These changes to management and the prosecution of the fisheries will effect crab stocks and the environment, including habitat and other benthic species.

The EIS, in sections 2.1.5 *Fishery Management Plan Review*, 4.1.1 *Projected Changes to State management of BSAI crab fisheries*, and 4.6.7 *Effects of the alternatives on monitoring and enforcement*, analyses in detail the effects of the alternatives on crab fisheries management.

3.2.1 Crab fisheries under consideration for rationalization

Table 3.2-2 contains all crab fisheries under FMP jurisdiction. Of these, the Council is currently considering including the following FMP fisheries in the rationalization program: *C. opilio* (snow crab), Bristol Bay red king crab, *C. bairdi* (Tanner crab), Pribilof red king crab, Pribilof blue king crab, St. Matthew blue king crab, and AI brown (golden) king crab. The Council has before it options to exclude the fisheries for eastern AI

Tanner, western AI Tanner, Dutch Harbor red king crab, and western AI red king crab east of 179° W. longitude. A second option on Western AI red king crab would explicitly exclude the western AI red king crab east of 179 W. longitude from crab rationalization. The following FMP fisheries would not be included in the rationalization program: Norton Sound red king crab, Bering Sea golden king crab (Pribilof Islands and St. Matthew), scarlet king crab (AI and EBS), *C. angulatus* (AI and EBS), and *C. tanneri* (AI and EBS). Gulf of Alaska crab fisheries, crab fisheries in statewaters in the BSAI, and the Korean hair crab fishery are not under the jurisdiction of the FMP, and are exclusively managed by the State of Alaska. Therefore, these fisheries are not under consideration for inclusion in the Council's rationalization program.

Stock	Fishery	LLP area/species endorsement
Bristol Bay red king	open	Bristol Bay red king crab
Norton Sound red king	open	Norton Sound
Aleutian Is. golden king	open	AI golden king crab
W. AI red king	closed	AI red king crab
Dutch Harbor red king	closed	AI red king crab
St Lawrence blue king	permit	none
Pribilof Is. golden king	permit	none
St. Matthew golden king	permit	none
Aleutian Is. scarlet king	permit	none
EBS scarlet king	permit	none
Pribilof Islands blue king	closed	Pribilof Is. king crab
St Matthew blue king	closed	St. Matthew blue king crab
Pribilof Islands red king	closed	Pribilof Is. king crab
EBS snow crab	open	BSAI <i>C. opilio</i> and <i>C. bairdi</i>
E. Aleutian Is. Tanner	closed	BSAI <i>C. opilio</i> and <i>C. bairdi</i>
W. Aleutian Is. Tanner	closed	BSAI <i>C. opilio</i> and <i>C. bairdi</i>
EBS Tanner	closed	BSAI <i>C. opilio</i> and <i>C. bairdi</i>
E. Aleutian Is. <i>angulatus</i>	permit	none
EBS <i>angulatus</i>	permit	none
E. Aleutian Is. <i>tanneri</i>	permit	none
EBS <i>tanneri</i>	permit	none
W. Aleutian Is. <i>tanneri</i>	permit	none

Table 3.2-1 Fisheries under the FMP for BSAI King and Tanner Crabs, including closed and developing fisheries. (Developing fisheries are operated by ADF&G Commissioner's Permit)

- (A) Options
- A) Exclude the E AI Tanner, W AI Tanner, Dutch Harbor red king crab, and W AI red king crab.
 - B) Federal waters shall be closed to the harvest of Eastern (Dutch) and Western AI Tanner crab and Eastern (Dutch) and Western AI red king crab until such time as the State of Alaska develops a fishery management plan and harvest strategies that includes provisions to conserve the stocks and prevent overcapitalization.
 - C) Exclude the E AI Tanner, W AI Tanner, Dutch Harbor red king crab, and W AI red king crab East of 179° W longitude. (Insert consistent with recent Board of Fish action).

Because the State of Alaska has substantial management authority for these fisheries (created by the category 2 and 3 deferral under the FMP) Council staff has solicited and the State has provided the following discussion concerning the necessity (for both biological and management purposes) for including or not including individual BSAI crab fisheries in the rationalization program:

There are a number of BSAI crab stocks that have little catch history and are termed “developing”. These stocks are managed under a commissioner’s permit. These include the BSAI deep water scarlet king crab, the deep water grooved Tanner crab (*C. tanneri*), the deep water triangle Tanner crab (*C. angulatus*) and the Bering Sea (St. Matthew and Pribilof Island) golden king crab. There are other BSAI crab stocks that are, within reasonable recent history, small in size, have little or no stock assessment, have no formal harvest strategy, and are currently closed. These include the Aleutian Islands red king crab (eastern or Dutch Harbor stock and western stock) and the Aleutian Islands (eastern and western) *C. bairdi* stock. In addition, the Norton Sound red king crab stock is managed for a subsistence priority and for local community participation.

Rationalization is a tool to primarily address concerns of overcapitalization and overfishing. If the Council cannot answer “yes” to the following three questions, then the fishery is not ripe for rationalization: (1.) Is there documented overcapitalization in the harvesting and/or processing sector as a result of this fishery? (2.) Is the participation level high enough to generate a race for the fish, under shorter and shorter seasons? (3.) Are there outstanding biological or management concerns, i.e. overfishing, bycatch, etc., that warrant rationalization as a management tool? If “no” to these three questions, then one should ask if there are outstanding social, economic, or biological reasons for proceeding or not proceeding with rationalization. The following crab fisheries have modest participation levels, are not overcapitalized, and are managed conservatively because of limited information or small stock size. All these factors, as further explained below, suggest that these fisheries, if included in the LLP program are not ripe for further rationalization at this time, and if not included under the LLP they should not be so included.

Norton Sound red king crab: For this fishery, management was developed under the LLP in conjunction with the local ADF&G crab manager in Nome, local community leaders, and participants of the Norton Sound red king crab fishery. As a result of this coordinated development, more licenses were issued than would be expected under a rationalization program. This was done in part because the LLP program issued licenses to qualifying vessels, and all but one of the Norton Sound licenses were issued to vessels less than 60 feet length over all. Additional factors include: (1) the Norton Sound summer red king crab GHL is set with a priority that provides for a winter, through-the-ice, subsistence fishery for red king crab; (2) the superexclusive nature of the summer LLP fishery which prohibits participants from participating in other red

king crab fisheries in the BSAI; and (3) the small size of the available quota and short weather window provide for a summer LLP fishery. These factors make the inclusion of the Norton Sound fishery within a rationalization program beyond the LLP program unwarranted at this time.

Aleutian Islands red king crab: Historically, the red king crab resource in the Aleutian Islands was harvested in two registration areas. The Adak Registration Area consisted of those waters in the Aleutian Islands west of 171° W. longitude, while the Dutch Harbor registration area encompassed waters east of 171° W. longitude. In addition, as the fleet moved westward, a third registration area, Area S, was established for the waters around Amchitka Island and the Petrel Bank. Area S was created in 1967, and was merged into Area R in 1978. At the March 1996 BOF meeting, the BOF established the Aleutian Islands king crab registration area (Area O) by combining the existing Dutch Harbor and Adak Registration Areas. The BOF adopted this change to improve management of increasingly important golden king crab stocks in the Aleutian Islands. Combining the Adak and Dutch Harbor areas was not expected to impact management of red king crabs in the Aleutian Islands.

Western Aleutian Islands (Adak) red king crab: There are three areas where the western Aleutian Islands red king crab fishery historically occurred. These were on the Petrel Bank, the Atka to Amlia area and the area around Attu. The first area in the western Aleutian Islands to be commercially fished was the Atka to Amlia area. This occurred in the 1960's through 1974. In the 1972/73 season nearly 19 million pounds were harvested. But in the 1973/74 season catches dropped by half and, in the 1974/75 season, the catch fell to only 2.7 million pounds. According to processors and fishermen who participated in this fishery, harvests were targeted in state waters and large concentrations of crab occurred in Bays and in the near shore shelf area, both north and south of the islands. No catcher/processors fished in this early fishery, and all processing occurred in Finger Bay, on Adak. Though attempts at prospecting the Petrel Bank and Attu were made, relatively few crab were found, and the distance was such that significant dead loss occurred when crab were run to Finger Bay or to Dutch Harbor. Though some small effort remained on into the early 1980's, catches were low and the Atka to Amlia area was closed.

With the advent of catcher/ processors, and better holding tank facilities on crab vessels, the fleet moved to the Petrel Bank area and some random trips were made out to Attu. Harvest of 1 - 1½ million pounds occurred through the 1980's, mostly from the Petrel Bank. But, by the early 1990's, signs of stock collapse were evident and the BOF closed the directed fishery. The directed red king crab fisheries in these areas were first prosecuted with single line pots. Since neither the State nor the NMFS conducts systematic trawl surveys that provide assessment information, the State developed a surrogate to assessment by allowing golden king crab longline fishermen a bycatch harvest of red king crab, while fishing golden king crab. The golden king crab vessels in that area were mostly catcher/ processors and had observers on board to collect assessment information. When catches dropped again, the limited bycatch fishery was also closed.

The Petrel Bank fishery has not occurred since the mid 1990s, while there has been little or no effort in the Atka to Amlia and Attu fisheries since the mid to late 1980s. The directed red king crab fisheries in these areas were first prosecuted with single-line pots. In the years immediately prior to the Petrel Bank fishery closure, much of the harvest was taken in conjunction with the golden king crab longline pot fishery. Stock assessment surveys are not conducted in this area. However, the State is currently collecting fisheries management information on this stock utilizing a modified test fishery under a Commissioner's Permit, which allows survey participants to retain and sell crabs harvested in pre-established survey stations. Neither the BOF, nor ADF&G has a formal harvest strategy for this stock. ADF&G Staff believes that it would be difficult to establish a TAC based on the current stock status information. In recent years, industry proposals have attempted to convince the BOF to open the Petrel Bank red king crab fishery in conjunction with the golden king crab longline pot fishery. Because the majority of fishermen currently participating in the

Western Aleutian Islands golden king crab fishery did not participate in the historic red king crab fisheries in this area, the distribution of quota shares or cooperative allocations would be difficult to allocate based upon actual historic participation of the directed commercial fishery, rather than a bycatch or test fishery.

Because the most recent participation is as a bycatch and test fishery, the Petrel Bank and Attu red king crab fishery does not lend itself well to quota share distribution. Yet, since the area has historically been prosecuted by the large boat fleet, including catcher/ processors, and the fishery occurs mostly in federal waters, some consideration for this area may be reasonable to preclude either an open access fishery or no fishery at all. The Council may want to instruct the BOF to continue this fishery as a bycatch fishery to the golden king crab harvest, or consider new options such as auctions to participate. The recent BOF action to provide a limited fishery on the Petrel Bank in 2002, may be consistent with these options

Regarding the Atka to Amlia area, the BOF was advised that no surveys or test fisheries had occurred in this area. Because the fishery had historically been located in State waters in conjunction with the Adak shoreside processing, they elected to consider development of a nearshore fishery in State waters around Adak island, specifically "between 172 W. and 179 W. longitude, fishing for red king crab may occur only by vessels 90 feet or less in State waters".

Initial stock assessments in that area would be accomplished by providing small boats (less than 90 feet) with a Commissioner's Permit, and establishing test fishing guidelines for them to follow, thereby providing the department with the biological data necessary to potentially prosecute a fishery. Because of the lack of recent surveys, the stale catch history, and the fact that, historically, catch occurred predominately within State waters, this area is not a good candidate for inclusion within the rationalization program.

Eastern Aleutian Islands (Dutch Harbor) red king crab: The core of the Dutch Harbor red king crab fishery occurred in the bays and fjords of the Eastern Aleutian Islands. This area may serve as an important component of the overall reproductive stock habitat for Bristol Bay red king crabs. Some of the retrospective analysis of the red king crab stock collapse indicate that the red king stocks from the Dutch Harbor area and the Unimak Bight area acted as brood stock for some important Bristol Bay larval settling areas. Current stock assessment is limited to a triennial trawl survey. The most recent information indicates this stock remains at a very low level. Due to (1) the possible reproductive importance of this stock component, (2) the fact that this fishery has not been prosecuted since the early 1980s, and (3) the fishery was mostly located within State waters, it is not a good candidate for inclusion within the rationalization program.

Aleutian Islands *C. bairdi* (Tanner Crab): In past years, the Aleutian Islands *C. bairdi* fishery was conducted in an eastern and western area fishery. *C. bairdi* habitat in the Aleutian Islands is limited to narrow shelf areas primarily around Atka, Amlia, Unalaska and Akutan Islands. A directed fishery on *C. bairdi* was relatively small in volume and geographically limited until the late 1970s. Historic *C. bairdi* fisheries were minor (averaging only few hundred thousand pounds) in comparison to other Bering Sea and Gulf of Alaska fisheries. At best, GHLS would be set conservatively low for this stock due to the absence of consistent and systematic stock assessment. Because these fisheries (1) are conducted in near-shore areas, (2) are sensitive to overharvest, (3) have very low average GHLS with little recent participation, and (4) the State has not developed a harvest strategy that could lead to sustainable harvest levels, they are better suited to conservative management measures, such as low pot limits, low GHLS, and daily fishing periods to allow for assessment of in-season fisheries performance.

Specifically, the Eastern Aleutian Islands *C. bairdi* fishery started in the early 1970s. The highest harvest recorded was 2.5 million pounds, which was taken during the 1977/78 season. Since then, the fishery has averaged less than 400,000 pounds, and has been closed since the mid 1990s. The harvest history indicates

that this stock is probably not sustainable at high levels. Even though the stock is surveyed triennially by the State, the State has not developed a harvest strategy and associated fishery management regulations. Given these factors, there is no impetus to further rationalize this fishery. Alternative strategies may better suit the conservation and management of this stock.

The Western Aleutian Islands *C. bairdi* fishery opened in the early 1970s, and harvest averaged near 200,000 lbs and never exceeded 900,000 pounds. Most of the harvest occurred as bycatch to the red king crab fishery. This stock is not surveyed and, as such, sustainable harvest levels have not been determined, nor has a management plan been developed. The fishery has been closed since the mid 1990s. These factors may not conform well to further rationalization beyond LLP for this fishery. The BOF may wish to consider how it could provide for the conduct of a bycatch fishery under crab rationalization. Such alternative strategies may better suit the conservation and management of this stock.

Pribilof Golden King Crab: The Pribilof golden king crab fishery began in 1982. Although this developing fishery has seen consistent harvest participation, it is still managed under the term of a commissioner's permit and is considered exploratory. By utilizing the commercial fishery, ADF&G attempts to delineate stock distribution and important biological characteristics that permit future management measures for long-term stock protection. No formal stock assessment occurs and, thus, long-term sustainable harvests are unknown. The maximum harvest of 850,000 pounds resulted from the 1983/84 fishery. ADF&G has only recently established a GHF of 150,000 pounds, based upon the recent average fishery harvest. Except for 1999 and 2001, the fishery has been open year-round and the GHF was not often reached. In 2001, however, the fishery lasted only 3.5 months prior to the GHF being achieved. Participation in this fishery during the past decade has not exceeded 7 vessels. At this level of harvest activity, rationalization is not warranted. Should excess capacity from a rationalization program result in new effort in this fishery, it may need to be closed until a new management strategy is developed. As a permit fishery, observers are required on all vessels. When the BOF instituted a 40-pot limit for Pribilof king crab (implemented for Pribilof red and blue crab) the golden king crab also fell under the regulation. The imposition of low pot limits in this fishery provide ADF&G with an additional in-season management tool. Because this was a permit fishery without a GHF set from a stock survey, the Pribilof golden king crab fishery did not fall under the recent federal LLP. In addition, there is a very small golden king crab commissioner's permit fishery near St. Matthew's Island which is similarly un-assessed and has little and infrequent participation.

Bering Sea *C. tanneri* fishery (a.k.a. deep water grooved Tanner crab) This fishery began in 1992, is managed under the term of a commissioner's permit, and is considered exploratory. By utilizing the commercial fishery, ADF&G attempts to delineate stock distribution and important biological characteristics that permit future management measures for long-term stock protection. No formal stock assessment occurs and long-term sustainable harvest levels are unknown. The maximum single year harvest of 1 million pounds occurred from the 1995 fishery. ADF&G recently modified the GHF to include concerns for long-term sustainability; changing from a set 200,000 pounds annual harvest to a range of 50,000 – 200,000 pounds. Actual harvest levels will now be based upon in-season fishery performance. This strategy was adopted because recent fisheries have been open year-round without achieving the GHF. Since 1996, the fishery has had very limited participation. While observers are required on all vessels, there are no pot limits. Because this is an experimental fishery, without a preseason stock assessment survey to set GHFs, the Bering Sea *C. tanneri* fishery does not fall under the recent LLP implemented by the federal government. In addition, there are smaller commissioner's permit fisheries for deep water Tanner crabs in the Aleutian Islands that have infrequent levels of participation.

Bering Sea *C. angulatus* fishery (a.k.a. the deep water triangle Tanner crab) Like *C. tanneri* fisheries in the Aleutian Island District, *C. angulatus* (triangle Tanner crab) are harvested under a permit authorized in 5

AAC 35.511. PERMITS FOR TANNERI AND ANGULATUS TANNER CRAB IN REGISTRATION AREA J. Triangle Tanner crabs were harvested as incidental bycatch in the Eastern Aleutian grooved Tanner crab fishery, where the species has occurred in small numbers. Prior to 1995, and the beginning of the directed fishery, no harvest of triangle Tanner crabs was reported on fish tickets; however, shellfish observers stationed onboard vessels participating in the grooved Tanner crab fishery observed small numbers of triangle crabs harvested in 1994. Two vessels targeted triangle Tanner crabs in the Eastern Aleutian District during the 1995 and 1996 seasons, thus harvest information from those fisheries is confidential. Since 1996, no vessels have registered to harvest triangle Tanner crabs in the eastern Aleutian Islands. Surveys of population abundance are not conducted for triangle crabs; thus, the status of this stock is unknown. Due to the paucity of population level data for this species and the nature of the historical fishery, additional fishing for triangle Tanner crabs in the Bering Sea District will be limited to bycatch during the grooved Tanner crab fishery. Vessels registered to fish for grooved Tanner crabs will be permitted to harvest triangle Tanner crabs at up to 50% of the weight of the target species as bycatch. This harvest level is consistent with the historic development of the fishery and allows retention of a deep-water species that is believed to have high bycatch mortality.

Bering Sea/Aleutian Island *Lithodes couesi* fishery (a.k.a. deep water scarlet king crab) Scarlet king crab are currently harvested under authority of a permit issued by the commissioner of ADF&G and authorized in 5 AAC 34.082. PERMITS FOR *LITHODES COUESI* KING CRAB. These permits are usually issued in conjunction with an Aleutian Islands golden king crab registration. Scarlet king crab are typically found in waters deeper than 200 fathoms, and have been taken as incidental bycatch in the golden king crab and deepwater Tanner crab fisheries in the Aleutian Islands. Some directed fishing has targeted the species; however, exploratory fishing does not indicate that a large biomass is present. Although vessels first registered to fish for Bering Sea scarlet king crabs in 1992, no commercial landings occurred prior to 1995. In 1995, four vessels harvested 26,684 pounds and were paid an ex vessel price of \$2.12 per pound. Only two vessels participated in 1996, subsequently all catch information is confidential. No vessels registered to fish for scarlet king crabs from 1997 to 1999. A single vessel was permitted to retain scarlet king crab bycatch during the grooved tanner crab fishery in 2000. Scarlet king crab bycatch was permitted at a rate of 5% of the weight of the target species. No scarlet king crabs were commercially harvested in the Bering Sea during the 2000 season. No annual abundance estimates are available for scarlet king crab stocks, nor have any stock assessment surveys targeted them. Onboard observers have been required on most vessels targeting deepwater crab species since 1994, and have collected information detailing the size and sex composition of the retained and non-retained scarlet king crab and bycatch species. This information will be used to help develop management measures for these stocks in the future. Currently, the ADF&G does not intend to register any vessels to fish directly for scarlet king crabs in the Bering Sea, pending BOF adoption of the Plan for the Development of New Fisheries in Alaska. Any additional directed fishing for scarlet king crabs will be conducted in accordance with that plan. Retention of scarlet king crabs captured in other deep-water crab fisheries may be permitted at low levels.

As previously stated, the three criteria used to determine if a crab fishery would benefit from rationalization primarily address concerns of overcapitalization and overfishing. Grooved and triangle Tanner crab fisheries do not meet these criteria, nor does the fishery for scarlet king crab. Therefore, ADF&G recommends that these fisheries not be included in the rationalization program.

3.2.2 Anticipated changes to BSAI crab fishing patterns

This section provides an overview of the potential changes to the crab fisheries as a result of rationalization, either through an IFQ program (with or without processor quota shares) or a cooperative program. A rationalization program is a system under which a share of the total allowable harvest is allocated to

individual fishermen or groups of fishermen. Processor shares can also be allocated to individual processing companies.

The task of describing how a particular fishery will respond under a comprehensive new set of rules requires some degree of conjecture. This is because the circumstances that lead fishermen and industry to behave in a certain manner are dependent on a wide variety of factors including weather patterns, sea ice conditions, the migratory patterns of the target species, worldwide market conditions, other regulatory changes, and a host of other factors that are difficult or impossible to predict. Nevertheless, the re-organization of the BSAI crab fisheries under a rationalization program will result in certain predictable changes to fishing and processing practices. A complete analysis of these changes and their expected consequences are presented in the EIS prepared for this action.

Any of the rationalization program alternatives being considered would result in changes to the fishing patterns of the various fleets from status quo. At this stage, however, we cannot predict any substantial differences in the changes to the management or prosecution of the fisheries between an IFQ program (with or without processor quota shares) or a cooperative program. Obviously, there will be some differences in how an IFQ program (with or without processor quota shares) or cooperative program is implemented and administered. Also, each different program will effect fishermen's behavior, the timing of fishing activity, and the number of vessels participating. The questions for analysis are whether these differences are predictable, measurable, and would result in significant impacts to the crab stocks or the environment, including the human environment which is composed of fishermen, processors, fishing communities, and all others who depend upon these fishery resources.

In addition to the alternatives of allocating shares to harvesters and processors, the Council is considering program options to address concerns that arise from the allocating harvester and processor shares. These options are: regionalization, options for skipper/crew shares, binding price arbitration, and increases to CDQ allocations. Each of these options address allocation and ways to share the benefits of quota share, and ensure that past participants, like skippers/crews and communities, are not economically disadvantaged as a result of the rationalization program. At this stage, it is not possible to predict how these options, or a combination of these options, would change the prosecution of the fisheries in any measurable way.

Harvester-only IFQ program

Rationalization of the harvesting sector eliminates the derby-style race for fish, provides economic incentives to increase operational efficiency, and, in the presence of excess capacity, consolidate capital assets (e.g., decrease the number of vessels participating in the fishery). The extent of this consolidation depends on how the rationalization program is set up and what restrictions are placed on amassing shares. Eliminating the race for fish is also thought to decrease the potential for quota overruns, which can result from the difficulty of monitoring catches during short fishing seasons with many vessels participating.

Rationalization of the harvesting sector, by eliminating the race for fish, slows down the pace of the fishery. Several reasons account for this slower pace of fishing. First, fishermen are guaranteed a fixed harvest and no longer need to race for fish with the rest of the fleet during a narrowly defined period in order to assure their share of the harvest. Under the status quo, open access regime, fishermen are forced to fish at the start of every opening announced by ADF&G to avoid forfeiting catch to their competitors. Second, because fishermen may fish more slowly under rationalization, they may range over a larger area in an attempt to locate higher quality catch. Third, fishing may occur at different times of the year and over a longer period for logistical and/or market reasons.

Rationalization provides incentives to fish more selectively, for example, by soaking pots longer and prospecting for areas with high concentrations of large males, and thus reducing bycatch. Rationalization may remove the need for restrictive pot limits. If pot limits are removed or increased, each operator would likely use more pots, depending upon the physical and operational capabilities of the vessel. With season extensions under rationalization, there is potential for seasons for multiple species to overlap. Concurrent fisheries allow fishermen to keep all of the legal-sized male crabs brought on board, no matter the species, for which they have quota. Extended seasons provide fishermen time to improve crab handling on deck, likely reducing deadloss, and handling mortality.

Harvester IFQ program with processor shares (2-pie)

Including processor shares in the IFQ program provides existing crab processors with shares of the crab to process. We can only make assumptions about how a processor element of an IFQ program would effect the prosecution of the fisheries, or how crab are processed, because this is a program element that has not been implemented before. We assume processor quota would not affect the total harvest and the initial harvest allocation, because the total harvest and the initial allocation of harvest shares are set by the harvester portion of the program.

With established processor quota shares, processors are likely to make different business decisions regarding, for example, new product forms, handling and packaging practices, staffing commitments, equipment needs, quota trading and leasing, custom packing, etc. Processor quota could provide the processors with the ability to coordinate with harvesters to time deliveries. This may improve processing efficiencies, but may also negate some of the benefits of harvester IFQ that arise from allowing the fisherman the flexibility to choose when to fish and deliver crab. The possibility exists that efficiency gains will yield economic benefits that may be shared in, by both sectors, although this is not a certainty. The distribution of any accruing economic gains will depend, in largest part, on the relative market power of the respective parties, (i.e., the fisherman and the processor) and may not be predictable, *a priori*. With processor quota shares, we cannot predict if the processing sector will consolidate.

Cooperative program

A cooperative program, while structured and administered differently than an IFQ program, would result in many of the same changes to the prosecution of the fisheries as an IFQ program (with or without processor shares). The shares would be issued on a cooperative level, so each cooperative would determine how to best harvest its specific allocation. Consolidation may occur more quickly under a cooperative program, because the cooperative can efficiently determine the number and characteristics of vessels necessary to harvest the allocation. Also, the cooperative can determine the processing capacity necessary to process the allocation. Consolidation does not, in and of itself, necessarily change when or how the fishery is prosecuted.

3.2.3 Environmental impacts of rationalization

This section will discuss the possible effects of the changes to the prosecution of the fisheries on the crab stocks and the environment. This is not a comprehensive analysis of the effects of crab fishing on the crab stocks and the environment, as these effects have been discussed extensively in previous Environmental Assessments prepared for FMP amendments and are analyzed in the EIS. NMFS, the Council, and the State of Alaska have prepared an EIS to analyze the effects on the human environment of the crab fisheries, and of the alternatives the Council has proposed to change crab fishery management. The EIS will be the NEPA decision document used by the Council in taking final action to recommend a rationalization program to the Secretary. The EIS contains a comprehensive analysis of the environmental impacts of rationalization alternatives.

The Council is proposing a rationalization program to address excess harvesting and processing capacity, and many of the resource conservation concerns of the crab fisheries, such as declining stocks, bycatch and its assorted mortalities, and potential landing deadloss. Rationalization addresses these problems by reducing overcapacity and allowing improvements to the way the fishery is managed and prosecuted. A rationalization program, either an IFQ, two-pie, or cooperative, provides the fishermen with the flexibility and incentive to improve fishing practices. A rationalization program is recognized as potentially beneficial to the resource.

This analysis recognizes that the act of allocating quota to participants, either through an IFQ program or a cooperative program, may not, in itself, affect the environment, but that the changes to the management and the prosecution of the fisheries resulting from allocation of quota will have environmental effects. Processor quota shares may have an effect on the environment to the extent that they change when crabs are processed and how processors deal with crab processing waste.

In addition, the Council is considering program option to address concerns that arise from the allocating of harvester and processor shares. These options are: regionalization, options for skipper/crew shares, binding arbitration, increase CDQ allocations, and monitoring/ data collection. Each of these options addresses allocation and ways to share the benefits of rationalization, while ensuring that past participants, like skippers/crews, and dependent communities, are not economically disadvantaged as a result of the rationalization program. Regardless of how the allocations of the BSAI crab resources are made, research and management will adopt and be guided by the objectives outlined in the Magnuson-Stevens Act, the BSAI Crab FMP, and the BOF programs, policies, and plans.

National Research Council Report Recommendations

The NRC report, “Sharing the Fish”, discusses the stewardship and biological conservation issues involved in an IFQ program and alternative conservation and management measures. The report provides recommendations for ensuring that an IFQ program will benefit the resource by addressing conservation objectives. The report’s discussions of derby fishing, stewardship, biological conservation, data collection, data fouling, bycatch, ghost fishing, highgrading, stock assessment, TAC setting, and underfishing of TACs are addressed below. Habitat impacts, deadloss, and specific changes to the crab fisheries, which were not included in the NRC report, are also discussed below.

Conservation objectives and accompanying management measures, such as measures to decrease bycatch and improve data collection, can be components of a rationalization program. Two aspects of a rationalization program, which can affect biological conservation, are changes to existing management measures and implementing new measures necessary to prevent additional adverse environmental effects resulting from the program. The ways a rationalization program may change existing management measures is described in the EIS. From this discussion, it is apparent that changes in State regulations could lengthen seasons, allow a fisherman to retain legal crabs of any species for which he has QS, and relax effort controls, such as pot limits. Each of these measures will change how the fishery impacts the environment. New measures that the State or the Council may consider to achieve biological conservation objectives include measures to improve catch accounting and monitoring, increase observer coverage, limit highgrading, and close areas to prevent the fishery from expanding in area.

3.2.3.1 Fleet consolidation

Allocating shares of the harvest to fishermen historically reduces capitalization in a fishery by allowing for the transfer of fishing quota to the most efficient operators and removal of vessels that are inefficient due to high operating costs. Fewer, more efficient vessels would produce less pollution, including emissions of

global greenhouse gasses. There should be little speculation that the BSAI crab fishery will consolidate, because many of the current participants own multiple vessels. It is quite logical to expect that at least these participants will internally consolidate. Many other participants have vocally stated that the fleet would rapidly consolidate, because the profit margins have been so low since the crab biomass has decreased that many vessels are in fear of bankruptcy. This is illustrated in the fleet request to Congress for assistance through a "buy-back" program. Consolidation may not, in and of itself, benefit the resource, because a smaller number of vessels can still harvest the TAC and could, if they chose, engage in fishing practices that are detrimental to the stock, such as highgrading.

3.2.3.2 Stewardship

The NRC report discusses stewardship in terms of a fisherman's increased incentives for stock conservation, motivated by the belief that a healthy resource will increase the value of each individual's quota. However, as the NRC report points out, each fisherman theoretically gets all of the benefits from his/her illegal actions, but shares the costs of his/her action with the entire pool of quota share holders. Another component of stewardship is "who owns the quota."¹ Due to the ownership structure of the BSAI crab fisheries, the majority of quota will be issued to vessel owners who are not actually onboard while the boat is fishing. Proponents of initial allocation of skipper/crew shares and owner-on-board provisions advocate that these options would improve stewardship, because the fishermen actually participating in the harvest will have an ownership interest in the resource. Stewardship is a difficult issue to analyze for a future program because human behavior is difficult to predict. The crab fisheries under rationalization will need to be more closely monitored to determine actual harvesters' behavior.

Rationalization improves the fisherman's ability to make choices, due to a guaranteed allocation of harvest share and additional time to harvest his share. But, for analysis, we have no way of predicting if he/she will make the choice that benefits the environment. To the extent that rationalization provides economic incentives for conservation choices, a fisherman could make those choices. For example, a fisherman would have greater economic incentive to move off a congregation of female crabs, and find a congregation of legal-size male crabs, in a rationalized fishery. This choice would have conservation benefits by reducing bycatch. However, no aspect of this rationalization program directly requires an operator to move off a congregation of female crabs. Likewise, if economic incentives exist for fishermen to highgrade, an operator could choose to do so, even though this behavior may have a negative effect on crab stocks.

Additional stewardship benefits are not predicted from adding a processor quota component or from the regionalization, binding arbitration, or CDQ options.

3.2.3.3 Changes in season timing and length

To be successful in slowing the pace of the fisheries, new seasons must be specified that permit fishermen the opportunity to redistribute fishing temporally. Extending seasons, however, can have biological impacts. Although no options provide explicit changes in season lengths and the development of concurrent, multi-species fisheries, the following paragraph in the Council motion requests that the analysis include a discussion of changes in seasons that may result from implementation of a rationalization program:

¹ It should be noted here that the use of the term "ownership", as applied to quota, may be somewhat of a misnomer. Quota shares impart only a "privilege" of access to the resource, not strictly speaking "ownership." The "privilege" may be revoked, without compensation, at any time, by the authority of the United States.

1.8.4 Discussion in the analysis of season opening dates under an IFQ program and the potential for concurrent seasons and multi-species fishing to reduce bycatch.

Crab fishing seasons will be lengthened through the BOF process. The BOF would likely lengthen crab fishing seasons as a result of an IFQ (with or without processor shares) or cooperative program. New seasons will still be within the biological constraints established in the FMP to avoid fishing during mating and molting periods. Currently, crab fishing seasons are closed once the GHL is caught. When GHLS are low, seasons have been as short as several days. Under rationalization, seasons can be longer because there will no longer be a race to harvest as much crab as fast as possible.

Fishing seasons are a Category 2 measure under the crab FMP, which requires the BOF to develop crab fishing seasons. The BOF will develop new seasons in consultation with the public, industry, and other interested parties. The FMP requires the BOF, when establishing fishing seasons, to consider: biological constraints; market constraints; minimizing deadloss; product quality concerns; minimizing fishing in severe weather; cost of industry operations; coordinating fisheries; and consideration to reduce gear conflict with groundfish fisheries. The BOF would also consider that CDQ fisheries that normally start after the conclusion of the open access fishery must be provided a window of opportunity or be allowed to harvest simultaneously with cooperatives or IFQ fishermen. The BOF will make decisions on fishing seasons after a rationalization program is selected by the Council and adopted by the Secretary.

Existing biological seasons are very broad and an IFQ (with or without processor shares) or cooperative program could potentially allow for fishing at any time during those seasons. The Council's Crab Plan Team has reevaluated the current biological seasons to include new information on crab mating and molting to more accurately describe biological seasons, and reviewed the effect of broader fishing seasons with respect to natural mortality during the interval between the survey and the fishery. Because some biological activities, such as molting, may vary with annual regimes, fishermen who choose to fish late in the season, close to the edge of a biological period, may encounter softshell crab. Note that the Crab Plan Team changed the biological season from June 1 to May 15 for *C. opilio*, because of soft shell crab. For fisheries where the stock occurs over a broad area (such as *C. opilio*), if operators do run into soft shell crab (as they have in *C. opilio*) then the State would attempt to adjust open areas through E.O. to target the fleet on areas of marketable crab. However, the Council and the BOF may need to evaluate the policy associated with such encounters and, as with halibut IFQ management, adopt a policy that could close a season on a set date, regardless of whether or not the TAC has been achieved.

Table 3.2-2 Bering Sea crab fishery molting/mating time period as determined by the crab plan team in September 2001.

Species	Molting/mating time period
C. opilio (snow crab)	May 15 to July 31
C. bairdi (Tanner crab)	April 1 to July 31
blue king crab	January 1 to July 31
red king crab	January 1 to June 30
red king crab (Norton Sound)	September 15 to October 31
golden king crab	January 1 to December 31

The act of ending the race for fish allows longer seasons compared to status quo. At this stage in the analysis, we cannot foresee any discernable differences in potential season lengths between the rationalization program alternatives (IFQ, with or without processor quota, and cooperative) considered by the Council. Likewise, the options before the Council (regionalization, options for skipper/crew shares, binding arbitration, and increases to CDQ allocations) do not appear to impact potential season lengths. We can speculate that an IFQ program with processor quota shares, or a cooperative program, may give processors influence over when fishermen deliver crab, compared to a harvester only IFQ program. However, the extent or impacts of this influence is unknown. Actual business decisions made by either the harvesting or processing sector are not known. Therefore, while a season may appear protracted under new regulations, the behavior of industry will determine when fisheries are actually prosecuted.

Longer seasons that spread the fishery in time and space would generally have positive impacts on the environment. Under the derby fishery, when fishermen locate congregations of large, male crab, the fleet congregates to harvest this population. Spreading the fishery out in time and space would decrease the negative impacts of targeting a few congregations of crab. Longer seasons slow the pace of the fisheries and allow operators to improve fishing methods, such as gear operation and sorting on deck. With more time, operators will be able to soak pots on the bottom longer, to allow escape mechanisms to work more effectively. These issues are discussed under bycatch and ghost fishing. Longer seasons would also give operators flexibility to fish in more favorable weather, which could improve vessel safety and reduce the risks of oil and fuel spills, because operators may choose not to fish in bad weather.

Although fewer vessels will be participating, those vessels may be on the grounds for a longer time. Potential negative environmental impacts could occur from vessels having the time to highgrade, discard deadloss at-sea, work more gear, and shift effort to different locations than during a derby fishery. Vessels may continually fish close to port or in a specific location. Longer seasons combined with relaxed pot limits may have negative environmental impacts. If vessels have the ability to work an unlimited number of pots, incentives may exist to set gear over much larger areas and slowly pick the gear, exposing a larger portion of crab stocks, bycatch species, and benthic habitat to pot gear. Also, crabs migrate and large males may go to different locations than during the current fishing season. This means operators may fish in grounds that have not been fished before.

Even under rationalization, crab seasons cannot be open for most of the year, as are seasons for the halibut and sablefish IFQ program. Most likely, the BOF will set a long season during which operators may choose when to fish. Season timing will depend on market demands, product quality, and biological condition of

the stocks. Within the set season, harvesters would be able to decide when to fish to take advantage of market forces and seasonal changes in demand.

Product quality will also determine when operators fish. Throughout the year, crabs change in quality as they undergo molting. After a crab molts, its shell is soft and the crab has a low percentage of meat fill. As the shell hardens, the meat fill increases until the crab reaches its maximum meat content, prior to the next molting cycle. The FMP prohibits fishing during molting and mating periods, and State and Federal scientists have a good understanding of when molting and mating occurs, for most stocks. However, after the molting period ends, the crab are soft shelled for a period of time before becoming hard-shelled. Since the market prefers hard-shelled crabs with high meat fill, fishermen would be expected to fish when crabs are in the most marketable condition, subject to other operational constraints (e.g., weather, ice conditions). Also, crabs in a soft-shelled condition are more vulnerable to handling mortality. To further complicate the issue, crabs in the same stock are not in the same shell condition at the same time over the extent of their range. In addition, the molting cycle is different for each crab species, and may confound plans for concurrent fisheries. Because we have not had fisheries for some stocks during all times of the year, it is difficult to precisely define the optimal period for harvesting. Most likely, with expanded seasons and increased monitoring, the condition of each stock over time and space could be more precisely determined. Another time constraint for the crab fisheries is that crab must be delivered and processed alive. As a result, the duration of a fishing trip is limited by the time captured crabs can be kept alive in a vessel's holding tanks.

Longer seasons will also spread out processing effort. Currently, all primary crab processing is done in a matter of weeks, 24 hours a day, (often) at the end of the fishing season. Processing firms have dramatically increased the ability of plants to accommodate short seasons, and are compelled to process large volumes of crab in a relatively short period of time. This has resulted from the "race for fish", associated with the regulated open access fishery and a collapsing GHL. As capital expenditures on excess capacity was induced to enter the harvesting sector (i.e., bigger, faster, more technologically sophisticated), so too was the processing sector compelled to invest in capacity that could accommodate deliveries of large quantities of crab in a very short period. Under a rationalized fishery, when and if a given crab season is lengthened, deliveries may be spread over a much longer period, resulting in processing firms finding they have significant capital tied up in economically redundant excess capacity..

Processing waste is typically discarded as it is generated. Crab waste (carapace, abdomen, and viscera) is handled in a variety of ways. Some processing plants with fish meal facilities process 100 percent of crab waste into fish meal. An alternative method of disposal involves grinding the waste into 1/4 inch particles and discharging it, through an outfall line, back into the marine environment. This discharge is regulated by the EPA under National Pollutant Discharge Elimination System (NPDES) permits. One plant collects and transports all of its crab waste 12 miles out from shore to be discharged into the open ocean. This method of discharge is not regulated.

Longer seasons would spread out deliveries and therefore spread out waste discharge. From a practical standpoint, processors would still try to coordinate crab deliveries so that enough vessels offload at a given time to make it worth running a crab processing line, which is particularly important for crab because, as mentioned above, they must be processed alive. This could result in pulses of crab waste generated over a longer period of time. Without the pressures to process crabs as quickly as possible, processors would have the opportunity to develop products from parts of crabs that are currently discarded. The total amount of crab waste may decrease as processors develop alternative products from crabs, thus improving aggregate recovery rates.

The EPA, which has jurisdiction over processor waste discharge, has opined that the AFA, a rationalization program, benefits water quality. In a letter to NMFS, EPA states “Discharging the same amount of processed fish waste over a longer fishing season reduces the impacts on dissolved oxygen as compared to the short and intense fishing, processing, and pollutant discharge season without AFA” (EPA 2001). We can assume that processing the same amount of crab over a longer period of time would have a similar beneficial effect with respect to waste discharge. Further analysis is necessary to determine how processing waste discharge might be different with or without processing quota shares.

3.2.3.4 Conducting concurrent multiple species fisheries

With rationalization, the State may establish concurrent seasons for multiple species. Concurrent fisheries could occur under all of the rationalization alternatives under Council consideration. Concurrent fisheries allow operators to keep all legal-sized male crab brought on board, no matter the species, for which they have quota. Concurrent fisheries could reduce discards of legal-sized male crab of non-target species and reduce handling mortality. For concurrent fisheries, gear regulations may need to be modified to allow use of different gear. Currently, the design of pots is regulated to catch the target species of crab and allow for escape or limit capture of other species. A concern for a concurrent fishery is allowing the fishery for one species when the quota has been caught of another species. This may result in excessive bycatch of closed species. Fishermen, however, are likely to move from grounds with overlapping species to avoid excessive bycatch and reduce costs of sorting different species.

Even if multiple species are allowed to be fished, the differing amounts of individual quotas or co-op shares of each species based on catch history and differing TACs will mean that a fisherman will always run out of one species before another when fishing multiple species. If a fisherman has quota for more than one species, then the gear can be configured for the most liberal bycatch reduction measures. But once one species quota is filled, they would need to reconfigure their gear to avoid excessive bycatch. It may be that, for enforcement reasons, a vessel may be required to unload, once the quota of one species in a multiple species fishery is reached and then re-register for a new gear configuration. For example, if a fisherman has quota for both Bristol Bay red king and Tanner crab, then he/she would target red king crab with large tunnel opening pots that would catch both red king crab and Tanner crab. After the red king crab quota was taken, then the vessel’s pots would need Tanner boards installed, so that red king crab bycatch is reduced. To ensure that a vessel would return to port with the first species load, would require 100% observer coverage. Definition of management areas are different by each fishery and the districts do not neatly fit one on top of another. For example, for BBRKC the fishery is located east of 168° W. longitude and the Eastern subdistrict for *C. bairdi* Tanner crab is east of 173° W. longitude. State managers do not want a redistribution of effort resulting in localized depletion in the area of species overlap in a multi-species fishery. Fishery boundaries have been established through a review of historical effort by area. Some species overlap occurs in some areas. If concurrent fisheries were allowed, it is conceivable that fishermen would try and capture all of their allocated quota for one species as bycatch to their directed fishery in the same area.

3.2.3.5 Deadloss, bycatch, and highgrading

The Council motion includes the following options concerning the treatment of deadloss for catch accounting purposes, and size limits, and incidental catch in paragraph 1.7.3 (for the IFQ alternative) and paragraph 6.2.3 (j) (for the cooperative alternative):

Catch accounting under IFQs - All landings, including deadloss, will be counted against IFQs. Options for treatment of incidental catch are as follows:

- Option 1. No discards of legal crab will be allowed and sufficient IFQs for legal crab must be available.
- Option 2. No discards of "marketable" crab will be allowed for opilio crab and sufficient IFQs for "marketable" crab must be available. (Legal carapace size for opilio is 3.1 inches, but the industry standard is 4 inches.)
- Option 3. No discards of opilio crab with a carapace of 4 inches or greater in width.
- Option 4. Discards of incidentally caught crab will be allowed. (This option would allow, for example, incidental catch of bairdi crab in a red king crab fishery to be discarded, without counting against bairdi IFQs.)
- Option 5. Request ADF&G and BOF to address the concerns of discards, highgrading, incidental catch, and the need for bycatch reduction and improved in-season monitoring to coincide with implementation of a rationalization program.

This is the only element of this proposed action that directly addresses bycatch and highgrading, and any of these options can be adopted with an IFQ program (with or without processor shares) or a cooperative program. Option 5 best represents the existing cooperative management structure under the FMP. Comparing the ability of the different rationalization program alternatives to address bycatch and highgrading is not pertinent because, as discussed below, bycatch and highgrading will be impacted by changes to the prosecution of the fisheries that will occur under each of the alternatives. Bycatch and deadloss can further be reduced by specific management measures enacted by the State or NOAA Fisheries.

Deadloss

As previously noted, by law, crab must be alive when commercial processing begins. Deadloss is the amount of dead crab landed at the dock. All deadloss is discarded because it cannot be sold. Deadloss is not a biological problem, because all are legal male crabs that are accounted for in the GHL. In years when some fisheries had very high GHLS, deadloss was a problem because vessels were not able to off-load quickly. When the season ended, too many boats needed to off-load their catch at the same time. Limited shoreside processing (receiving) capacity meant that some boats had a long wait time, resulting in the death of a lot of the crab in their holding tanks. With more processing capacity, improvements in technology, and smaller GHLS, deadloss has decreased in recent years. Historically, deadloss is about 1 to 2 percent of all crabs landed.

Because rationalization could change fishing practices, it is possible that deadloss may increase or decrease. The amount of deadloss depends on how crabs are handled and how long crabs spend on the boat before being off-loaded. Deadloss may increase if vessels do not off-load frequently enough, or if, as under Element 1.7.3, options 1 and 3, operators are required to keep all legal sized crab, even old-shelled and diseased crab. Old-shelled and diseased crab have a higher mortality rate and their death in the tank reduces the survival of the other crabs. Deadloss also increases if a vessel circulates warm or less saline water through its live tank, while waiting nearshore to off-load. Deadloss may decrease by slowing down, improving fishing practices, improving handling of crab on deck, and avoid fishing in freezing weather.

ADF&G believes that, under rationalization, all deadloss should be counted against available quota. Then, fishermen would have incentives to reduce deadloss. ADF&G believes that deadloss should not be used when determining historic catch for QS distribution, because deadloss is not a useful or equitable measure. Reporting landed live catch is a legal requirement and the database on the amount of live crabs landed is

considered accurate. While there is a requirement to report deadloss, there is no payment between buyers and sellers. So, there is less incentive to accurately report deadloss, and thus, it is sometimes not accurately recorded on the fish ticket.

The fishery will need to be monitored to determine if deadloss increases or decreases under a rationalization program. Observers may be necessary to document whether fishermen discard dead crab before they get to port. If, through rationalization, ADF&G is better able to fund port sampling programs, they will also improve data quality on deadloss in crab deliveries.

Bycatch

Bycatch in the crab fisheries is predominantly female and small male crabs of the target species, and other crab species. All bycatch is discarded at-sea. In general, we anticipate that bycatch would decrease under a rationalization program because of changes in how the fishery is prosecuted. Bycatch may be reduced if fishermen can keep all legal crab, avoid capture of female and small crab, and soak pots for a longer time. Under IFQs (with or without processor shares) or cooperatives, operators may be able to avoid fishing during severe weather conditions when handling mortality is higher. Fishermen may also have the time and economic incentive to search for areas with the highest value crabs and lowest bycatch.

Harvest strategies developed for Bering Sea king and Tanner crab stocks, since the mid-1990's, account for assumed bycatch and handling mortality of non-retained crabs in the determination of the harvest rate on mature- or legal-sized males. Presently, *C. bairdi* Tanner crab are harvested as an allowable incidental harvest in both the Bristol Bay red king and *C. opilio* snow crab seasons when Tanner crab are sufficiently abundant. Discards of legal animals (e.g. legal males, that are either undersized relative to processor standards or poses dirty shells) and sublegal crab are accounted for in our present harvest strategies that establish harvest rate. Harvest caps are in place to guard against over-harvest of specific size and shell-age classes. Under a rationalization program, the harvest strategies will continue to account for assumed bycatch and handling mortality establishing the TAC for legal males.

Retention of legal males of non-target species may be allowed in concurrent seasons if the population of incidental harvest species is sufficient (above threshold minimums). Concurrent fisheries are discussed in section 3.2.6.4. Concurrent fisheries would reduce bycatch by allowing fishermen to retain legal males of non-target crab species, assuming they have the necessary QS for those crab.

Elimination of the race for fish may provide time for operators to search for fishing grounds with lower concentrations of bycatch. Avoiding bycatch is possible in the crab fisheries because most stocks tend to segregate geographically by size and sex. We can assume that fishermen will change behavior to avoid concentrations of female and sub-legal male crabs, and thus reduce bycatch and its associated costs. Fishermen report that during short seasons, they do not have the time to move off concentrations of non-legal crab and, instead, rely on deck sorting. With longer seasons, operators will have time to search for congregations of legal males to harvest.

Under IFQs or co-ops, the issue of "dirty/old shell" unmarketable *C. bairdi* and *C. opilio* will likely be greatly reduced, as fishermen target areas with low incidence of such crab. Fishermen will have the time to search for the highest value crab, and have an economic incentive to do so. As a biological matter, because of the processor preference for *C. opilio* 4 inches and greater carapace width, the harvest occurs at the upper end of the size distribution where natural mortality from old age is highest. Thus, mortality of returned bycatch of legal crabs should be limited and is not expected to be a biological issue of significance at the population level. The same situation occurs with *C. bairdi*, except that the acceptable market size and the legal size are

the same. Additionally, recent research has suggested that old shell male Tanner crab are an important reproductive component to the stock. Discards of old-shell crab, if done in a non-destructive, ecologically sensitive way, may be beneficial to the continued health of the population.

Under a rationalized fishery, some species should be sorted out on the bottom more effectively by means of pot escape mechanisms compared to the status quo. Longer seasons would allow fishermen to soak their gear longer, which could reduce bycatch. Extended soak times and gear modifications should allow for sorting to occur while the pots are still on bottom. This should result in fewer females, juveniles, and unmarketable crab being brought on the deck. Existing regulations require pot gear to be configured with escape mechanisms to allow sublegal and female crab to exit the pot. The effectiveness of these escape mechanisms is not well known, but it is assumed that the longer the pot stays on the bottom, the more chance that non-target crab will leave the pot. If true, this should drastically reduce handling of non-retained animals, and the subsequent, associated handling mortality. Thus, longer soak times under rationalization could improve the effectiveness of the escape mechanisms. Currently, fleet behavior is such that, if they have time to move, they do not stay on crab that they cannot sell. This fleet behavior is reflected in the current harvest strategy for Tanner crabs that sets harvest rates based upon “exploitable legal crab”, rather than a percent of mature male biomass.

Another important component of bycatch in the crab fisheries is handling mortality. Handling mortality represents the percentage of crabs that die due to being hauled up, handled, and thrown back overboard. Managers estimate, from studies of handling mortality, that up to 25 percent of crabs brought on deck and discarded, die from the effects of handling². However, these studies also illustrate that handling mortality depends on a variety of factors, and to the extent that these factors change, the rate of mortality may increase or decrease. The main factors are temperature, wind speed, and time out of water. Basically, the handling mortality rate increases as temperature decreases, wind speed increases, and time out of the water increases. Another factor is the way a crab is handled and returned to the ocean. Assuming that fishermen in an IFQ or cooperative fishery would avoid fishing in extreme weather conditions, crabs would not be harvested on the coldest and windiest days, and handling mortality would potentially be reduced. Slowing down the fishery may allow time for better handling of non-legal crab on deck and may result in crabs being returned to the ocean more carefully and quickly, thereby decreasing handling mortality, as well.

Continued monitoring of bycatch will be necessary to judge the effectiveness of rationalization. It is widely accepted that increased soak time should reduce bycatch of sublegal crab, however fishing characteristics of the fleet could change. Changes in areas fished, soak times, pot limits, market characteristics, and stock distribution could all affect bycatch rates. Gear modifications to allow escapement, such as escape rings or large mesh panels, will need to be evaluated under longer soak times. Changes in fishery/processor selectivity and fishing strategies will also need to be examined. In addition, for other, non-target species, gear selective bycatch reduction measures can and must play a part in a rationalized fishery.

Crab fisheries do not catch a significant number of non-crab species as bycatch. Since pot gear selectively harvests primarily legal sized crab, the crab fisheries do not remove significant amounts of other species from the ecosystem. Bycatch in crab pot fisheries includes octopus, Pacific cod, halibut, and other flatfish. All observed bycatch is reported in ADF&G observer reports. With longer soak times, pots could capture more other species. However, as with crab, once the bait is gone, animals that can leave the pot, would leave the pot. Unless, of course, crab is the bait. Likewise, if a finfish enters and is unable to escape the pot, longer

²The Council’s 2001 Stock Assessment and Fishery Evaluation Report for the King and Tanner Crab Fisheries of the Bering Sea and Aleutian Islands Areas (October 2001) contains a complete analysis of handling mortality.

soak times, confining the fish to close proximity to the bottom, may result in their becoming bait, as well (e.g., sand flea mortality). Under rationalization, increased observer coverage would provide managers with more comprehensive data on the amount of other species caught in crab gear.

Highgrading

In a rationalized fishery, operators would not be subject to the time pressures of a race for fish, which exists under the current in the BSAI crab fisheries management regime. With the removal of these time pressures and the allocation of fixed quotas to participants, some concern arises that fishermen will highgrade, that is, keeping only the highest valued catch and discarding inferior quality crab. Highgrading is observed in fisheries where the cost of discarding low quality catch and replacing it with high quality catch is less than the price differential between high and low quality catch. The State has reported that high grading has not been observed in Alaska's crab fisheries to date.

Highgrading means sorting through legal crabs for the largest, cleanest crabs, and discarding the remaining legal crabs to ensure that only the highest-priced portion of the catch is landed and counted against the quota. Highgrading includes sorting the catch on deck for retention of only higher-valued crab, or other changes in fishing practices, e.g., including gear selectivity/soak time combinations or frequently changing fishing areas or methods to target larger, higher-valued crabs. The NRC report makes the point that the profitability of highgrading is likely to depend on the unique conditions of the fishery. The determining factor may be large price differentials between size classes and quality grade levels. In fisheries where price differentials between different sizes of fish is small and/ or the cost of catching replacement fish is relatively high, there is little incentive to highgrade. Under rationalization, highgrading may occur in the crab fisheries because the market may pay significantly more for the cleanest, largest crabs. Market forces could provide incentives for selective harvest of larger size or shell classes. Under open access, at reduced GHL levels, every legal marketable crab that comes on board is kept. A vessel may move to a different area, but once landed, legal crabs will be kept unless they are absolutely unmarketable.

Highgrading is an environmental concern because of the potential for altering the composition of the stock if the fishery removes only the largest, cleanest crabs. These crab likely represent a single cohort and the more robust males of the population. Scientific uncertainty exists as to exactly how and to what extent removing the largest new shell crabs effects the longterm reproductive viability and genetic composition of the stock. However, research has shown that size selectivity may reduce the average size of the males. These males represent the breeding potential for the next few years, until they die. Highgrading would also increase discards of legal males that would otherwise be retained.

With sex and minimum-size restrictions for retention, there is inherent fishery selectivity in the BSAI king and Tanner crab fisheries. Nonetheless, it is the policy of the BOF to "maintain crab comprised of various size and age classes of mature animals in order to maintain long term reproductive viability of the stock and reduce industry dependence on annual recruitment, which is extremely variable." The State harvest strategies currently address this policy by setting caps on the harvest rate of the size-shell component of legal males that are selected for retention in the fishery. In the king crab fisheries, where there is currently little evidence for strong fishery selectivity within the class of legal-sized males, the harvest rate cap is applied to the preseason abundance of legal-sized males. In the both the *C. bairdi* and *C. opilio* fisheries, however, there is strong selectivity by the fishery for legal males in new-shell (or "clean-shell") condition as opposed to old-shell (or "dirty-shell") condition. In the *C. opilio* fishery, processor standards for delivered crabs also results in strong selectivity for males with 4-inches or greater carapace width (CW), although the legal size is 3.1-inches CW. Accordingly, the harvest strategies for the *C. bairdi* and *C. opilio* Tanner crab fisheries apply the harvest rate cap to "exploitable legal males," which is a subset of the legal males defined on the basis of fishery selectivity

for shell condition, size, or both. Additionally, harvest strategies developed for Bering Sea king and Tanner crab stocks since the mid-1990's, account for assumed bycatch and handling mortality of non-retained crabs in the determination of the harvest rate on mature- or legal-sized males.

As noted under the previous section on Aleutian Islands golden king crab, processors already pay a premium for large king crabs in Alaska. It thus seems reasonable to expect changes in fishery selectivity under a rationalized fishery that results in "highgrading". Highgrading would not only increase the fishery mortality to larger males, but could also increase bycatch and attendant handling mortality rates of lower-valued legal males.

The Russian red king crab fishery provides an example of fishery selectivity in response to market forces resulting in detrimental effects to a crab stock and fishery. Pricing-by-size is common in Russia, with the highest price paid for the largest and oldest crabs. Russian quota holders maximize the value of their quota by a combination of poaching and highgrading. Unfortunately, this has resulted in the Russian stock size distribution collapsing and stock failure. There is anecdotal evidence of on deck sorting/highgrading to some degree in the Russian zone. Quotas combined with long seasons allowed sorting for a higher value pack. This, combined with poaching, resulted in a decrease in average sizes for Russian red king crabs. The reduced size distribution occurred within 5 years and is believed to be contributing to lower fecundity and stock failures. The reduced size distribution of residual, unharvested crabs may impact long-term reproductive potential and stock genetics. Recent research indicates that larger, older mature males play a more important role in reproduction than smaller mature males, with growth rates and male size of maturity likely having a genetic component.

Highgrading under rationalization raises particular concerns to the State of Alaska. The State recognizes that if highgrading is shown to occur, harvest strategies would need to be modified to account for fisheries taking a higher percentage of a single class of crabs. Highgrading would need to be addressed with changes in harvest strategies that account for the increased bycatch and handling mortality, as well as with regulations on fishing practices that would lower the catch of non-retained crabs. Such regulations could include gear restrictions or time-area closures. Regulations requiring full retention and processing of all captured legal crabs would be a less desirable solution to highgrading. Full retention may not be enforceable, and could be counter-productive, by lowering long-term fishery value and by increasing deadloss.

New regulations will likely need to be developed to protect the biological integrity of the stock. For example, Sorting on the bottom with longer soak times could have detrimental consequences, if the escape panel mesh size were enlarged above the current regulatory minimum. Only larger crab would be retained, i.e., highgrading. If, however, the mesh size were not allowed to exceed the current size and soak times were to increase (probably adjusting or eliminating pot limits) then sorting on the bottom should prove to be an important conservation benefit of rationalization. Small males and females could escape prior to pot retrieval. Thus, managers may consider adopting a min/max legal size, and working with panel, ring, and pot mouth openings to achieve these ends. Otherwise, the fleet is likely to get the same market signal that the Russian crab fleet received.

As long as rationalization does not result in increased highgrading or ghost fishing from lost pots (if pot limits are removed), environmental impacts on BSAI crab resources and their associated habitat should be positive.

3.2.3.6 The use of TACs for determining allocations of quota

The Council motion includes the following two options for the determination of annual allocations under the rationalization program:

1.5 Annual allocation of IFQs:

1.5.1 Basis for calculating IFQs:

- Option 1. GHL
- Option 2. Convert GHL to a TAC and use the TAC as the basis.

Although the provision is included only in the IFQ program alternative, the option is also relevant to the cooperative program, as both require allocation of a harvest quota to participants in the fisheries. If the Council elects to pursue IFQ or cooperative management for the crab fisheries, then the current GHL approach might not be feasible for managing harvests.³ The State recommends converting the GHL to a total allowable catch (TAC). The FMP would need to be amended to provide the State with the authority to set TACs for the BSAI crab fisheries.

The BSAI crab fisheries are currently managed using a GHL that is set prior to the season opening. The FMP authorizes the State to set preseason GHLs under State regulations. A preseason GHL is developed from the summer survey or estimated in unsurveyed stocks from past fishery performance. Total catch and catch per unit effort (CPUE) are monitored in-season. For healthy surveyed stocks, managers may adjust the preseason GHL up or down in-season using fishery information to fine tune the preseason harvest estimate. In most seasons, harvest rates are similar to those projected and the season closure determined based on the estimated time for the GHL to be fully harvested. If the CPUE and total catch indicate that resource abundance is below that projected in the GHL, the fishery can be closed prior to achieving the GHL. This system allows the State the discretion to limit harvests to levels below the GHL, if necessary to protect the resource. The current system is used because the biology of crabs make the reliability of survey estimates of biomass questionable. Newer harvest strategies for the BSAI crab stocks under consideration for rationalization have lower exploitation rates to address the survey-error and other mortality issues.

The following factors are considered, to the extent information is available, in establishing GHLs:

- Estimates of exploitable biomass
- Estimates of recruitment
- Estimates of threshold
- Estimates of MSY or OY
- Market and other economic considerations.

The sum of all upper ranges of the GHLs for king crabs, and either species of Tanner crab, must fall within the OY ranges established in the FMP. The above factors will continue to be guidelines used in establishing a TAC.

Currently, the harvest strategies set a minimum GHL for manageability, meaning the fishery will not open if the GHL is below that minimum. This is to prevent excessive overharvest of a small GHL by a large number of vessels. With an IFQ, or cooperative fishery, maintaining a minimum GHL may not be necessary because catch accounting would be more precise and consolidation will result in a smaller pool of fishermen targeting the stock. A minimum GHL may still be desirable for overall stock protection .

³ Season length and timing could affect the level of the TAC if conservative TAC setting is used to protect the resource. Natural mortality from the date of the survey to the beginning and end of the season is important in estimating the stock level throughout the season and therefore, can affect the TAC. Consequently, season timing and duration must also be factored into the TAC setting decision.

The term GHL was expressed as a range around a point estimate for many years. A range of harvest levels allow the State to make in-season management decisions based on current data obtained from the fishery. Seasons or areas can be closed when the GHL is reached, or earlier/later based on current in-season information. Managers can make in-season adjustments to the GHL when in-season fishery performance suggests population abundance is either under or over-estimated from the survey. Sources of error are imprecise estimates, survey error, or unexpected mortality. In-season adjustments to the GHL rely upon a long baseline of fishery performance data and on grounds reporting.

With recent declines in various BSAI crab stocks and the shorter length of fisheries, in-season adjustments within the GHL range have not recently occurred. Recent harvest strategies adopted by the BOF for snow crab, Tanner crab, St. Matthew blue king crab, and Bristol Bay red king crab, have lower harvest rates. Short seasons, large fleet participation levels and changing fishery strategies make in-season adjustments questionable and difficult. This has made reliance on historic baseline data and fishery performance reports from in-season open access fisheries difficult.

Note that the only times the fishery has closed significantly prior to reaching the GHL was in the *C. bairdi* and the St. Matthew blue king crab fisheries. For the *C. bairdi* fishery, the survey indicated a large number of legal crabs, but the fleet could only find a small number of clean shell, marketable crabs. The survey indicated a harvestable surplus, but the crabs encountered on the grounds were dirty (not marketable). As a result, the fleet petitioned ADF&G managers to close the fishery early, to prevent damage to markets with a plethora of low quality crabs. For the St. Matthew blue king crab fishery, the 1998 season closed before the GHL was attained due to poor fishery performance and observer information indicating a relatively high incidental capture rate of sublegal males and female crabs.

GHLs are not a viable option for managing IFQ or co-op fisheries. If the Council elects to prosecute these fisheries with the open season dates expanded to the biologically acceptable seasons, fishing strategies will change to address rationalized fisheries and multiple species harvest strategies. TAC [in this case TAC is synonymous with preseason set harvest limits] are important for any IFQ fishing strategy. For most stocks, the TAC would be set and not changed based upon the summer survey and the particular stock harvest strategy. For stocks without good population assessment, harvest history, or a harvest strategy, the TAC would be set conservatively to address uncertainty in stock condition. TAC is generally considered to be the fixed target goal necessary for a quota share system. TAC allows operators participating in quota share fisheries the confidence that, regardless of when they choose to harvest their shares, their quota amount would not change for the duration of the season. Those opting to fish later should have no concern that the catch ceiling may be reduced, thereby reducing their allocated percentage of the total catch as compared to a fishermen who had fished their share early in the season. Since a change from a GHL to a TAC approach would not allow for in-season quota adjustment based on fishery performance, harvest quotas for un-surveyed crab stocks, such as the Bering Sea brown king crab, grooved and triangle Tanner crabs, if included in the rationalization program, would be set at very conservative levels.

Stock assessment and TAC setting

Stock abundance is assessed annually for Bristol Bay red king crab, St. Matthews blue king crab, Pribilof Islands red and blue king crab, snow crab, and Tanner crab from the results of the NMFS trawl survey. For Bristol Bay red king crab, St. Matthew blue king crab, snow crab, and Tanner crab, the stock information is incorporated into models which smooth the survey variability using fisheries data. A concern under an IFQ or cooperative fishery is catch sampling and catch reporting. Basically the stock assessment models need data on how many crabs were caught and what kinds of crabs were caught. It would be more difficult and costly

to sample the catch under an IFQ fishery than the current fishery. A longer season may mean that catch sampling data would be collected over a longer period of time and thus be more expensive and may require different collection methods. But, as long as we can sample the catch for size and shell condition composition, and accurate catch reporting data is available to combine with the annual survey data, stock assessments will continue to be robust under rationalization.

The length-based model and other models currently used to estimate abundance and establish the harvest rate can be used under an IFQ or cooperative management system. Minor adjustments may be necessary to account for changes in fishing practices, but the foundations of the models and the data they are based on will remain the same. The harvest strategies should basically be the same, except that it will be necessary to adjust harvest rates slightly for significant timing changes in the mid-point of a fishery. For example, snow crabs are harvested from January to March, with the season mid-point in February. If the mid-point of the fishery changes to November or April, it may be necessary to slightly adjust the harvest rates. Also, due to inability to close the fishery in-season, the harvest rates may be slightly more conservative under an IFQ or cooperative fishery, than the current management regime. Right now, the manager monitors the CPUE during a fishing season and if it is very low compared to the past, the fishery may be closed before the GHL is taken to conserve the stock. But under an IFQ or cooperative fishery, managers would not have the ability to close the fishery based on in-season fishery performance, so the GHL or TAC would need to be set conservatively.

TAC for an open access fishery

The State expressed the following concerning allocation of a portion of the GHL (or TAC) to an open access fishery. The problem statement on page 10 of the Council's staff white paper outlines the need and purpose for rationalizing the BSAI crab fisheries. It should be noted that any form of open access which continues the race for fish is contradictory to the problem statement and should not be considered in the analysis. From a national perspective, the Council cannot be viewed as doing its job if it adopts any form of rationalization that includes an open access component, as described in the Co-op proposal detailed in Section 6.2. In like manner, the state managers do not believe any component of such fisheries should include "open access", because an open access component would, by definition, include some sort of "race for fish".

While the AFA provides for the formation of cooperatives and an open access provision for vessels to transition through to join a new cooperative or for vessels that do not wish to participate in the cooperative structure, the pollock resource available under open access is a very small amount relative to total harvest and only a few vessels (3 in 2002) participate. While this makes the pollock open access fishery fairly manageable, the NMFS managers still had to threaten an extremely conservative TAC to get the vessels to stay within the quota. And, in the end, the three vessels developed a semi-cooperative operation in order to stay within the available catch limits.

Crab fisheries are currently managed using in-season assessment and marine telex e-mail or VHS radio contact from the vessels to the Dutch Harbor management office to compare CPUE and other variables against historic patterns. As a result, an open access component on a small GHL/TAC fishery is unmanageable. The BOF has adopted regulations that include a sliding pot limit scale based on biomass and number of vessels, to provide for harvest at low GHLs. Some crab stocks even require a minimum harvest limit to open the fishery, specified in regulations (5AAC 34.825 (h) (1), 5AAC 34.917 (a) (2) and 5AAC 35.517 (a) (2)). Because even the current management strategy has resulted in overharvest at low GHLs, State managers do not believe, that without significant safeguards (such as 100% observer coverage and hourly call in of catch accumulation), that small portions of TAC, managed under open access, are a viable option. Without such safeguards, the possibility of exceeding the prescribed TAC level is high. Even choosing such an option does not mean that the safeguards required are available. For example, if 40 vessels

choose to participate in open access, this would necessitate 40 observers for the open access vessels, and an additional number to meet the required coverage of 100% on C/Ps and 10% on CVs. In many instances, there would be an insufficient number of observers available to meet the needs of even the open access fishery. The time, logistical challenge, and cost of meeting these needs is likely prohibitive and would prevent opening of the fishery.

3.2.3.7 Overages and underages

The Council motion includes the following provision for overages by vessels with IFQs:

1.8.2	Overage Provisions:
(a)	Allowances for overages during last trip:
	Option 1. 1%
	Option 2. 3%
	Option 3. 5%
(b)	Any overage would be deducted from the QS holder's IFQs (during the next season) at:
	Option 1. same amount as overage
	Option 2. twice the amount as overage

Options for dealing with catch in excess of quota, referred to here as “overages”, in the Council motion would allow fishermen to deliver 1, 3, or 5 percent over their actual available IFQ, but only on their final trip of an opening. The overage would be deducted from the QS holder's IFQ allocation in the following season at either the same amount as the overage (i.e., pound for pound), or twice the amount of the overage. The Council motion contains no options for unharvested IFQ (i.e., herein, “underages”). Any unharvested IFQs would be forfeited by the holder.

The State recommends that overage and underage provisions should not exist in a rationalization program. Because stocks fluctuate greatly from year to year and experience varying rates of natural mortality, crab cannot be “banked” like, say, halibut. Carryover crabs from a large year biomass could not be counted 1:1 the following year, particularly if the following year was a low biomass year. Because crab stocks fluctuate greatly, the available harvestable biomass is recalculated each year, after the summer survey. In some years *C. opilio* snow crabs appear to go into terminal molt, at least apparent strong recruit year classes do not grow into crabs greater than or equal to the marketable size of 4 inches carapace width.

One of the stock conservation benefits of a rationalization program is the ability to harvest the TAC without exceeding it. Under status quo, even with good in-season assessment and real-time catch reporting, catches can change rapidly and a large efficient fleet can quickly surpass a harvest target when they locate high concentrations of crabs. This happened in the Bristol Bay red king crab fishery in 1996, when the GHL was 5 million pounds and, in four days, the harvest exceeded 8.4 million pounds, and again in 1997, when the GHL was 7 million pounds, but 8.5 million were taken in four days. This is a 68% overage in 1996, and a 21% overage in 1997.

The NRC report explains that when penalties for overharvest of an individual's quota are high, the net effect is that the TAC is not harvested, because each quota holder does not want to risk going over his quota. No decision has been made on this aspect of the program. We can assume that for the crab fisheries, if the penalty for exceeding the quota is large, then a portion of the TAC may not be harvested. On the other hand,

if the penalties for exceeding an individual's quota do not outweigh the risks, then the TAC may be exceeded, with virtual impunity. Assuming that the penalties are sufficient to deter fishermen from risking exceeding the TAC, a type of voluntary cooperative may provide a mechanism for pooling remaining quota and, thus, fully harvesting the TAC.

From the experience gained in the CDQ fisheries, State managers report that under a QS system each vessel can easily stay within their allowable harvest quota, and that a significant penalty should exist for those who exceed their quota. When quota shares are awarded each year (either to fishermen, processors, communities, or all three), participants will know exactly, in pounds, their individual upper limit for that season. Because there is no longer a race for fish, catches can occur over protracted seasons. This allows fishermen and processors the ability to more accurately track their remaining quota poundage in-season, either directly, or through communications with RAM Division. As their remaining balance approaches their total allowance, effort (gear, soak times, etc.) can be reduced to ensure their allocation is not exceeded. This has been well documented in the halibut and sablefish IFQ program. Cooperatives have the added ability to allow several vessels to pool small remaining quota collectively, creating a target volume economically feasible to pursue with a selected subset of the co-op's fleet.

3.2.3.8 Potential changes in pot limits

A race for fish can lead to excessive gear on the grounds, gear conflicts, and lost gear. To minimize these problems limits on gear are often implemented. Pot limits restrict the number of pots deployed by a vessel to limit harvest capacity. Pot limits also help ensure that vessels do not exceed their ability to manage the pots they set. Increased season lengths and soak times may reduce the need for pot limits designed to limit effort on the grounds and reduce wasteful fishing practices resulting from deploying more pots than can be retrieved during a short fishing season. Relaxing pot limits may improve efficiencies for the fishing fleet. It may also cause environmental consequences that will need to be evaluated.

Pot limits are currently in place in most BSAI crab fisheries. The BOF set these limitations to address concerns that too many pots were being fished to assure their retrieval (i.e., reduce pot loss). The BOFs' authority rests in Category 2 of the FMP, which describes the conditions under which modifications to the pot limit can occur. The BOF set limits because excess pots were saturating the grounds, causing grounds preemptions and pot loss, due to grounds crowding. Vessels were running over each others' buoy lines and cutting them in their props. Pot limits also provide needed management for vessels to control gear in fast moving ice conditions where pots are easily lost. Lost pots will result in (1) ghost fishing, (2) unaccounted and unnecessary mortality of crab and groundfish, and (3) abandoned gear that fouls the bottom for other gear types. In addition, as crab stocks declined, some pot limits were reduced to control effort and increase manageability, as well as provide an equity measure within the fleet.

The FMP authorizes the State to use pot limits to attain the biological conservation objective and the economic and social objective of the FMP. In establishing pot limits, the State considers, within constraints of available information, the following: (1) total vessel effort relative to the GHL, (2) probable concentrations of pots by area, (3) potential for conflict with other fisheries, (4) potential for handling mortality of target or nontarget species, (5) adverse effects on vessel safety including hazards to navigation, (6) enforceability of pot limits, and (7) analysis of effects on industry. Pot limits must be designed in a nondiscriminatory manner. For example, pot limits that are a function of vessel size can be developed which affect large and small vessels equally. Historic data on pot registration and length overall of crab vessels could be used for developing pot limit regulations.

Lacking the ability to regulate the total number of pots placed on the grounds could make it necessary to prohibit fisheries from opening. The result could be that a limited, but highly valuable fishery would be foregone. In this instance, prohibition of the fishery would satisfy biological conservation concerns, but the economic and social objective would not be satisfied. Rather, a pot limit would provide a mechanism to attain the economic and social objective within biological conservation constraints. Lastly, there may be some impacts from a possible season length extension on other gear types. If crab pot gear is fishing, due to extended seasons, much of the year, there may be gear conflicts with groundfish trawl or longline gear. In the mid 1990's, the *C. opilio* fleet and the trawl Pacific cod fleet were having serious gear conflicts that required Council attention.

When pot limits were initially developed for some State fisheries, in 1959, the major problem was too much gear in comparison to available resources. The number of vessels and total pots in use do not stay proportional to the projected harvest. The number of times a pot is picked during the fishery also varies. Without limitation on the amount of gear permitted, ADF&G's ability to achieve the preseason GHLL is reduced. In extreme cases, the projected harvest could be exceeded by one lift of all pots on the grounds. A fishery in which gear is picked 5 or more times would allow managers sufficient information to evaluate in-season information and control the harvest in order to protect stocks.

In the early 1990s, BSAI crab fisheries were characterized by increasing fishing effort, decreasing GHLLs, and shorter fishery seasons. Responding to these concerns the BSAI crab industry submitted a petition to the BOF requesting the BOF consider limiting the number of pots deployed in BSAI crab fisheries. Data from the ADF&G supported this petition. The data indicated excessive crab pot gear deployment was creating conservation and management difficulties. On March 20, 1991, the BOF proposed an agenda change request to discuss this issue. In 1992, the BOF adopted regulations limiting the number of pots a vessel could operate while harvesting Bering Sea king and Tanner crabs, effective August 1, 1992. The buoy tag identification program was designed to improve enforceability of these regulations.

On November 30, 1992, the NMFS repealed Bering Sea pot limits due to inconsistency with the National Standards that require all regulations to be applied in a nondiscriminatory manner. Pot limits are an FMP category 2 measure, thus they may be adopted at the State level, but are subject to the federal appeals process. As a result, in February 1993, the BOF passed differential pot limit regulations based on vessel length overall. According to these regulations, vessels in excess of 125 feet LOA are entitled to operate the maximum number of pots allowed for a fishery, and vessels 125 feet or less LOA may fish 80% of the maximum pot limit. On August 27, 1997, interim pot limit regulations were adopted for harvesting Bristol Bay red king crabs. The regulations outlined an eleven-tier pot limit program dependent on fishery GHLL and the number of pre-registration vessel were made permanent in March 1999.

Table 3.2-3 Pot limits for Bering Sea king and Tanner crab fisheries, 2000-2001.

Fishery	GHL Range (Million Pounds)	Number of Vessels	Pot Limits	
			<= 125 ^a	> 125 ^a
Norton Sound Section king crab ^b	-	-	40	50
St. Lawrence Island Section king crab ^b	-	-	40	50
Pribilof Island Section king crab ^b	-	-	40	50
St. Matthew Island Section king crab ^b	-	-	60	75
Bering Sea District Tanner crab ^b	-	-	200	250
Bristol Bay red king crab ^c	< 4.0	NA	NA	NA
	4.0 to 5.9	< 200	80	100
		200 to 250	60	75
		> 250	60	75
	6.0 to 8.9	< 200	120	150
		200 to 250	100	125
		> 250	100	125
	9.0 to 12	< 200	200	250
		200 to 250	160	200
		> 250	160	200
	> 12	Any	200	250

^a Vessel Length Overall in feet.

^b Pot limits independent of number of registered vessels and GHL.

^c Multi-tiered pot limits effective 1997.

Under a rationalized fishery, the need for highly restrictive pot limits might be removed. The number of crab fishermen on the grounds at one time may be reduced, decreasing the need for gear limits. Changes in gear limits can have implications for both the environment and prosecution of the fishery. To change pot limits, the BOF would need to be petitioned or a proposal submitted for consideration of pot limit modification. The BOF, in consultation with staff, industry, and other members of the public, could work out the appropriate pot limit under a rationalized fishery. The BOF could then adjust the pot limits in accordance with the guidelines provided in the FMP. Most likely, when changing the pot limits, the BOF will consider the following alternatives, status quo, eliminating pot limits, or allowing vessels to deploy a larger number of pots.

To analyze the impacts of changing the pot limits on the environment, we first need to determine if the total number of pots deployed and the total number of pot lifts will increase or decrease in a given fishing season. The number of pots deployed depends on the number of vessels and the number of pots each vessel is allowed. The number of pot lifts is a function of the number of pots and how many times it is necessary to pull each pot, in order to harvest the quota. The final question is what effects do setting and retrieving of pots have on the environment. The effects of pots on the crab stocks (bycatch, deadloss, and handling mortality) are discussed in section 3.2.6.5. The effects of pots on the benthic environment (habitat and ghost fishing) are discussed in section 3.2.6.9.

A rationalization program is expected to result in fleet consolidation, thereby reducing the number of participating vessels. We can assume that if the pot limits stayed the same, fewer pots would be deployed because fewer vessels would be fishing. If pot limits were eliminated, each vessel owner would determine the number of pots required to harvest his/her quota. And, if the BOF set new pot limits, vessels could deploy up to that amount. With relaxed pot limits, the total number of pots deployed may still be less than status quo due to fleet consolidation. Also, with relaxed pot limits, operators can let each pot soak longer, as they work the rest of the gear. The total number of pot lifts would most likely decrease, regardless of the pot limits, as fishermen allow their gear to soak longer thereby slowing down the fishery.

3.2.3.9 Habitat and ghost fishing

The BSAI crab fisheries use pot gear. ADF&G regulates the maximum size of pots at 10'x10'x 42". Typically, the red and blue king, Tanner, and snow crab fisheries use 6'x6'x3.5' or up to 8'x8'x3.5' rectangular pots. Some fishermen use conical or pyramid shaped pots. Each pot weighs between 600 and 800 pounds. For these fisheries, pots are deployed singly, each pot with its own buoy. The number of pots a vessel deploys in each fishery is regulated by vessels size, as shown in table 3.2-4. For the golden king crab, pots are typically pyramid shaped and deployed by longline. No pot limits exist for the Aleutian Islands golden king crab fishery.

The extent to which pot gear impacts the benthic habitat is not well know. Although pot gear likely affects habitat during the setting and retrieval, little research quantifying the impacts has been conducted to date. NMFS and the Council have begun, through the Essential Fish Habitat (EFH) process, to identify and research the effects of different types of fishing gear on different habitat types. In the most recent analysis for EFH, pot gear was analyzed for its impacts on benthic habitat. The analysis includes a description of gear and fishery operation, habitat type where the fishery occurs, and the existing measures to mitigate adverse effects of these fisheries. The analysis also looks at total area impacted by pot gear, per year, and the area impacted as a portion of the total Bering Sea shelf. As shown in table 3.2-5, the total area impacted by pot gear is less than half of one percent of the total area of the Bering Sea. This preliminary analysis does not indicate that the deployment or retrieval of pot gear irreparably alters the benthic environment. Through continued research, we will gain a better understanding of the effects of pot gear on the benthic habitat.

Most likely, the extent of impacts depends on the type of bottom habitat. Crab fisheries that occur in the Bering Sea on mud and sandy bottom areas may have less impact on the benthic habitat than fisheries that operate in areas with, say, corals and sponges. The BSAI crab fishery that operates longline pot gear in areas with coral is the Aleutian Islands golden king crab fishery. The golden king crab vessels have 100% observer coverage. Coral can be damaged by the setting and retrieval of pot gear, especially longline pot gear. Little information exists on the effects of longline pot gear on coral or on the benthic habitat of the Aleutian Islands. Longline pot gear causes damage because the pots are tied together on the same groundline. Pots are dragged across the bottom when the longline is retrieved. These pots come on deck with rocks, coral, and other things from the sea floor. This is an issue that needs directed scientific research. The ADF&G observer program has begun to collect and build a database on the locations and species of coral brought on deck in the Aleutian Islands golden king crab fishery. The eastern Aleutians fishery is very competitive, but not yet a derby fishery. As a result, most likely, an IFQ or cooperative program would not greatly change the way it is prosecuted. Continued observer data collection focusing on recording where and which types of coral were brought up in the fishery would improve our understanding of this issue.

Habitat impacts may change under rationalization because the fisheries will be spread out in time and space, thus subjecting a larger area to impacts over a longer amount of time. On the other hand, total effort may decrease as the fishery consolidates and as fishermen reduce effort to the level necessary to catch their quota.

Although, fewer vessels would be expected to fish, each vessel may employ more pots. Most likely, the number of pot lifts will be directly related to the size of the quota. For example, if each pot brings up 10 legal male crab, and a fisherman's quota is 100 crab, this will require 10 pot lifts. And, there is a negligible difference between whether he/she sets 10 pots and lifts each one once, or sets one pot and lifts it 10 times. With our current level of information, it is impossible to predict the extent to which spreading out the fishery will effect the habitat. At this stage we can conclude that if the status quo fishery does not have a significant effects on benthic habitat, then changes to the status quo fishery as a result of rationalization will also not have a significant effect. Even if fishing effort (expressed in pot lifts) doubles, less than one percent of the Bering Sea will be impacted by pot gear.

"Ghost-fishing" by derelict pots is also an environmental concern. Lost by the fishery, these pots may continue to entrap crab and fin fish until their netting or escape panels disintegrate (Stevens et al., 2000). Ghost fishing has resulted in management measures that limit the number of pots a fisherman can use and require that each pot be equipped with a degradeable panel. Since 1996, ADF&G has required pots to have a panel of degradeable mesh to reduce ghost fishing. Degradeable panels decrease the ability of a lost pot to ghost fish in the long term, because once a panel degrades, the pot is much less likely to capture crab or other benthic species. Inasmuch as, once the mesh degrades, these lost pots are unbaited, the primary attraction of derelict pots is their physical structure, which adds complexity and vertical relief to the generally featureless environment in the Bering Sea. Lost pots cause other problems besides ghost fishing. Since pots are hard structures, they can damage the gear used by other fisheries, such as bottom trawl gear and longlines.

Slowing the pace of fisheries, through rationalization, could also potentially reduce gear loss and prevent the conservation concerns associated with ghost fishing. Pots are expensive, and most likely, a fisherman will avoid losing pots. In the race for fish, the risk of losing a pot was balanced against the advantage of harvesting more crab. With an allocation of quota, there is less of an incentive to risk losing pots, because access to individual harvest amounts are fixed. However, to prevent fishermen from deploying an unlimited number of pots, some limits may still be required, for example, to prevent pot loss from ice movement or gear

Data from preliminary EFH analysis.			
Fishery	Area of a pot (ft2)	Estimated # pot lifts/yr	Effectd/yr
Bristol Bay red king	49	96,694	0.1
Norton Sound red king	25	1,000	0.0
Pribilof red and blue king	49	28,381	0.0
St. Matthew blue king	49	89,500	0.1
Aleutian Is. red king	49	2,205	0.0
Aleutian Is. golden king	49	180,169	0.2
Aleutian Is. Tanner	49	7,000	0.0
EBS Tanner	49	149,289	0.2
EBS snow	49	170,064	0.2
Total		724,302	0.8 nm2
Percent of Bering Sea shelf (25,000 nm2) impacted by pot gear per year			.0003%

Table 3.2-4 Total area impacted by pot gear in the BSAI, per year, by FMP crab fishery.

conflicts. If too many pots are deployed at the ice edge, if the ice moves forward unexpectedly, some pots are lost, because the vessel that deployed them cannot pick up all the pots before they are covered with ice.

3.2.3.10 Biological issues related to fleet sizes

State managers have expressed concern that excessive fleet consolidation in times of low abundance could lead to future under harvesting after stocks have recovered. State managers have suggested that ownership caps on QS could be used to address potential problems of this type. The State has provided Council staff with the following analysis of fleet sizes:

The State does not want consolidation to a level that is incapable of harvesting the quota, especially in years when crab stocks rebound to much larger levels. Unused quota means loss of revenue to everyone (harvesters, processors, and the State's raw fish taxes). While it may sound more environmentally-friendly to leave animals on the grounds, our conservative management strategies already cover that aspect with regard to reproduction potentials, age class structures, etc.

Within the context of consolidation, the State believes that there is a minimum fleet size that should exist for each species/fishery. Because some owners possess as many as five vessels currently, an ownership cap may or may not result in maintaining sufficient minimum capacity. Owners with multiple vessels would likely consolidate within their own company, and reduce their company fleet after rationalization. This does not mean that at low stock size stacking of QS on vessels and leaving other QS holder's vessels in port is not considered a reasonable option. Rather it is a concern that at high stock size sufficient catching capacity should exist to harvest the available biomass in excess of reproductive needs.

Though crab stocks are currently down, it was only a few years ago that the Council was considering raising the FMP *C. opilio* cap from 300 million to 400 million lbs because of the size of the harvestable biomass. Even at 300 million pounds, a 37 boat fleet is not likely sufficient to harvest all of the available *C. opilio* crab within the biological season, when stocks return to such levels. Since crab, unlike halibut or other groundfish, are not bankable year-to-year, these crab may be largely lost to production if left unharvested. Since the current harvest strategy is sufficiently conservative and provides for the reproductive needs of the stock, lost production will impact communities, labor, markets, and the Nation. What impacts will occur on new entrants and the attendant industry modifications associated with new blood within the industry, is not known.

3.2.3.11 Conclusion

After reviewing all of the potential environmental impacts of implementing the rationalization program alternatives, elements, and options, we conclude that a rationalization program would have positive environmental impacts compared with the status quo. The environmental benefits are derived from improvements in fishing methods, processing practices, and fisheries management. These environmental benefits would result from each of the alternatives under Council consideration. The elements and options under Council consideration would not cause measurable positive or negative impacts to the environment when compared to status quo. Adverse effects on the environment, such as highgrading, could be mitigated using existing management tools in the FMP, as described in previous parts of this section.

In summary, a rationalization program created from the alternatives, elements, and options before the Council would improve fisheries management by requiring more sophisticated monitoring, data collection, and enforcement procedures. Improvements in monitoring and data collection will ensure the TAC is not exceeded and that bycatch and deadloss are accounted for. Monitoring and data collection could include enhanced observer programs, port samplers, real-time reporting, and vessel monitoring systems. These

improvements would provide information for managers to use in identifying resource problems and developing management tools to solve resource problems.

A rationalization program created from the alternatives, elements, and options before the Council would improve fishing methods and processing practices by slowing down the pace of the fishery and providing flexibility to fishermen to choose when to fish. A slower fishery could reduce bycatch by increasing in soak time and providing incentives and the ability to change fishing grounds to avoid concentrations of female and old shell crabs. Allowing concurrent fisheries where fishermen can keep all legal crab of species for which they have the quota, or co-op allocation, would reduce discard mortality of legal males of non target crab. Reduced bycatch would increase utilization of all crab brought on the fishing vessel and reduce waste in the crab fisheries. Slowing crab processing would spread out discharge of processing waste.

Potential negative environmental impacts are that crab and habitat will be subject to fishing gear for a longer period of time over a potentially larger area. And, although fewer vessels will be operating under a rationalization program, those vessels may be allowed to work more gear. Rationalization may also provide incentives for vessels to highgrade by discarding old-shell and smaller legal crab. The impacts of highgrading on the stock will depend on the handling mortality of the discarded crab. The extent of the effects of these practices will need to be analyzed. And, if they are found to cause significant negative impacts, management measures would be developed to mitigate these impacts.

3.3 Elements for the distribution of harvesting shares under the IFQ and the cooperative programs

The proposed alternatives include options for management of the BSAI crab fisheries under an IFQ program or a cooperative program. Although management differs under these two regimes, eligible persons (including individuals, companies, and partnerships) would receive an initial allocation of QS or cooperative shares that provide them with a share of the annual available quota in the fishery under either system. This section analyzes the elements for the distribution of harvesting shares under IFQ management and cooperative management.

Quota Shares (QS) and Cooperative Shares

Under either an IFQ program or a cooperative program, eligible fishermen would be allocated an access privilege, in the form of a share of the TAC of each BSAI crab fishery in which they participated. In an IFQ program, these shares are referred to as quota shares (QS) and are issued to persons individually. In a cooperative program, the shares are referred to as cooperative shares and are issued to the cooperatives that the fisherman joins. QS or cooperative shares would be initially allocated to eligible harvesters based on their participation in each BSAI crab fishery included in the rationalization program. Each QS (or cooperative share) unit grants the holder the harvest privilege to a certain percentage of the annual available resource for the applicable crab fishery. Each year (or prior to the season opening), the QS (or cooperative share) holder would be issued quota that allows the holder to harvest an amount of crab specified in pounds during the upcoming season. In an IFQ program these annual allocations are IFQs. Consequently, QS and cooperative shares represent *long-term* privilege to receive the right to harvest a *percentage* of the available resource in a fishery. IFQs (or annual quota) represent the *single-season* rights to harvest an amount of crab in *pounds*. While IFQs and annual quota expire automatically at the end of the season, QS and cooperative shares establish an interest in the fishery for the duration of the program.⁴

⁴ Under the MSA as amended by the SFA, QS (or cooperative shares) and IFQs (or annual quota) do not create a right to the resource and may be revoked or limited at any time without compensation.

3.3.1 Categories of QS or cooperative shares

To the extent that different QS or cooperative shares would have different associated privileges and restrictions, separate and distinct categories of shares would be issued. In addition, the resulting IFQs or annual quota would have the same privileges and restrictions as the underlying QS or cooperative shares. The elements and options outline two general classes of shares that are applicable to all of the rationalization programs:

- Crab fishery categories (Section 1.3.1 of the Council motion) and
- Harvesting sector categories (Section 1.3.2 of the Council motion).⁵

Crab Fishery Categories -

Under paragraph 1.3.1 of the elements and options, separate categories of QS (or cooperative shares) are proposed for each of the following crab fisheries, which are proposed for inclusion in the rationalization program:

- Bristol Bay red king crab,
- Pribilof red king crab
- Pribilof blue king crab,
- St. Matthew blue king crab,
- Eastern Aleutian Islands (Dutch Harbor) red king crab,
- Western Aleutian Islands (Adak) red king crab,
- Eastern Aleutian Islands (Dutch Harbor) golden king crab,
- Western Aleutian Islands (Adak) golden king crab,
- Bering Sea *C. bairdi*,
- Bering Sea *C. opilio*,
- Eastern Aleutian Islands (Dutch Harbor) *C. bairdi*, and
- Western Aleutian Islands (Adak) *C. bairdi*.

The options include all crab fisheries currently under the LLP, except the Norton Sound red king crab fishery. The Norton Sound fishery is managed as a “super-exclusive registration” fishery meaning that harvesters that choose to fish in Norton Sound are not allowed to fish in any other BSAI crab fishery during the year. In addition to the Norton Sound crab fisheries, several developing fisheries under the FMP might not be included in the proposed IFQ program at this time. These fisheries are currently managed by permits issued by the ADF&G Commissioner and would continue to be managed under the existing framework.

The Eastern and Western Aleutian Islands *C. bairdi* and the Eastern Aleutian Islands (Dutch Harbor) red king crab fisheries, which are proposed for rationalization, have been closed for a several years, including the range of years proposed as qualifying years for issuing QS (or cooperative shares). No options have been proposed for issuing QS (or cooperative shares) for these closed fisheries. A discussion of whether those

⁵Additional categories of shares are created by options for crew shares, regionalization, and processor shares. These categories of shares are discussed in the sections that analyze those options.

fisheries and the Western Aleutian Islands (Adak) red king crab fishery are appropriate for rationalization appears in Section 3.2.

The proposed option creates more categories of QS (or cooperative shares) than LLP area/species endorsements because some of the LLP area/species endorsements apply to multiple fisheries, such as the BSAI *C. opilio* and *C. bairdi* endorsement which qualifies a fisherman to participate in the fisheries for both species in both the Bering Sea and the Aleutian Islands. Maintaining separate categories of shares for each fishery, however, is necessary for the management of separate stocks in a rationalized fishery.

In addition to the categorization of each different fishery, a suboption would split the AI golden king crab fishery into two categories, the EAI golden king crab fishery and the WAI golden king crab fishery. While grouped into the same LLP endorsement category, these fisheries are currently managed separately, with separate guideline harvest levels (GHLs) for the EAI and WAI golden king crab stocks. The suboption would allow these fisheries to continue to be managed as separate fisheries for the protection of the distinct stocks.

Harvesting Sector Categories - Under paragraph 1.3.2 of the Council elements and options, QS (or cooperative shares) for each crab fishery would be further categorized into one of two harvesting sectors—catcher vessel (CV) shares or catcher/processor (C/P) shares. IFQs (or quotas under a cooperative program) categorized as CV quota would allow the holder to only harvest crab, while IFQs (or quotas under a cooperative program) categorized as C/P quota would allow the holder to both harvest and process crab on board. The categorization of QS (or cooperative shares) as a C/P shares functions in a similar manner as the C/P designation of an LLP endorsement.

3.3.2 Initial allocation of QS (or cooperative shares)

Paragraphs 1.2 and 1.4 of the list of elements and options define options for the initial allocation of harvesting QS (or cooperative shares). The initial allocation is of critical importance to a rationalization program since it is the foundation for the distribution of access use interests in the resource in the new management regime.

National Research Council Report Recommendations.

The National Research Council report on IFQs, “Sharing the Fish”, advises that an initial allocation should widely distribute shares to avoid granting excessive windfalls to a few participants in the fishery. Broader initial allocations might be favored because they will distribute benefits more equitably and compensate more individuals as shares become concentrated. In addition, payment for initial allocations (through either windfall taxes or auctions) should be considered as a method of distributing the benefits of the resource to the public.

Share distributions should consider investments of time and capital in the development of the fishery. Crew exposed to safety risks might also be considered to have invested in a fishery. A broad distribution might consider the distribution of shares to skippers, crews, and processors.

Catch history is frequently relied on for determining the distribution of shares because it is perceived to be a fair measure of participation. Allocation based on catch history, however, can have unintended or onerous consequences. Reliance on participation in a single fishery can be detrimental to fishermen that move between fisheries. These transient fishermen might be deprived of an interest in a fishery, even though their movement between fisheries may have resulted in a better distribution of effort across fisheries. Catch history can also reward speculative behavior of fishermen that enter a fishery in hopes of obtaining an interest in the fishery under a future rationalization program and operators that overexploit stocks to obtain larger initial

allocations of shares. Alternatively, a portion of the initial allocation could be distributed equally to all participants or could be based on vessel size.

In addition to the issues raised in the NRC report, NOAA GC has emphasized that the failure of the halibut and sablefish IFQ program to give sufficient consideration to recent participation was an important issue in the lawsuit filed against that program.

3.3.2.1 Eligibility to receive an initial allocation of QS (or cooperative shares)

Paragraph 1.2 defines the following two options and one suboption governing persons eligible to receive an initial allocation of QS (or cooperative shares)⁶:

- | | |
|-----------|--|
| Option 1. | Any person that holds a valid, permanent, fully transferrable LLP license; or |
| Option 2 | A person, defined as a U.S. citizen that owns a MarAd certified and/or USCG documented BSAI crab vessel that: (i) was used to satisfy the General Qualification Period (GQP) and Endorsement Qualification Period (EQP) landings requirements of the License Limitation Program (LLP), and (ii) either was used to satisfy the Recent Participation Period (RPP) landings requirement of Amendment 10 or meets the exemption requirements of Amendment 10. |
| | Suboption: A person who has purchased an LLP, with GQP, EQP, and RRP qualifications to remain in a fishery is eligible to obtain a distribution of QS on the history of either the vessel on which the LLP is based or on which the LLP is used, NOT both. |

Under Option 1 (developed by the Crab Rationalization Committee), all crab LLP license holders would be eligible to receive an initial allocation of QS (or cooperative shares). This provision would retain consistency with the current rules, which limit participation in the BSAI crab fisheries to LLP license holders. Under Option 2, eligibility to receive an initial allocation would be based on ownership of a vessel that was used to meet the LLP requirements. Option 2 would also require that the vessel be MarAd certified or USCG documented.⁷ The suboption would permit a person who purchased an LLP to remain in a fishery to receive an allocation based on the vessel that the person owns. This suboption would be necessary if the Council were to select Option 2 and also elected to allow persons who purchased LLPs (but not the associated vessel) to receive an allocation based on their own vessel's activities.

Option 1 might be preferred to Option 2 for two reasons. First, Option 1 is consistent with the continuum of access limitation actions that have been taken by the Council, including the vessel moratorium and license limitation program. Option 1 would employ the current rules defining eligibility to participate in the BSAI crab fisheries. By retaining the current standard, continuity in participation is maintained. Current participants (crab LLP license holders) will not be removed from the fishery and new participants will not become eligible to participate in the fishery. Option 1 might also be favored because it simplifies administration. RAM currently adjudicates all applications for LLP licenses. Option 1 would rely on and build on this work.

⁶ In addition to the options discussed here, section 1.8 of the Council motion includes an option for the initial allocation of QS to skippers and crew members. That provision is analyzed in Section 3.8.

⁷ Under all of the options, only legal landings in the directed commercial fishery (and not landing in the research and test fisheries) would be considered for determining eligibility.

Alternative standards for determining eligibility to receive QS (or cooperative shares) would require RAM to review and reconsider many of its prior administrative decisions under the alternative standards.

Under Option 2, the owner of a BSAI crab vessel that meets the LLP requirements (including the Amendment 10 recency requirement or a specific exemption to that requirement) would be eligible to receive an initial allocation of QS (or cooperative shares). The requirement that the vessel be MarAd certified or USCG documented would prevent the addition of vessels outside the fishery at the time of implementation from returning to the fishery.

A comparison of the requirements of option 1 and option 2. Both options for determining eligibility to receive QS (or cooperative shares) rely on the LLP requirements. The options, however, differ and can generally be described as:

- Option 1: Eligibility extended to those who hold LLP licenses;
- Option 2: Eligibility extended to those who own a MarAd certified or USCG documented vessel the activities of which have given rise to eligibility under the LLP.

Since LLP eligibility is the basis for qualification under both options, the activities of the same vessels (those that qualify for the LLP) are used to determine qualification under both of the options. Option 1, however, is the only option that would rely directly on the LLP license for determining eligibility. Relying on the underlying LLP license avoids potential ambiguities concerning eligibility of those that have already had applications for LLP licenses adjudicated by RAM, as well as the administrative burden to RAM of repeated adjudication of qualifications.

Option 2 has two key differences from Option 1. The first difference is that under Option 2 eligibility for an initial allocation of QS (or cooperative shares) would be based on ownership of a vessel, whereas Option 1 relies on LLP license holdings. A second difference is that Option 2 has an additional requirement that the vessel must be MarAd certified or USCG documented.

Under both options, the *number* of potential QS (or cooperative share) recipients may be the same, but the *identity* of those potential recipients might differ. These differences cannot be shown without detailed information on the ownership of LLP licenses and vessels. Since NMFS does not record complete LLP ownership or vessel ownership information quantitative analysis of the differences in the options is very difficult.⁸ Qualitative analysis of the options, however, can be used to assess the different effects.

The implementation of Option 2 (which grants the QS or cooperative shares based on vessel ownership) would complicate implementation of the rationalization program, since RAM could not rely on past adjudication of LLP applications in determining eligibility. Option 2 also could make ineffective contracts that transferred catch history with the intention of transferring future rights and interests in the crab fisheries. For the intent of those contracts to be realized, vessel owners would have to apply for the QS (or cooperative shares) and then transfer the QS (or cooperative shares) on to the owner of the catch history. Whether vessel owners would submit these applications and make the transfers, short of being legally compelled to do so, cannot be predicted.

⁸NMFS maintains records of only the registered owners. Corporate ownership obscures knowledge of individual ownership interests.

The suboption would be necessary only in the event that the Council selects Option 2 and wishes to allow persons who have purchased an LLP license to remain in a fishery. The suboption would allow persons who purchased an LLP license and not the associated vessel to receive an allocation based on their own vessels' activities. Option 2 would disqualify these persons from receiving an initial allocation, because they would not own the vessel that satisfied the LLP requirements. The suboption is specifically applicable to the case of a person purchasing an LLP license and retiring the associated vessel from a fishery in favor of an alternative vessel.⁹

To analyze the differences in the options, it is helpful to examine possible outcomes, particularly circumstances where the options yield different outcomes. Table 3.3-1 shows an example of the most pertinent situations and outcomes under Options 1 and 2. If a vessel and its related LLP license are owned by the same person (as in the first example in the table) the outcome would be the same under either option.

Table 3.3-1 Eligibility to receive an initial allocation under options 1(LLP holders) ownership and 2 (vessel ownership)

	Person Owns			Eligible for Initial Allocation Under		
	Vessel	Related LLP	LLP for Other Vessel*	Option 1 (LLP Holders)	Option 2 (Vessel Ownership)	Suboption (with Option 2)
Complete LLP Package	Yes	Yes	-	Yes	Yes	Yes
Vessel and History (Not LLP)	Yes	No	-	No	Yes	Yes
Vessel and History of Other Vessel	Yes	No	Yes	Yes	Yes	Yes
Vessel Only	Yes	No	No	No	Yes	Yes
Vessel and LLP (Not History)	Yes	Yes	-	Yes	Yes	Yes
LLP and History (Not Vessel)	No	Yes	-	Yes	No	Yes

* The owner of the other vessel is assumed to have sold all catch history to the person.

The outcomes illustrated in Table 3.3-1 reflect only whether a person would be eligible to receive an initial allocation of QS (or cooperative shares) from NMFS. These outcomes do not take into account any private contracts that might require a vessel owner to apply for any allocated QS (or cooperative shares) and transfer those shares to the owner of the vessel's catch history.

To the extent that vessel ownership can be viewed as a way to demonstrate active participation in the fishery, Option 2 might be favored over Option 1. Ownership of the LLP (as required for eligibility under Option 1), however, would seem to be the clearest reflection of an intent to participate in the fishery, since an LLP license is currently required to participate in the fisheries. Those advocating Option 2 might argue that vessel

⁹Since all LLP license holders are eligible for an allocation under Option 1, the suboption is not relevant to that option.

ownership reflects a reasonable expectation of participation in the fishery. Yet, since LLP licenses are the regulatory prerequisite to participation, it is difficult to argue that basing eligibility on vessel ownership should be preferred. Clearly, the only persons that can reasonably argue that they are entitled to participate in the fishery are those holding an LLP licenses.

Table 3.3-2 shows the number of permanent and interim LLP licenses with crab endorsements and the estimated number of vessels meeting all LLP requirements (including Amendment 10 requirements) based on ADF&G fish ticket data. If LLP licenses are used as the basis for eligibility, the number of entities eligible for an allocation in each fishery would equal the number of permanent LLP licenses issued. At the time of writing, records concerning the qualification of entities for an LLP license under the Amendment 10 exceptions to the LLP requirements are not yet complete. Applicants whose licenses are being disputed are issued interim licenses. The number of outstanding permanent and interim licenses, therefore, provide upper and lower bounds. The number of permanent LLP licenses is a lower bound and the sum of permanent licenses and interim licenses is an upper bound for the number of licenses that could be relied on for eligibility. Because of the incomplete records concerning LLP licenses, analysts estimated the number of entities eligible to receive an initial allocation on a vessel basis. In other words, the analysts considered whether the activity of each vessel individually met the requirements for eligibility for an initial allocation in a fishery. Each vessel that met all of the LLP requirements for an endorsement was determined to form the basis for eligibility for an initial allocation in the fishery. In addition, only vessels with at least one landing in a fishery were considered eligible to receive an allocation.¹⁰ This method of estimation could underestimate the number of entities eligible for an initial allocation. Amendment 10 creates some exceptions to the LLP requirements. Under those exceptions some persons might be entitled to LLP licenses (and initial allocations in the fisheries) based on the activity of more than one vessel. For example, in certain instances replacement vessels could be used to meet the LLP requirements. In addition, an Amendment 10 exception for lost vessels would make an entity eligible for an allocation even though the vessel did not meet all of the LLP requirements. NMFS RAM Division estimates that the number applications for Amendment 10 at approximately 12 (Garret, 2001). It should be noted that the number of persons entitled to an initial allocation may be fewer than that estimated here. The estimate could be less because some persons own more than one vessel and hold more than one LLP license and could receive an allocation based each vessel or LLP license. Detailed ownership data that can be used to determine common ownership of vessels, which is necessary for determining the number of persons eligible for an initial allocation, are unavailable at this time.

¹⁰Since a vessel could qualify for an endorsement for multiple fisheries based on landings from only one fishery, only vessels that have at least one landing in a fishery were considered eligible for an allocation in a fishery.

Table 3.3-2 Number of permanent LLP licenses, number of interim LLP licenses, and number of vessels that created eligibility for an initial allocation.

Fishery	Number of Permanent LLP Licenses	Number of Interim LLP Licenses	Estimated Number of Vessels Eligible for an Allocation
WAI (Adak) Golden King Crab	27	11	23
WAI (Adak) Red King Crab	26	12	28
Bristol Bay Red King Crab	250	52	266
Bering Sea <i>C. Opilio</i>	254	55	256
Bering Sea <i>C. Bairdi</i>	254	55	266
EAI (Dutch Harbor) Golden King Crab	27	14	20
Pribilof Blue King Crab	110	26	84
Pribilof Red King Crab	110	26	122
St. Matthew Blue King Crab	165	34	180

Source: NMFS Alaska Region RAM Office, February 2003 and NPFMC Crab Database 2001 - Version 1.

MarAd certification and U.S.C.G. documentation. The second difference between Option 2 and Option 1 is a requirement in Option 2 that the vessel on which eligibility is based be MarAd certified or U.S.C.G. documented. Meeting this requirement is thought to demonstrate continued participation in and reliance on U.S. fisheries. NOAA GC, however, has advised Council staff that this provision is contrary to the MSA and that Congressional action changing the MSA policies would be necessary for this provision to be implemented. The reasoning behind this opinion is that eligibility for a U.S.C.G. fishery endorsement is an indirect demonstration of reliance on and participation in U.S. fisheries. Basing eligibility for an initial allocation on eligibility for an endorsement would treat similarly situated persons differently. A more complete discussion of this rationale follows.

Most of the eligibility requirements for a U.S.C.G. fishery endorsement pertain to U.S. citizenship. Since these provisions apply to vessel documentation directly, any vessel that is ineligible for a fishery endorsement because of failure of its owner to meet the citizenship requirements could not participate in the fishery in any case. This option, however, could be necessary to prevent a person that does not meet the citizenship requirements from receiving an initial allocation of QS through the ownership of a vessel that meets the LLP participation requirements. In that case, the vessel could not be documented but the owner could receive an initial allocation because of the absence of a provision preventing distribution of QS to non-citizens. This restriction is unnecessary if eligibility for a QS distribution is based on LLP license ownership, since non-citizens cannot hold LLP licenses. Alternatively, the Council could address the issue directly by including a requirement that only U.S. citizens are eligible to receive an initial allocation of QS.

Council deliberations and past proposed amendments suggest that the purpose of this provision is broader than the exclusion of non-citizens from the initial allocation. The purpose of the provision is more likely to exclude from the initial allocation the owners of fishing history of vessels that have left U.S. fisheries to participate elsewhere in the world. At the time the LLP was originally considered and again when amendments to the LLP were considered, the Council considered actions to deny licenses to owners of fishing history of vessels that were re-flagged to participate in foreign fisheries. In both cases, the Council decided not to adopt the proposed actions, in part, because of the possible illegality of the proposed actions.

Prior to the October 1998 Council meeting, the Council received advice from NOAA GC (Babson, 1998) concerning the proposed provision that would deny licenses to otherwise qualified owners of fishing history of vessels that had been re-flagged (a copy of that opinion is attached as Appendix 3-1). NOAA GC stated that a reviewing court likely would find any proposal that uses past participation in a foreign fishery as the

sole criterion for the denial of limited entry rights to otherwise qualified applicants “arbitrary and capricious”. In the opinion, NOAA GC stated that participation in foreign fisheries cannot be used to show lack of reliance upon the domestic fishery. In support of its conclusion, NOAA GC cited the “foreign reciprocity” provisions of the MSA, potential conflicts with international agreements, and discussed the absence of a “rational relationship” between the purpose and “the way in which that purpose is effectuated because the proposal treats similarly situated persons differently.”

NOAA GC has reviewed the options under consideration here and has reiterated their concerns stating that courts are unlikely to enforce this provision under current law. The opinion is rendered after consideration of the recent AFA provisions that prohibit the documentation of all vessels of greater than 165 feet in length that have been placed under foreign registry after October 21, 1998 (see Section 202 of the AFA). NOAA GC maintains that notwithstanding this provision of the AFA, the disparate treatment of the owners of the fishing histories of vessels that left the fishery to participate in fisheries outside the U.S. and the owners of the fishing histories of vessels that left the fishery for other reasons would lead a court to find the option at issue arbitrary and capricious.¹¹

The requirement that a vessel be MarAd certified or U.S.C.G. documented could also prove to be inadequate for attaining its purpose, the exclusion of vessels that were removed from U.S. fisheries from the initial allocation. Vessels that have been removed from the U.S. fisheries for a period of years could be MarAd certified or U.S.C.G. documented, solely for the purpose of obtaining a distribution under the program. Vessels greater than 165 feet in length would not be able to return to U.S. documentation, if they were not documented on September 25, 1997, or have been on a foreign registry since the enactment of the AFA. . Vessels less than or equal to 165 feet in length could be returned to the U.S. registry to receive an initial allocation. After receipt of the initial allocation the vessel owner would be free to remove the vessel from the U.S. and have the document registered in the country of choice. The provision as proposed would not prevent this action by any person owning a vessel that would create eligibility for a distribution under the program.

On November 28, 2001, the industry provided a list of vessels that would be affected under this option. There are a total of 24 vessels, 16 catcher processors and 8 catcher vessels. According to records that industry has developed through consultation with the U.S.C.G., these vessels have not continuously held U.S.C.G. fishery endorsements, since October 10, 1998, with the exception of one vessel. Council staff has not independently verified this list with the U.S.C.G., but has verified crab licenses using data provided by RAM division. Of the vessels on the industry supplied list, 16 have permanent crab licenses and 6 have interim crab licenses. Crab licenses could not be verified for two vessels.

Thirteen of the vessels on the list are over 165 feet in registered length and thus are barred from reentering the U.S. fisheries due to AFA provisions. The impact of the suggested option would prevent those U.S. persons that hold LLPs, based on the catch of these vessels, from utilizing the catch history of these vessels for stacking purposes. Those vessels on the industry supplied list less than or equal to 165 feet in registered length, would be able to reenter the U.S. fishery upon receiving U.S.C.G. documentation. The proposed option would prevent the catch history from these boats from being used for stacking purposes (regardless of stacking permitted by Amendment 10).

¹¹ NOAA GC also has advised that Congressional action would be necessary for such a provision to be enforceable.

3.3.2.2 Calculation and basis for initial allocation of QS

Paragraph 1.4.1(a) of the elements and options defines the following method for calculating the amount of QS (or cooperative shares) each eligible person will receive:

1.4.1. Calculation of initial QS distribution will be based on legal landings, excluding deadloss.

(a) Calculation of QS distribution. The calculation is to be done, on a vessel-by-vessel basis, as a percent of the total catch, year-by-year during the qualifying period. Then the sum of the yearly percentages, on a fishery-by-fishery basis, is to be divided by the number of qualifying years included in the qualifying period on a fishery-by-fishery basis to derive a vessel's QS.

Suboption: For each of the fisheries for which such a vessel holds valid endorsement for any years between the sinking of the vessel and the entry of the replacement vessel to the fishery, allocate QS according to a range of 0 to 100% of the vessel's average history for the qualifying years unaffected by the sinking.

Paragraph 1.4.1 provides that the initial QS distribution will be based on legal landings, excluding deadloss, as evidenced by ADG&G fish tickets. Incidental catch would only be counted if caught in-season, retained, and landed legally, under a valid LLP license. Deadloss is excluded to avoid rewarding potential QS recipients with high deadloss, and because deadloss reporting is notoriously unreliable. Although not directly stated, the exclusion of deadloss is assumed to apply to the cooperative share distribution alternative of paragraph 6.2.3.

The suboption is intended to award QS to qualified persons that lost a vessel and replaced it as permitted by Amendment 10. The provision would grant these persons QS for the years that they were unable to participate in the BSAI crab fisheries because of the loss, based on their average history in the years that they were able to participate. The credit for the years that these persons were unable to participate would be some percentage (between 0 and 100 percent) of the historical participation in the years that they were able to participate.

Calculation of QS Distributions. The QS distribution in paragraph 1.4.1(a) would be conducted on a fishery-by-fishery basis. Under the proposed calculation method, the initial allocation of QS to a qualified vessel (or eligible person) would be as follows:

1. For each year/season in the qualifying period, determine the percent of total harvests from the fishery by the qualified vessel (or the vessel from which a person's eligibility is derived).
2. If required by the qualifying period option, select the best seasons for the vessel from the qualifying period.
3. Calculate the QS allocation for the qualified vessel (or eligible person or cooperative) by averaging the percentages of year/season harvests by the vessel (i.e., the sum of the vessel's yearly/seasonal percentages and divide by the number of years/seasons in the qualifying period).

The calculation of the QS (or cooperative share) distribution to an eligible person (or cooperative) would be based on the following equation:

$$\frac{\text{Year 1 Harvest}}{\text{Total Year 1 Harvests}} + \frac{\text{Year 2 Harvest}}{\text{Total Year 2 Harvests}} + \frac{\text{Year 3 Harvest}}{\text{Total Year 3 Harvests}} + \frac{\text{Year 4 Harvest}}{\text{Total Year 4 Harvests}} = \text{Quota Share} \times \text{Number of Years in Qualifying Period (4)}$$

This method of determining the initial allocation would allocate to each eligible person the average percentage of the annual harvests by that person's vessel during the qualifying period. In other words, each eligible person would receive his or her average share of the annual harvests by the vessel during the qualifying period. This proposed method of calculating the initial allocation differs from calculation methods used in the halibut and sablefish IFQ programs and the AFA cooperative program—the other rationalized fisheries under the Council's authority. In those fisheries, a person's allocation was based on his or her percentage of the total harvests in the fishery during the qualifying period. The alternative method to be used for the initial allocation was proposed to address issues unique to the crab fisheries. In particular, the calculation is thought to provide a QS allocation that is more reflective of each person's participation and activity in the fishery by reducing the effects of the year-to-year fluctuations in total harvest levels on a person's initial allocation of QS. The allocation under this rule would tend to reward operators that participated in years of low abundance, since harvests are credited as a proportion of the annual harvest, rather than as a proportion of total harvests in the qualifying period. Also, vessels that only participated in years of high abundance would have a smaller allocation than if the allocation was based on total pounds harvested.

“Best seasons” provisions. Several of the alternatives for determining QS (or cooperative share) distribution would be based on the catch history during the best seasons of a participant during the qualifying period. Because the allocation proposed is based on a fisherman's *percentage of total annual harvests* and not on the fisherman's *annual harvest by weight*, a fisherman's “best years” may not be those in which he/she caught the most crab by weight. For example, if a vessel has a high percentage of the total harvests from a fishery in a year when total harvests are low, that season will likely be retained as a “best year” for calculating the initial allocation. Similarly, a relatively large harvest (in terms of tonnage) could have occurred in a year with a large total harvest, making the harvest a relatively small percentage of the total harvest from the fishery. This harvest might not be selected as a “best season” because it is the percentage, not the pounds landed, that count towards the QS.

The “best season” provisions clearly benefit those that do not participate (or that have a very low participation level) in the fishery for one or more years. Surprisingly though, these provisions can be detrimental to harvesters that consistently participate in the fishery and that experienced a single good year since the effect of this one good year will be reduced by allowing other participants to consider only their best years. The “best season” provisions can also operate differently when allocations are percentage based rather than weight based. Under the percentage based allocation, harvesters with a consistent percentage of total annual harvests are likely to obtain a smaller initial allocation when only “best years” are considered. This is because harvesters with greater variation in their percentage of annual harvests are able to use the provision to weight the initial allocation with their “best seasons”.

A Hypothetical Example to Illustrate the Calculation Method for QS Share Distribution. Table 3.3-3 shows a hypothetical example of the proposed calculation method for the distribution of QS (or cooperative shares). The example is based on a four-year qualifying period and five participating vessels. The total harvests for the four years are assumed to be 500, 600, 400, and 300 thousand pounds, respectively. Thus, it is assumed that the fishery peaked in year 2. The hypothetical catch histories of the five vessels were chosen to provide some degree of contrast between the two percentage base calculations proposed, and the weight based method used in other fisheries. Care, however, should be taken in drawing general conclusions from the example since the outcomes will vary with changes in the example.

In the example:

- Vessel AA caught 25% of the total harvest each year in the qualifying period;
- Vessel BB caught 25% of the total harvest in years 3 and 4;

- Vessel CC caught 25% of the total harvest in years 1 and 2. Furthermore, Vessel CC failed to meet the recency requirement and, thus, is not a qualified vessel;
- Vessel DD caught 125 thousand pounds each year in the qualifying period; and
- Vessel EE caught more in high total harvest years and less in low total harvest years.

Table 3.3-3(a) shows the catch histories of the five vessels in pounds and each vessel's percentage of the total catch for the qualifying period. Vessel DD had the highest percentage of the total catch (27.8%), while vessel BB had the lowest (9.7%). Table 3-5(b) shows the catch histories of the vessels as percentages of each year's total harvest, each vessel's average percentage catch for all years in the qualifying period, and each vessel's average percentage during the years it participated. For example, vessels BB and CC averaged 12.5% of the total harvests in the qualifying period, but averaged 25% of the harvests for the years that they participated. While vessel DD caught the same amount each year, its catch represented a higher percentage of total harvests in years of low total harvests and a lower percentage of total harvests in years of high total harvests.

Table 3.3-3(c) shows the initial allocation of QS (or cooperative shares) using the calculation method proposed for the crab rationalization program. Since vessel CC is not a qualified vessel, it is not included in the allocation, although its history influences the allocation results. The table also shows the outcome under different qualifying year options—one that considers all years and one that considers each participant's three "best seasons". Each qualified vessel's average percentage for the selected years is calculated. Under the "all years" option, the percentages do not sum to 100, since vessel CC's harvests are not included. Similarly, for the three "best season" option, the percentages do not sum to 100, because vessel CC's harvests are omitted and because each vessel has a different best 3 years. The "adjusted percentage" column proportionally adjusts the allocations to eligible vessels showing each participants allocation as a percentage of the total initial allocation.

Table 3.3-3(d) shows the initial allocation using the weight based method used in prior rationalization programs. Again, the results are calculated using "all years" and using the three "best seasons". Each vessel's harvests during the selected years are summed. Each qualified vessel's initial allocation is calculated by dividing its aggregate catch history by the sum of the catch histories of only qualified vessels. Under the three "best seasons" option, three of the vessels have the same aggregate catch history (375 thousand pounds). Consequently, under the three "best seasons" option these vessels receive the same initial allocation.

Allocations to owners of sunken vessels replaced under Amendment 10. The suboption in section 1.4.1(a) of the Council motion would supplement the allocations of persons that suffered a vessel sinking who replaced their vessels under Amendment 10. If adopted, this suboption would credit these persons with catch history for the years that the person did not participate in the fishery, based on their harvests in years that they were able to participate in the fishery. These persons would be credited with a percent of their average history during the qualifying years that they did participate, for those years that they were unable to participate because of the sinking. For example, consider a person that participated in 3 of 5 qualifying years in a fishery. In those years the person's vessel caught 2 percent, 2.5 percent, and 3 percent of the total harvests from the fishery. Without the suboption, this person's allocation would be equal to its average percentage of harvests considering all 5 years – 1.5 percent of the fishery. If the suboption is adopted and the Council chooses to allocate 50 percent of the average history for years the person could not participated because of the sinking, this person would be credited 50 percent of the 2.5 percent average history in the years of participation (or 1.25 percent for the two years affected by the sinking). Crediting 1.25 percent to these two years, the person's average harvest would be 2 percent (rather than the 1.5 percent that would be allocated in the absence of the suboption).

Table 3.3-3 Example of QS distribution.

(a) Catch History (in 1000 pounds)

Boat	Year				Total	%
	1	2	3	4		
AA	50	50	50	60	210	13.9
BB			100	25	125	8.3
CC	125	150	125		400	26.5
DD	125	125	125	25	400	26.5
EE	175	125	75		375	24.8
Total	475	450	475	110	1510	100

(b) Catch History (in percentages)

Boat	Year				Average %	
	1	2	3	4	All	Active
					Years	Years
AA	11	11	11	55	21.7	21.7
BB	0	0	21	23	10.9	21.9
CC	26	33	26	0	21.5	28.7
DD	26	27.8	26.3	22.7	25.8	25.8
EE	37	27.8	15.8	0.0	20.1	26.8
Total	100	100	100	100.0	100.0	124.8

(c) Crab Rationalization Calculation Method (in percentages)

Boat	Year				All Years		Best 3 Years	
	1	2	3	4.0	Avg %	Adj %	Avg %	Adj %
AA	11	11	11	54.5	21.7	27.6	25.4	27.5
BB	0	0	21	22.7	10.9	13.9	14.6	15.8
CC	26	33	26	0.0				
DD	26	27.8	26.3	22.7	25.8	32.8	25.6	27.7
EE	37	27.8	15.8	0.0	20.1	25.6	26.8	29.0
Total	100	100	100	100.0	78.5	100.0	92.4	100

(d) Halibut and Sablefish IFQ Calculation Method (in 1000 pounds)

Boat	Year				All Years		Best 3 Years	
	1	2	3	4	Total	%	Total	%
AA	50	50	50	60	210	18.9	160	15.5
BB			100	25	125	11.3	125	12.1
CC	125	150						
DD	125	125	125	25	400	36.0	375	36.2
EE	175	125	75		375	33.8	375	36.2
Total	475	450	350	110	1110	100	1035	100

Table 3.3-4 below shows the estimated number of sunken and replacement Amendment 10 vessels that have participated in the different BSAI crab fisheries. The table distinguishes vessels that have fully adjudicated licenses and those that have pending applications. The number of vessels that qualify for this provision cannot be determined with certainty, but can be no greater than 11, the total number of pending and adjudicated applications. The impact of this provision on the allocation of shares in the different fisheries cannot be fully assessed without complete information concerning the number of vessels that qualify as replacement vessels of sunken vessels under Amendment 10. The provision could directly affect as many as 11 allocations in the Bering Sea *C. bairdi* fishery and as few as 1 allocation in the Eastern Aleutian Islands (Dutch Harbor) golden king crab and the Western Aleutian Islands (Adak) red king crab fisheries. The number of allocations affected generally parallels the overall participation levels in the different fisheries. In the smaller fisheries (such as the Western Aleutian Island (Adak) golden king crab fishery), however, the provision could directly affect as many as 20 percent of the allocations. The magnitude of the effect (or the percentage of the total allocation that would be affected) cannot be determined and depends on the level of participation of the sunken and replacement vessels. In any case, the impact of the provision could be mitigated by reducing the percentage of the average catch awarded to an affected vessel from 100 percent.

Table 3.3-4 Participation of sunken and corresponding Amendment 10 replacement vessels in the BSAI crab fisheries (1991-2000).

Fishery	Adjudicated		Pending		Total	
	Sunken	Replacement	Sunken	Replacement	Sunken	Replacement
Western Aleutian Islands (Adak) Golden King Crab	1	0	1	0	2	0
Western Aleutian Islands (Adak) Red King Crab	0	0	1	0	1	0
Bristol Bay Red King Crab	3	3	7	6	10	9
Bering Sea Opilio	3	3	5	6	8	9
Bering Sea Bairdi (EBS Tanner Crab)	3	1	8	4	11	5
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	1	0	0	0	1	0
Pribilof Blue King Crab	0	0	0	3	0	3
Pribilof Red King Crab	0	0	1	3	1	3
St. Matthew Blue King Crab	2	3	3	3	5	6

Source: NMFS RAM Office (April 2002) and NPFMC Crab Rationalization Database 2001 - Version 1

Additional sunken vessel provision

The Council's preferred alternative for rationalization of the BSAI crab fisheries contains a provision that would credit a person for history for a vessel for years that the vessel could not participate because of a sinking. The provision is intended to relieve the hardship of a person that suffered a vessel loss for the period during which the vessel was being replaced. The provision would apply only to those persons that replace their lost vessels under Amendment 10 of the LLP. The provision in the preferred alternative is intentionally narrow, so as to limit the applicability to those persons that have suffered a hardship because of a loss and have taken steps to continue participation in the fishery. After selection of the preferred alternative, public testimony informed the Council that the current provision might be under inclusive and not apply to at least one person that suffered a vessel loss after the Amendment 10 replacement period. To rectify this shortcoming Section 1.4.1 of the Council motion includes the following vessel replacement provision:

(1.4.1) Additional sunken vessel provision

This provision would apply to persons whose eligibility to replace their vessel was initially denied under PL 106-554. The sunk vessel must have been replaced with a newly constructed vessel and have been under construction by June 10, 2002, and participated in a Bering Sea crab fishery by October 31, 2002, for a person to receive a benefit under this provision.

For each of the fisheries for which such a vessel holds a valid endorsement, for all season between the sinking of the vessel and the entry of the replacement vessel to the fishery within the IRS replacement period (as extended by the IRS, if applicable) allocate QS according to 50 to 100 percent of the vessel's average history for the qualifying years unaffected by the sinking. Construction means the keel has been laid.

This provision would apply only to persons that lost a vessel who:

- 1) were denied eligibility to replace the vessel under PL 106-554,
- 2) replaced the vessel with a newly constructed vessel that was under construction by June 10, 2002, and
- 3) participated in a Bering Sea crab fishery with the replacement vessel by October 31, 2002.

Under PL 106-554 a vessel would be eligible to participate in the BSAI crab fisheries, only if the vessel complied with the requirements of the LLP and Amendment 10. By requiring the vessel to comply with the Amendment 10 landing requirement, that statute effectively removed any replacement vessels from the fleet. In at least one instance, this led to a person delaying construction of a replacement vessel until after the statute was modified to permit vessel replacement. PL 106-554 was in effect for less than one year beginning in December of 2000. For replacement of a vessel to have been denied under this provision, the vessel construction would have begun in 2000 or 2001. Determining the number of newly constructed vessels replacing sunken vessels in 2001 and 2002, provides an estimate of the number of vessels that would qualify for this provision.

The number of vessels that qualify for this option was estimated by determining the number of new constructed vessels that entered a crab fishery in 2000 and 2001, based on ADF&G registration files (Bowers, 2002) and the Council Crab Database (NPFMC Crab Rationalization Database, Version 1, 2001). The original vessel could then be identified using registration of these replacement vessels for crab fisheries in the NOAA Fisheries, RAM Division LLP license list (NMFS, 2002). Any newly constructed vessel replacing a sunken vessel is assumed to qualify for this provision. A single vessel was identified as a newly constructed vessel

entering the crab fisheries in 2000 or 2001, in replacement of a sunken vessel. Since only a single vessel is estimated to qualify for this option, the implications for the allocation must be held confidential.

Basis for QS distribution. Paragraph 1.4.1(b) includes the following three options and suboption for the basis of the QS distribution:

(b) Basis for QS distribution.

- Option 1. For eligibility criteria in paragraph 1.2, Option 1, the distribution of QS to the LLP license holder shall be based on the catch history of the vessel on which the LLP license is based and shall be on a fishery-by-fishery basis. The underlying principle of this program is one history per vessel. However, the initial allocation of quota share will allow stacking or combining of valid, permanent, fully transferable LLP licenses and of histories of vessels as permitted under the LLP.
- Option 2. For eligibility criteria in paragraph 1.2, the distribution of QS to the LLP license holder shall be based on the catch history of the vessel (including replacement vessels) on which the LLP license and endorsements are based and shall be on a fishery by fishery basis. The catch history upon which the fishing quota shares are derived, must have been earned on vessels that are currently MarAd certified and/or USCG documented fishing vessels. The initial allocation of quota share will allow stacking or combining of LLPs and histories that satisfied (i) the GQP and EQP landings requirements of the LLP, and (ii) either the RPP landings requirement, or one or more of the specific exemption requirements of Amendment 10 to the LLP.
- Option 3: In cases where the fishing privileges (i.e. moratorium qualification or LLP license) of an LLP qualifying vessel have been transferred, the distribution of QS to the LLP shall be based on the aggregate catch histories of (1) the vessel on which LLP license was based up to the date of transfer, and (2) the vessel owned or controlled by the LLP license holder and identified by the license holder as having been operated under the fishing privileges of the LLP qualifying vessel after the date of transfer. Only one catch history per LLP License.
- Suboption: Persons who have an purchased LLP, with GQP, EQP, and RPP qualifications to remain in a fishery may obtain a distribution of QS on the history of either the vessel on which the LLP is based or on which the LLP is used, NOT both.
- Suboption: With the exception of Amendment 10 replacement vessels, catch histories from different vessels shall not be combined for any single fishery, nor shall distribution of QS be based, in whole or in part, on any catch history of any vessel not lawfully U.S. documented and endorsed as a fishing vessel at the time such QS distribution is made. License transfers for purposes of combining LLPs must have occurred by January 1, 2002. (Could be applied to any of the above options or suboptions)

These options are intended to (1) identify the catch histories on which the QS (or cooperative share) distribution will be based, and (2) establish the Council's policy regarding stacking or combining of catch histories from more than one vessel.¹²

Under the first two options, the history on which the allocation is based is the history of the same vessel on which eligibility is based. The first option would base the initial allocation on the vessel that created the qualification for the LLP on which eligibility is based. The second option would base the allocation on the vessel the ownership of which formed the basis for eligibility. Both of these options (and the suboption) are

¹²Under all of the options (including those proposed below), only legal landings in the directed commercial fishery (and not landing in the research and test fisheries) would be considered qualified catch.

based on the principle of "one vessel history per allocation". Under these two options, the initial allocation of QS in a fishery would be based on the catch history during the qualifying period of each vessel that satisfied the LLP requirements for that fishery, regardless of the number of vessels owned by the person eligible to receive the QS (or cooperative share). For example, a person that owned the catch histories of more than one vessel qualified in a fishery, would receive an initial allocation of QS (or cooperative shares) for each qualified vessel's catch history. The options would acknowledge stacking of histories from multiple vessels only to the extent permitted by the LLP.

The second option also requires that the vessel be currently MarAd certified or U.S.C.G. documented. As noted in the discussion of eligibility, the efficacy of this provision is questionable for both legal and operational reasons. First, the provision will require a change in legislation, authorizing the Council to exclude persons from the allocation based on the certification or documentation of their vessels. Second, assuming the legislative change is made, the success of the provision in meeting its objective could be limited since some of those persons that currently have vessels that are not MarAd certified or U.S.C.G. documented could return those vessels to MarAd certification or U.S.C.G. documentation simply to receive an initial allocation.

Options 1 and 2 both would use the history on which a person's eligibility is based to determine that person's initial allocation. The decision of which of the two provisions to adopt should therefore be made in tandem with the decision of which eligibility option to adopt.

The third option would allow a person to receive an allocation based on the partial histories of two vessels. Since this option would apply only in the case of transfer of an LLP, the provision cannot be adopted alone but must be adopted along with either Option 1 or Option 2. The option is intended to address the problem of a person who has received LLP by transfer and used the LLP on another vessel. This person would then be able to obtain an allocation based on the activity of the vessel that created the right to the LLP for the period prior to the transfer and on the activity of the vessel on which the LLP was used after the transfer. The wording of the provision would allow a person to obtain an allocation based on the sequential activities of two vessels. The activities of the second vessel would not overlap in time, but would be separated by the date of the transfer of the LLP. By not allowing the overlap of time periods, the allocation could be said to be based on a single vessel's activity at any one time.

The first suboption is similarly intended to allow a person who purchased an LLP to remain in a fishery to substitute the history of another vessel on which the LLP was used after the transfer for the history of the vessel that created the right to the LLP. Under this provision a person's allocation would be based on the history of a vessel on which an LLP is used or on the vessel used to generate the LLP, but not both.

The second suboption overlaps with the other options and the first suboption. This second suboption has three operative provisions. The first provision would limit an allocation to a single vessel (except in the case of Amendment 10 replacement vessels). This provision is inconsistent with Option 3, so it cannot be adopted with that option. The provision is already contained in Options 1 and 2, and the first suboption. The second provision of the second suboption is that it would require that any vessel on which an allocation is based be U.S. documented at the time of the allocation. This provision is contained in Option 2 and is analyzed in the discussion of that section. The provision is not contained in Options 1 or 3, nor the first suboption. The third provision of this suboption would require that transfers for the purpose of combining LLPs have occurred prior to January 1, 2002. Although not explicitly stated, this provision would appear to apply only to Option 3 and the other suboption, since these are the only options that provide for LLP license transfers. The applicability of this provision to Option 3 might be questioned, since that option would not allow a person to obtain an allocation based on any activity under an interim license. The suboption, however, would allocate history based on any vessel that is owned by the person that purchases an LLP (including history developed using an interim license). The provision requiring transfers to occur prior to January 1, 2002, would prevent

persons that have knowingly developed extensive histories using an interim license from purchasing a permanent license to receive credit for the interim license history.

Both Option 3 and the suboption are intended to preserve the investment of persons that purchased LLPs to continue in a fishery. The suboption, however, maintains the premise that the history of a single vessel would be used to determine the allocation for each LLP giving rise to eligibility. Under the Option 3 and the suboption, the fisherman could be required to own both the LLP and the vessel on which the allocation would be based. The provisions might be viewed as fair, because it will protect fishermen who invested in transferable LLPs on the expectation that they will allow them to continue operations at their current level. Should the Council wish to move forward with the suboption, it may wish to consider requiring that the license transfer have occurred prior to a date certain. That would help to prevent the speculative transfer of licenses to vessels with large catch histories that may have been developed on contested interim licenses that are later found invalid.¹³ Allocations based on histories developed under those invalid, interim licenses might not be deemed fair by fishermen who have participated under permanent licenses, which were either purchased or developed by the fisherman's own historical catch. The NRC study "Sharing the Fish" has recommended that early control dates be set to reduce speculative activities of those entering the fisheries simply to receive an allocation.

Quantitative analysis of Option 3 and the suboption are difficult because of limited information on the ownership of LLP licenses and vessels. The number of persons wishing to rely on either of these provisions, however, is limited by the number of LLP license transfers (see Table 3.3-5 below). LLP license holders have transferred a total of 26 LLP licenses, as of December 2001. The number of transfers in each fishery is roughly proportional to the number of LLP holders in the fishery. The number of transfers is approximately 5 percent for each fishery.

An additional concern in administering Option 3 or the suboption is whether both the vessel and an LLP license are required to be under the same ownership for a person to rely on either provision. For example, it is possible that an LLP is used on a vessel that is not owned by the LLP owner. Either the vessel and LLP could be held by independent owners or the registered owner of the LLP could differ from the registered owner of the vessel. For purposes of administering Option 3 and the suboption, the Council would need to determine whether ownership is required to be in the same person. The following three alternatives could be considered:

- 1) The strictest standard would be to require the same registered owner for a vessel and LLP license. This would require a clear link between the vessel owner and the LLP license holder and would be the simplest to administer. Such an option might, however, be viewed by some as overly strict and unfair.
- 2) A more liberal standard might apply some threshold ownership level similar to that used in the AFA for determining common ownership. For example, if a person owns in excess of some threshold percentage of both a vessel and LLP license, the person would be considered the owner of both.
- 3) A third, more liberal standard might apply percentages in determining the amount of a vessel's history that could be used for the allocation. This standard would allow the allocation to be based on a vessel's history only to the extent that the LLP and the vessel were commonly held.

In considering these different options, it should be noted that the need to look at differences in ownership between a vessel and LLP will only arise if the registered owners are different.

¹³ Transfers to obtain allocations based on catch histories of vessels fishing under interim licenses would not be possible under Option 3, since that option would value the activity of the vessel of the recipient of the transferred LLP license that occurred after the transfer of the LLP.

Table 3.3-5 The number of LLP license transfers in BSAI crab endorsement fisheries.

	Catcher vessel		Catcher/processor		Total	
	Permanent	Interim	Permanent	Interim	Permanent	Interim
Al golden king	1	0	1	0	2	0
Al red king	1	0	0	1	1	1
Opilio and Bairdi	12	0	4	2	16	2
Bristol Bay red king	12	0	4	2	16	2
Norton Sound red and blue king*	6	0	0	0	6	0
Pribilof Island red and blue king	8	0	0	0	8	0
St. Matthew Island blue king	8	0	2	0	10	0
Total	20	0	4	2	24	2

*One Norton Sound Red and Blue King Crab endorsed LLP has a Pribilof Island Blue and King Crab endorsement. All others have only the Norton Sound endorsement.

Source: NMFS Alaska Region Restricted Access Management Division, December 2001.

Catch history since satisfaction of the LLP requirements.

Under several of the qualifying years options, some of the qualifying catch history could be created since the satisfaction of the LLP requirements. Figure 3.3-1 shows a timeline of qualification requirements and implementation of limited entry programs in the BSAI crab fisheries. Since a vessel could satisfy all of the requirements for an LLP license as early as January of 1996, a person could have accumulated substantial catch history subsequent to satisfying all of the LLP requirements. Both options for defining the basis for QS distribution could deny QS to an LLP holder for catch made using an LLP license on a vessel other than the one that created the right to the LLP. Under both of the primary options, this catch history would not be assigned to the LLP holder, if the holder fished on a vessel other than the one creating the right to the LLP. Since LLP license holders were not required to report the vessel on which the license was used, prior to January 1, 2002, no quantitative estimate of the scale of this problem can be provided. In addition, no record exists for tracking the use of LLP licenses for directly allocating QS based on an LLP license’s use. Both Option 3 and the suboption are intended to address this shortcoming. Both do so in an incomplete manner, however, because an LLP could be used on several different vessels over time.

Because of the potential that persons may have used an LLP license on a vessel other than the one that created the right to the license, the Council may wish to consider alternative provisions for determining the history on which QS distributions should be based. The following two possible options could be considered if the Council believes this problem needs to be addressed:

- 1) Allocations could be based on the catch history of one vessel owned by the person eligible to receive an allocation. This would retain the “one vessel history per allocation” concept but would permit vessel owners more latitude in determining the vessel on which an allocation should be based. This option is similar to the suboption set out above but would apply whether a person purchased an LLP or was simply entitled to one based on the catch history of a vessel.
- 2) Allocations could be based on the catch history of all vessels owned by the person eligible to receive an allocation. This option is substantially more liberal than any others that have been considered and would allow a person’s allocation to be based on more than one vessel history. The effects of this rule on the allocation cannot be predicted without detailed ownership information, which is currently unavailable to the analysts.

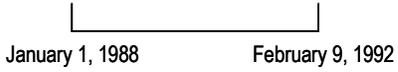
Administration of either of the suggested options would require the Council to determine the same ownership issue that arises under Option 3 and the suboption.

Figure 3.3-1

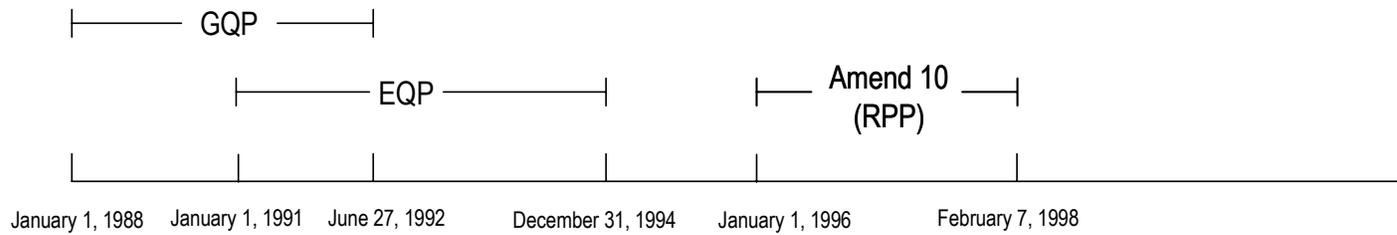
Timeline of LLP qualification periods and implementation.

Program qualification periods

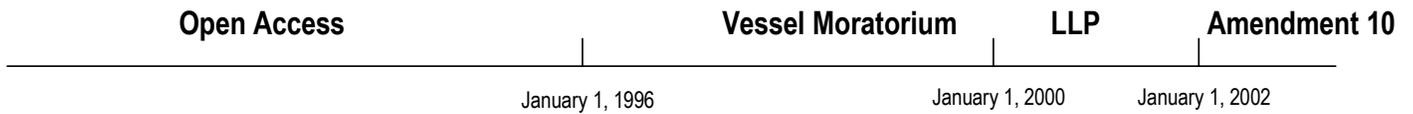
Vessel Moratorium



LLP



Permits required for fishing



Qualifying year options and the initial allocation.

To determine the initial allocation of QS first requires rules for determining eligibility for an allocation, and rules for establishing the basis of those initial allocations. The next step in defining an initial allocation is to select qualifying years on which the allocation will be based. The Council motion includes several options for qualifying years for each fishery under consideration for rationalization. In this section, the initial distribution in each fishery is analyzed using each of the qualifying year options. To simplify the analysis, the options for each fishery are analyzed independently. The section concludes with a brief discussion of the overlapping participation in the different BSAI crab fisheries.

The analysis is conducted on a vessel basis. A more accurate estimate of the distribution would be based on ownership information. Ownership data, however, are unavailable for this analysis. To determine eligibility to receive an initial allocation the analysts considered the activity of each vessel individually. In addition, the distributions are estimated, based on the activity of individual vessels. So, if a vessel engaged in activity that met the eligibility requirements for a distribution, the distribution was estimated using only the activity of the vessel that met the eligibility requirements. Amendment 10 creates some exceptions to the LLP requirements that would entitle some persons to LLP licenses that do not meet these requirements. For example, in certain instances, replacement vessels could be used to meet the LLP requirements. Records concerning the qualification of persons under the Amendment 10 exceptions to the LLP requirements are not yet available, so currently, the most complete analysis is based on activities of single vessels. In addition, Option 3 and the suboption in 1.4.1 would consider the history of a vessel other than the one that created the privilege to the LLP, under certain circumstances. Quantitative analysis of those options is not included in this section. Graphs are used to illustrate the allocations under the different options for qualification years for each fishery. To protect confidentiality, the allocations are shown in groups of 4 vessels¹⁴, with vessel groupings made in a descending order from the largest estimated allocation to the smallest allocation. The last and smallest grouping contains between 4 and 7 estimated allocations, since at least 4 persons' activities must be included under confidentiality rules. The estimated allocation shown for each group is the average allocation to members of that group. The allocation is shown in pounds, applying the total catch from the most recent year in the fishery to the share allocations. The harvests from that season are also shown using the same grouping method to allow comparison of the allocations with the current fishing activity. Each legend shows the total number of vessels that would receive an allocation under each option and the number of vessels that fished in the comparison season. Because allocations are averages it is possible that the largest allocation to a single vessel in a group is significantly different from the average of the four vessels, particularly in the groupings of the largest allocations, in the fisheries with the fewest participants. In fisheries with either few options or few vessels receiving allocations, bar graphs are used to show the allocations. Unfortunately, these graphs are difficult to read in fisheries where the number of persons receiving allocations and the number of options are relatively large. Histograms are used to show the initial allocations in place of the bar graphs in those fisheries. In addition to the graphs, a table is presented which shows the average of the four largest allocations, the mean allocation, and the median allocation under each option.¹⁵

In the four fisheries that are currently open (the Bering Sea *C. opilio*, the Bristol Bay red king crab, and the two Aleutian Islands golden king crab fisheries) the Council has included options that would base allocations on participation up to the most recent fisheries. For the most recent seasons, data are not available for quantitative analysis. These options are analyzed qualitatively based on the allocations under the other options and number of participants in the most recent seasons.

¹⁴It should be noted that these allocations are based on vessels and not vessel owners. Therefore, persons that own more than one vessel could be included in more than one of the histograms. These levels cannot be used to determine caps.

¹⁵ The mean allocation is the average allocation. The median allocation is the allocation at the midpoint in the distribution, for which half of the allocations are larger and half of the allocations are smaller.

The Bering Sea *C. Opilio* fishery.

The Council motion includes the following qualifying year options for the distribution of QS in the Bering Sea *C. opilio* fishery:

- | | |
|---------|-----------------------------------|
| 1.4.2.1 | Opilio (EBS snow crab) |
| | Option 1. 1994 - 1999 (6 seasons) |
| | (a) Best 5 seasons |
| | Option 2. 1992 - 1999 (8 seasons) |
| | (a) Best 7 seasons |
| | Option 3. 1995 - 1999 (5 seasons) |
| | (a) All seasons |
| | (b) Best 4 seasons |
| | Option 4. 1996 - 2000 (5 seasons) |
| | (a) Best 4 seasons |
| | Option 5. 1996-2002 (7 seasons) |
| | (a) Best 6 seasons |

Figure 3.3-2 is a graph of the distribution in the Bering Sea *C. opilio* fishery under the different qualifying year options. Table 3.3-6 shows the mean, median, and the “average of the four largest allocations” under the different options¹⁶. Both the figure and table show that the allocations are quite similar. The mean (or average allocation) and the median (the midpoint in the distribution) are both slightly less than one-half of one percent. The vessels receiving the highest allocations will receive substantially higher allocations than most other vessels, receiving more than twice the median or the mean. The average allocation to these vessels is slightly more than one percent of the total allocation. Under all of the options the mean, median, and average of the four largest allocations are approximately the same. The number of vessels receiving an allocation ranges from 243 under Options 3A and 3B, to 251 under Option 2A.

Option 5A cannot be directly analyzed because harvest data are not currently available for the 2001 and 2002 seasons. Table 3.3-7 shows the number of qualified and unqualified vessels that participated in the fishery in those years. As the table shows, 187 qualified vessels participated in 2001, while 176 qualified vessels participated in 2002. This is a decline from the 205 qualified vessels that participated in 2000. Since fewer vessels have participated in these recent years, it is possible that the allocation under Option 5A would be slightly more concentrated than the allocation under Option 4A. The specific implications of including history from these recent years in the allocation, however, cannot be determined without examining harvest data.

¹⁶The vessels in various groupings may change by alternative, since their overall ranking in the fleet may change

Table 3.3-6

Mean, median, and average of the four largest allocations under the different options in the Bering Sea *C. opilio* fishery (as portion of fishery).

Fishery	Mean	Median	Average of four largest allocations
Bering Sea Opilio			
Option 1A -1994 - 1999 (Best 5 seasons)	0.004	0.004	0.010
Option 2A - 1992 - 1999 (Best 7 seasons)	0.004	0.004	0.010
Option 3A -1995 - 1999 (All seasons)	0.004	0.004	0.010
Option 3B - 1995 - 1999 (Best 4 seasons)	0.004	0.004	0.011
Option 4A -1996 - 2000 (Best 4 seasons)	0.004	0.004	0.010

Source: NPFMC Crab Database 2001 - Version 1

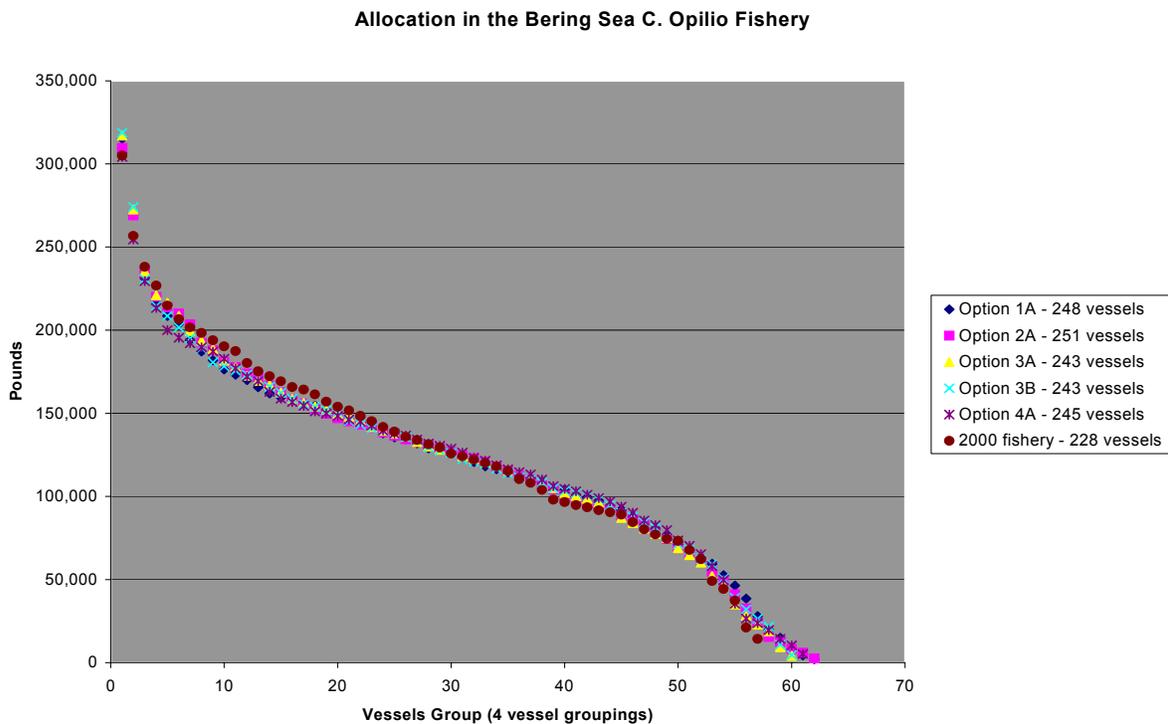


Figure 3.3-2 Allocation in the BS *C. Opilio* Fishery.

Table 3.3-7

Participation in the Bering Sea *C. opilio* fishery in the 2001 and 2002 seasons.

Fishery	Season	Vessel type	Qualification	Number of vessels	
Bering Sea Opilio	2001		Unqualified	20	
		Catcher vessel	Qualified	179	
		Catcher/processor	Qualified	8	
	2002			Unqualified	15
		Catcher vessel	Qualified	167	
		Catcher/processor	Qualified	9	

Source: Westward Region, ADF&G, Vessel Registration Files and NPFMC Crab Database 2001 - Version 1

The Bristol Bay red king crab fishery.

The Council motion includes the following qualifying year options for the distribution of QS in the Bristol Bay red king crab fishery:

1.4.2.2 Bristol Bay red king crab	
Option 1.	1993 - 1999 (5 seasons, closed in '94 and '95)
(a)	All seasons
(b)	Best 4 seasons
Option 2.	1992 - 1999 (6 seasons)
(a)	All seasons
(b)	Best 5 seasons
Option 3.	1996 - 2000 (5 seasons)
(a)	Best 4 seasons
Option 4.	1996-2001 (6 seasons)
(a)	Best 5 seasons

Table 3.3-8 shows the mean, median, and the “average of the four largest allocations” under the different qualifying year options in the Bristol Bay red king crab fishery . Figure 3.3-3 is a graph of the distribution in the fishery under the different options. As in the *C. opilio* fishery, the allocations are quite similar. Under Option 3A, the four vessels receiving the largest allocations, however would receive slightly more than the highest four under the other options. Under that option, slightly fewer vessels (254 vessels) are included in the initial allocation than under the other options (266 vessels). The average allocation to the four vessels that receive the largest allocations under all options is slightly less than 1 percent of the total allocation in the fishery. The median (or midpoint in the allocation) and the mean (or average) allocation are both slightly less than one-half of one percent under all of the options.

Option 4A cannot be directly analyzed because data are not available for the 2001 season. Table 3.3-9 shows the number of qualified and unqualified vessels that participated in the fishery in 2001. As the table shows, 208 qualified vessels participated, a decline from the 213 qualified vessels that participated in 2000. Since fewer vessels have participated in the fishery in 2001, than are qualified for an allocation under Option 3A, it is possible that the allocation under Option 4A would be slightly more concentrated than the allocation under Option 3A. The specific implications of including history from these recent years in the allocation, however, cannot be determined without examining harvest data.

Table 3.3-8 Mean, median, and average of the four largest allocations under the different qualifying year options in the Bristol Bay red king crab fishery (as portion of the fishery).

Fishery	Mean	Median	Average of four largest allocations
Bristol Bay Red King Crab			
Option 1A -1993 - 1999 (All seasons)	0.004	0.004	0.008
Option 1B - 1992 - 1999 (Best 4 seasons)	0.004	0.004	0.008
Option 2A -1993 - 1999 (All seasons)	0.004	0.004	0.008
Option 2B - 1992 - 1999 (Best 5 seasons)	0.004	0.004	0.008
Option 3A -1996 - 2000 (Best 4 seasons)	0.004	0.004	0.009

Source: NPFMC Crab Database 2001 - Version 1

Figure 3.3-3 Allocation in the Bristol Bay red king crab fishery.

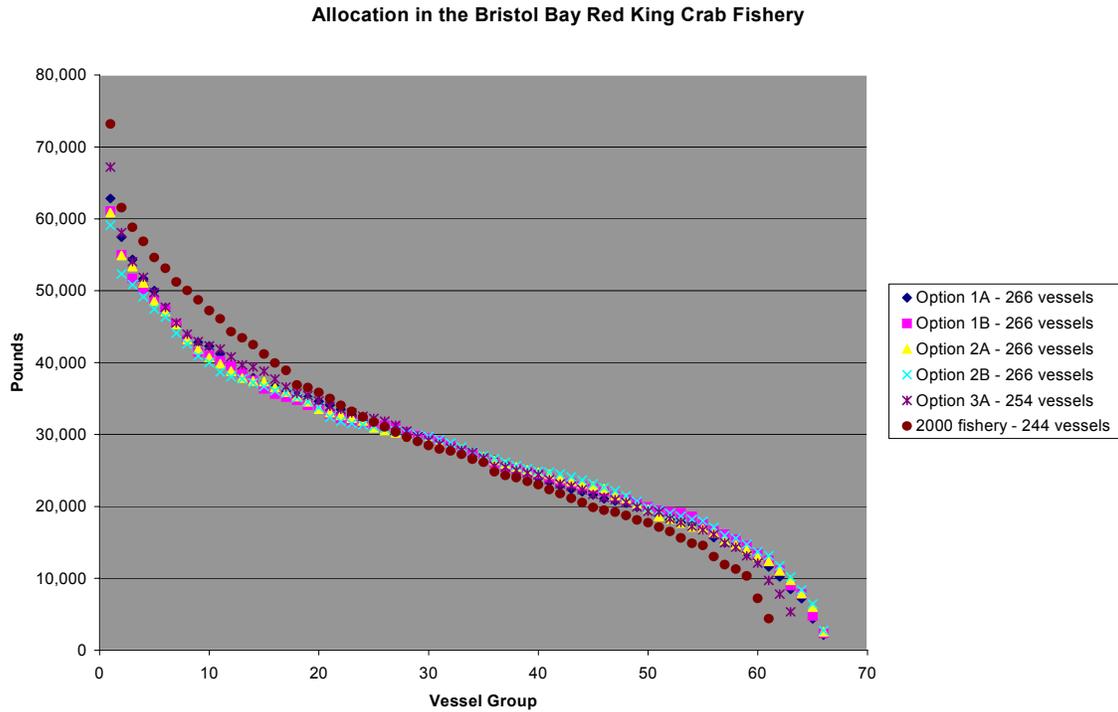


Table 3.3-9 Participation in the Bristol Bay red king crab fishery in the 2001 season.

Fishery	Season	Vessel type	Number of vessels	
			Qualification	
Bristol Bay Red King Crab	2001		Unqualified	24
		Catcher vessel	Qualified	201
		Catcher/processor	Qualified	7

Source: Westward Region, ADF&G, Vessel Registration Files and NPFMC Crab Database 2001 - Version 1

The *C. Bairdi* fishery.

The Council motion includes the following qualifying year options for the distribution of QS in the Bering Sea *C. bairdi* fishery:

1.4.2.3 Bairdi (EBS tanner crab)

Option 1. 1992 - 1996 (5 seasons)

(a) All seasons

(b) Best 4 seasons

Option 2. 91/92* - 1996 (6 seasons)

(a) Best 5 seasons

(b) Best 4 seasons

Option 3. Based on a 50/50 combination of Bristol Bay red king crab and opilio harvests

*The biological season extended over a calendar year

Option 3 would base the allocation on the allocations in the Bristol Bay red king crab and the *C. opilio* fisheries, weighting each of those allocations equally for purposes of determining the allocation in the *C. bairdi* fishery.

Table 3.3-10 shows the mean, median, and the “average of the four largest allocations” under the different qualifying year options in the Bering Sea *C. bairdi* fishery. Figure 3.3-4 is a graph of the distribution in the fishery under the different options. As in the *C. opilio* and the Bristol Bay red king crab fisheries, the allocations are quite similar. Although the graph appears flatter than the graphs from the other fisheries, that is largely an artifact of the scale of the graph. The shape of the curve and the average of the four largest allocations is approximately the same as in the other fisheries. The average allocation to the four vessels receiving the largest allocations under all of the options is slightly more than one percent of the total allocation in the fishery, while the median (midpoint) and mean (average) allocations are slightly less than one-half of one percent. A total of 266 vessels are included in the initial allocation under all of the options. All reported descriptive statistics are approximately the same under the options.

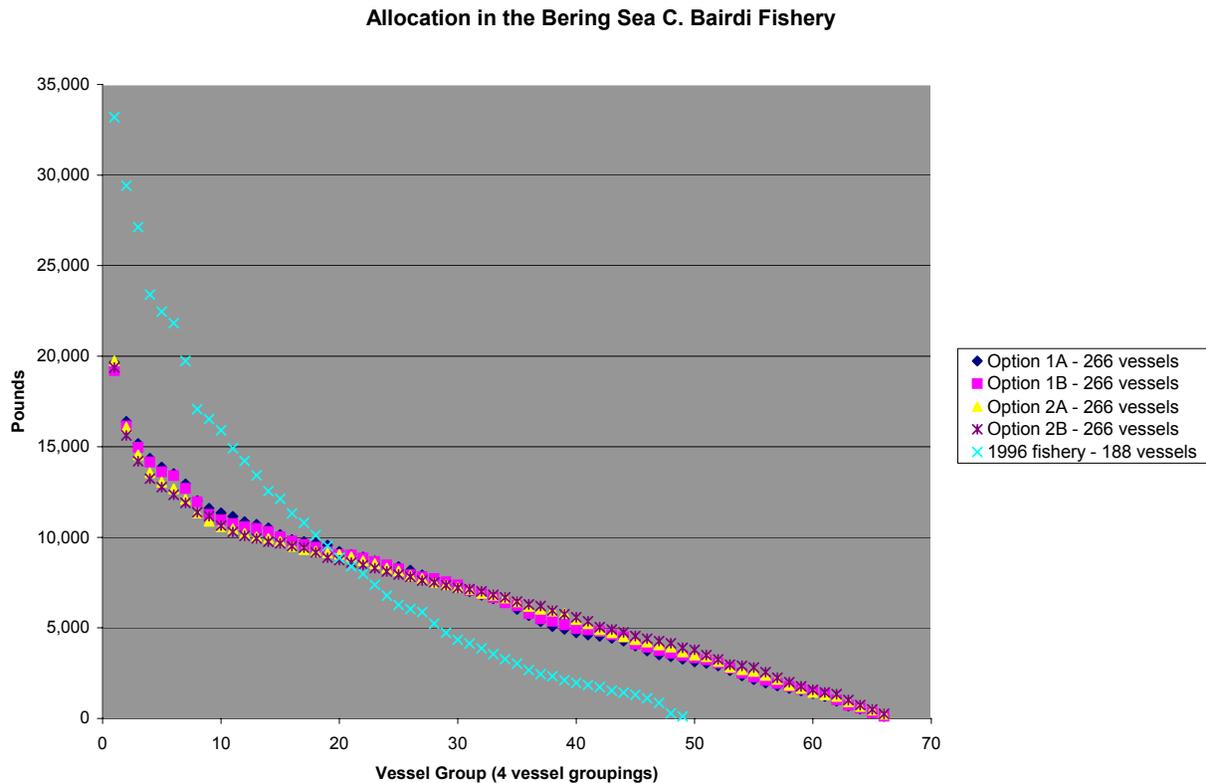
Table 3.3-10 Mean, median, and the average of the four largest allocations under the different qualifying year options in the Bering Sea *C. bairdi* fishery (as portion of the fishery).

Fishery	Mean	Median	Average of four largest allocations
Bering Sea Bairdi (EBS Tanner Crab)			
Option 1A -1992 - 1996 (All seasons)	0.004	0.004	0.011
Option 1B - 1992 - 1996 (Best 4 seasons)	0.004	0.004	0.011
Option 2A -1991-1992 - 1996 (Best 5 seasons)	0.004	0.004	0.011
Option 2B -1991-1992 - 1996 (Best 4 seasons)	0.004	0.004	0.011

Source: NPFMC Crab Database 2001 - Version 1

Option 3 would determine the allocation in the Bering Sea *C. bairdi* fishery based on the combined allocations in the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries, weighting each of those allocations equally. Because each of these other fisheries has 6 allocation options, Option 3 is actually 36 different options. The number of options makes it difficult to present as much information concerning these options as was presented for the other allocation options. Table 3.3-11 shows the number of vessels that would receive an allocation, the mean, the median, and the “average of the four largest allocations” under each of these alternatives (except Option 4A in the Bering Sea *C. opilio* fishery and Option 5A in the Bristol Bay red king crab fishery for which data are unavailable). In addition, the table shows the number of vessels without a qualified landing in the Bering Sea *C. bairdi* fishery. Because the allocations are based on participation in other fisheries, these options may result in either 3 or 4 vessels that have no history in the *C. bairdi* fishery, receiving allocations. Some participants in the *C. bairdi* fishery believe that any option that relies on harvests in the *C. opilio* fishery would be unfair, because the two fisheries occurred simultaneously. These fishermen believe that participants in the *C. opilio* fishery would be rewarded twice for harvests if the allocation in the *C. bairdi* fishery are based on harvests from the *C. opilio* fishery. The allocations under these options are very similar to one another, with 269 or 270 vessels receiving allocations under each of the options. The average of the four largest allocations is less than 1 percent, under all of the options, and both the mean and median (midpoint) allocations are less than one-half of one percent. In the event the options with recency participation are chosen for the Bristol Bay red king crab (4A) or the Bering Sea *C. opilio* fishery (5A), the effects of this option will change. The change in the allocation depends on the allocations in those fisheries, which are indeterminate, as discussed above.

Figure 3.3-4 Allocation in the Bering Sea C. bairdi fishery.



The Pribilof red king crab fishery.

The Council motion includes the following qualifying year options for the distribution of QS in the Pribilof red king crab fishery:

- 1.4.2.4 Pribilofs red king crab
- Option 1. 1993 - 1998
 - (a) Best 4 seasons
 - Option 2. 1994 - 1998
 - (a) All seasons
 - (b) Drop one season

Table 3.3-12 shows the mean, median, and the “average of the four largest allocations” under the different qualifying year options in the Pribilof red king crab fishery . Figure 3.3-5 is a graph of the distribution in the fishery under the different options. The allocations under the options in the Pribilof red king crab fishery are also quite similar to each other. The allocation under Option 1A, however, provides a smaller average allocation to the vessels receiving the four largest allocations. Under Option 1A, the allocation to those four vessels is almost one percent less than the allocation to the four vessels with the largest allocations under the other options. In this fishery, the leading four vessels under any of the alternatives would receive allocations more than five times the mean or median. The mean (or average) allocation is also slightly lower under Option 1A, since that option includes a few more vessels in the allocation than the other options. The median

(or midpoint) in the allocation distribution is slightly more than one-half of one percent under all of the options. Fewer vessels will receive an allocation in this fishery than would in those previously discussed, with 122 vessels receiving an allocation under Option 1A and 109 vessels receiving an allocation under the other options.

Table 3.3-11 Allocation options for the Bering Sea *C. bairdi* fishery, where allocations are based on allocations in the Bristol Bay red king crab and Bering Sea *C. opilio* fishery (as portion of the fishery).

Bristol Bay red king crab option	Bering Sea <i>C. opilio</i> option	Number of vessels receiving an allocation	Number of vessels without a qualified landing	Mean	Median	Average of 4 largest allocations
1A	1A	270	4	0.004	0.004	0.008
1A	2A	270	4	0.004	0.004	0.008
1A	3A	270	4	0.004	0.004	0.009
1A	3B	270	4	0.004	0.004	0.009
1A	4A	270	4	0.004	0.004	0.008
1B	1A	270	4	0.004	0.004	0.008
1B	2A	270	4	0.004	0.004	0.008
1B	3A	270	4	0.004	0.004	0.008
1B	3B	270	4	0.004	0.004	0.008
1B	4A	270	4	0.004	0.004	0.008
2A	1A	270	4	0.004	0.004	0.008
2A	2A	270	4	0.004	0.004	0.008
2A	3A	270	4	0.004	0.004	0.008
2A	3B	270	4	0.004	0.004	0.008
2A	4A	270	4	0.004	0.004	0.008
2B	1A	270	4	0.004	0.004	0.008
2B	2A	270	4	0.004	0.004	0.008
2B	3A	270	4	0.004	0.004	0.008
2B	3B	270	4	0.004	0.004	0.008
2B	4A	270	4	0.004	0.004	0.008
3A	1A	269	3	0.004	0.004	0.009
3A	2A	269	3	0.004	0.004	0.008
3A	3A	269	3	0.004	0.004	0.009
3A	3B	269	3	0.004	0.004	0.009
3A	4A	269	3	0.004	0.004	0.008

Source: NPFMC Crab Database 2001 Version 1

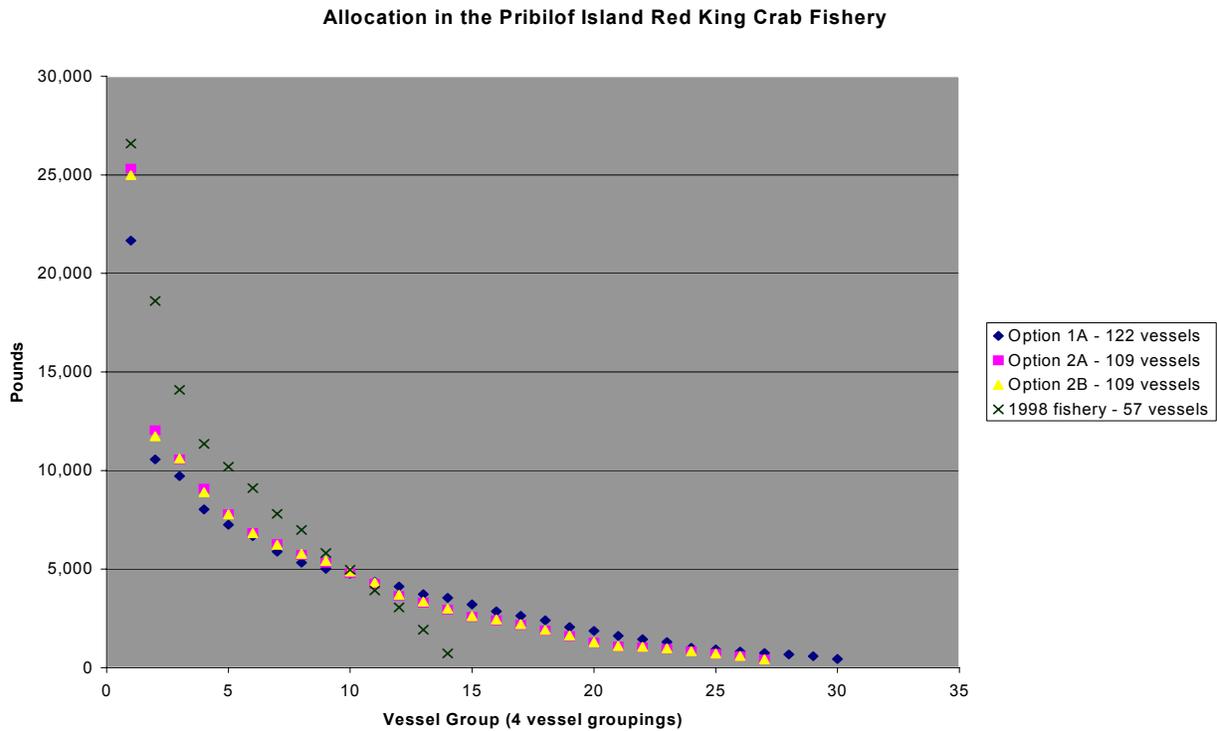
Table 3.3-12 Mean, median, and average of the four largest allocations under the different qualifying year options in the Pribilof red king crab fishery (as portion of the fishery).

Fishery	Mean	Median	Average of four largest allocations
Pribilof Red King Crab			
Option 1A - 1993 - 1998 (Best 4 seasons)	0.008	0.006	0.043
Option 2A - 1994 - 1998 (All seasons)	0.009	0.006	0.051
Option 2B - 1994 - 1998 (Drop one season)	0.009	0.006	0.050

Source: NPFMC Crab Database 2001 - Version 1

Figure 3.3-5

Allocations in the Pribilof Island red king crab fishery.



The Pribilof blue king crab fishery.

The Council motion includes the following qualifying year options for the distribution of QS in the Pribilof blue king crab fishery:

- 1.4.2.5 Pribilofs blue king crab
- Option 1. 1993 - 1998
 - (a) Best 4 seasons
 - Option 2. 1994 - 1998
 - (a) All seasons
 - (b) Drop one season

Table 3.3-13 shows the mean, median, and the “average of the four largest allocations” under the different qualifying year options in the Pribilof blue king crab fishery . Figure 3.3-6 is a graph of the distribution in the fishery under the different options. Because the Pribilof blue king crab fishery was closed in 1993 and 1994 all of the options are equivalent. The distribution under only one option is shown. In this fishery, the average allocation to the leading four vessels is slightly less than 5 percent. The allocation to these vessels is slightly less than 5 times the mean allocation and approximately six times the median allocation. The allocation in this fishery would accrue to 84 vessels.

Table 3.3-13

Mean, median, and average of the four largest allocations under the different qualifying year options in the Pribilof blue king crab fishery.

Fishery	Mean	Median	Average of four largest allocations
Pribilof Blue King Crab			
Option 1A-1993 - 1998 (Best 4 seasons)	0.012	0.008	0.049

Source: NPFMC Crab Database 2001 - Version 1

Allocation in the Pribilof Island Blue King Crab Fishery

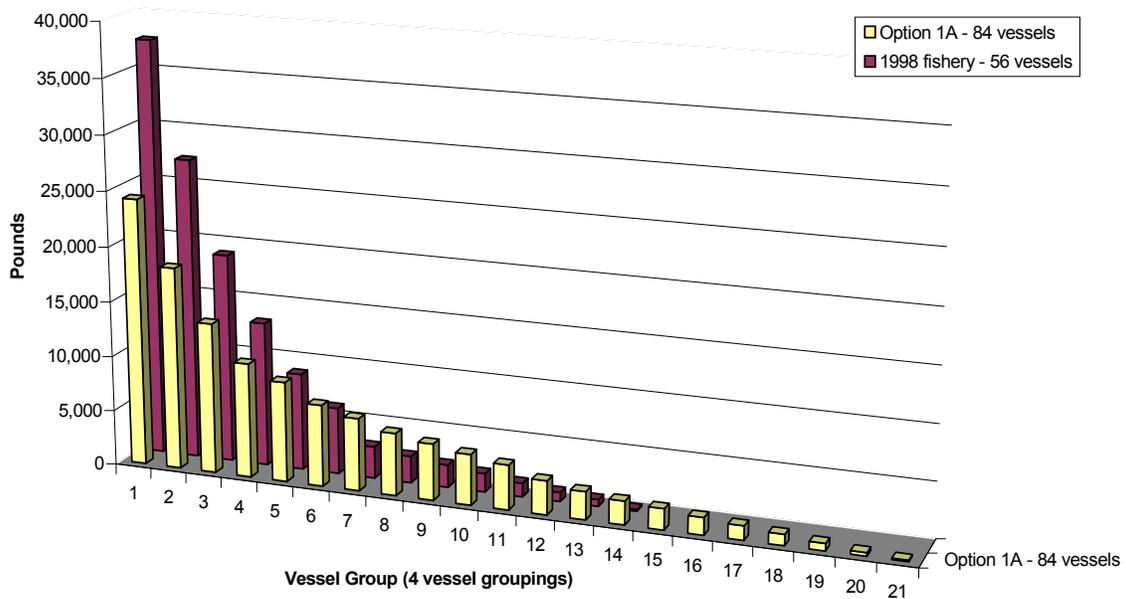


Figure 3.3-6

Allocation in the Pribilof Island blue king crab fishery.

The Pribilof red and blue king crab fishery.

The Council motion includes the following qualifying year options for the distribution of QS in a combined Pribilof red and blue king crab fishery:

1.4.2.6 Pribilofs red and blue king crab

- Option 1. 1993 - 1998
 - (a) Best 4 seasons
- Option 2. 1994 - 1998
 - (a) All seasons
 - (b) Drop one season

Table 3.3-14 shows the mean, median, and the “average of the four largest allocations” under the different qualifying year options in the Pribilof red and blue king crab fishery. Figure 3.3-7 is a graph of the distribution in the fishery under the different options. The allocations under the options in the Pribilof red and blue king crab fishery are also quite similar to each other. The average allocation for the four largest vessels ranges from 2.7 percent for Option 1A, to 3.2 percent for Option 2A. The mean and median allocations are also similar to each other. The mean (or average) allocation is slightly lower under Option 1A, since that option includes a few more vessels in the allocation than the other options. The median (or midpoint) in the allocation distribution is slightly more than one-half of one percent, under all of the options. Fewer vessels will receive an allocation in this fishery than would in those previously discussed, with 122 vessels receiving an allocation under Option 1A, and 109 vessels receiving an allocation under the other options.

Table 3.3-14 Mean, median, and average of the four largest allocations under the different qualifying year options in the Pribilof red and blue king crab fishery (as portion of the fishery).

Fishery	Mean	Median	Average of four largest allocations
Pribilof Red and Blue King Crab			
Option 1A - 1993 - 1998 (Best 4 seasons)	0.008	0.006	0.027
Option 2A - 1994 - 1998 (All seasons)	0.009	0.006	0.032
Option 2B - 1994 - 1998 (Drop one season)	0.009	0.006	0.031

Source: NPFMC Crab Database 2001 - Version 1

The St. Matthew blue king crab fishery.

The Council motion includes the following qualifying year options for the distribution of QS in the St Matthew blue king crab fishery:

1.4.2.7 St. Matthew blue king crab

- Option 1. 1993 - 1998
 - (a) Best 4 seasons
- Option 2. 1994 - 1998
 - (a) All seasons
 - (b) Drop one season

Figure 3.3-7

Allocation in the Pribilof Island Red and Blue King Crab Fishery.

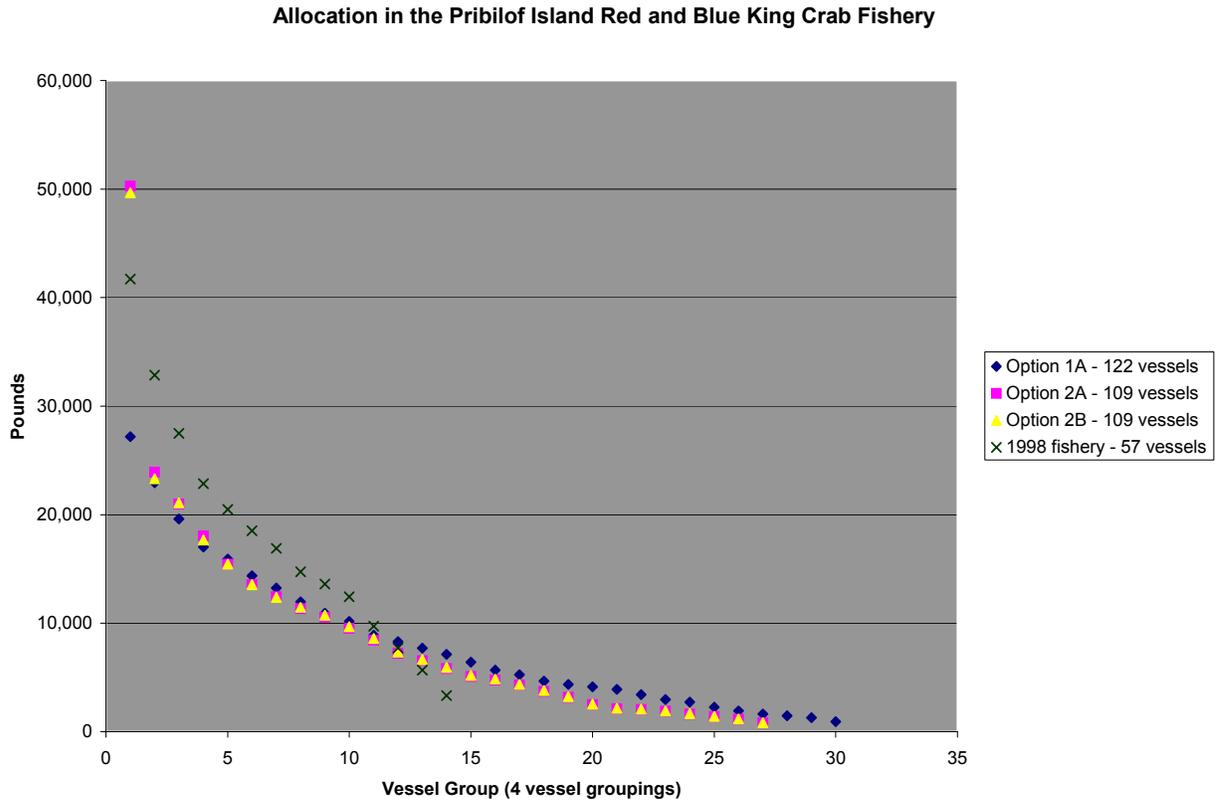


Table 3.3-15 shows the mean, median, and the “average of the four largest allocations” under the different qualifying year options in the St. Matthew blue king crab fishery . Figure 3.3-8 is a graph of the distribution in the fishery under the different options. The table and graph show that the distribution of the allocations under the different options are very similar. The average allocation to the four leading vessels is approximately the same under the different options, varying by less than one-quarter of one percent. The mean and median (midpoint) of the allocation distribution are the same under all of the options. Option 1A includes slightly more vessels in the allocation than the other options (142 vessels, as compared to 138 vessels under Options 2A and 2B).

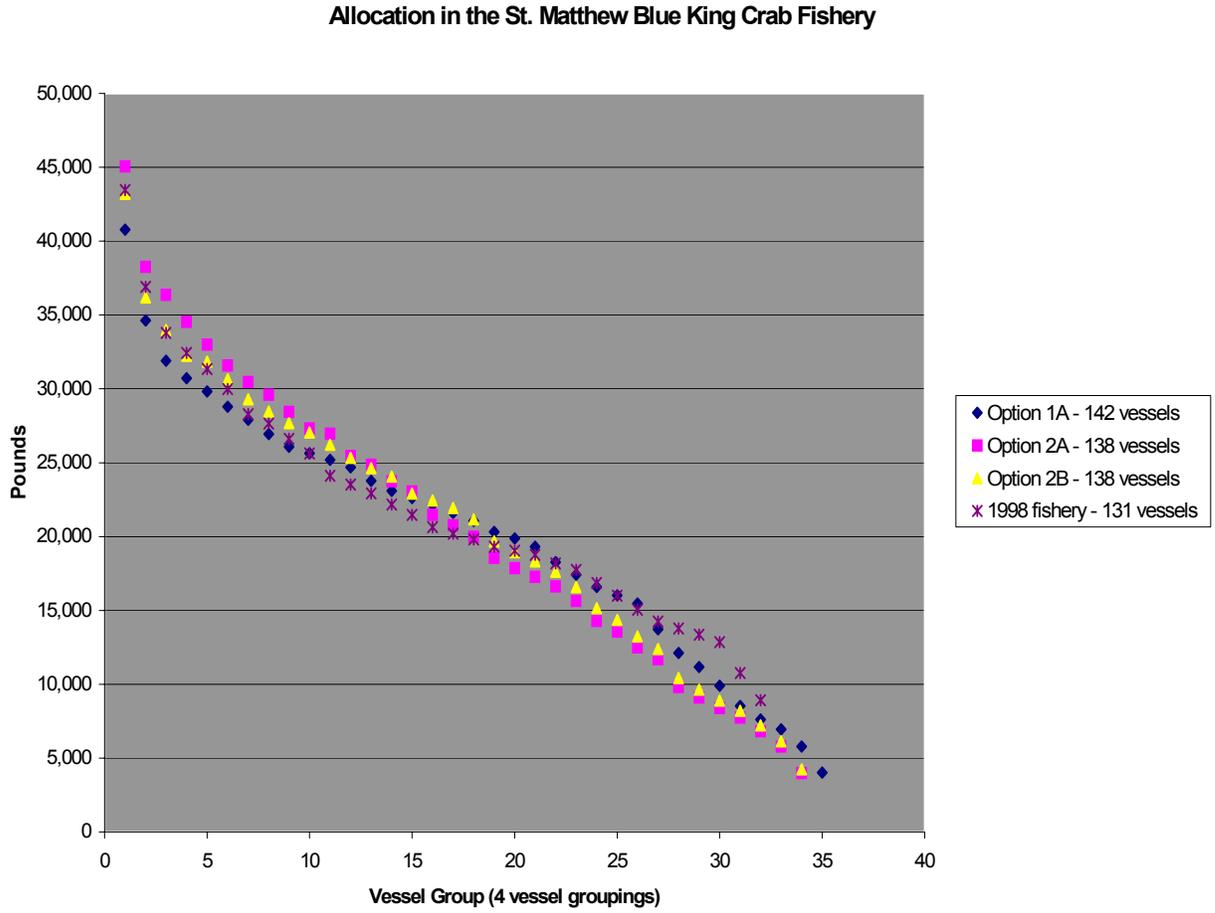
Table 3.3-15 Mean, median, and average of the four largest allocations under the different qualifying year options in the St. Matthew blue king crab fishery (as portion of the fishery).

Fishery	Mean	Median	Average of four largest allocations
St. Matthew Blue King Crab			
Option 1A -1993 - 1998 (Best 4 seasons)	0.007	0.007	0.014
Option 2A - 1994 - 1998 (All seasons)	0.007	0.007	0.016
Option 2B - 1994 - 1998 (Drop one season)	0.007	0.008	0.015

Source: NPFMC Crab Database 2001 - Version 1

Figure 3.3-8

Allocation in the St. Matthew blue king crab fishery.



The Aleutian Island golden king crab fishery.

The Council motion includes the following qualifying year options for the distribution of QS in the Aleutian Islands golden king crab fishery:

1.4.2.8 Brown king crab (based on biological season)

(Options apply to both Dutch Harbor and western Aleutian Island brown king crab)

Option 1. 92/93 - 98/99 (7 seasons)

(a) All seasons

(b) Drop one season

Option 2. 95/96 - 98/99 (4 seasons)

(a) All seasons

(b) Drop one season

Option 3. 96/97 - 98/99 (3 seasons)

(a) All seasons

(b) Drop one season

Option 4. 96/97 - 2000/01 (5 seasons)

(a) Best 4 seasons

(b) Best 5 seasons

Option 5. 96/97 - 2001/02 (6 seasons)

(a) Best 5 seasons

Suboption: Award each initial recipient QS based on:

(b) GHl split Dutch Harbor/western Aleutian Island brown king crab

(c) historical participation in each region.

The Aleutian Islands golden king crab fishery is divided into the Eastern Aleutian Islands subdistrict, and the Western Aleutian Islands subdistrict. Two suboptions are proposed for the initial allocation in these fisheries. The first would base each initial allocation on the combined harvest histories in the two areas. Under this suboption, an eligible person would be awarded the same share in the eastern and western fisheries, based on all harvests in the qualifying period in the two subdistricts combined. The second suboption would award each eligible person a share of each subdistrict's quota based on their harvests in that subdistrict alone.

A few reasons compel the inclusion of different QS and allocations for the EAI and WAI subdistricts. Distinct stocks are identified in the Eastern and Western Aleutians. Having distinct allocation in the two districts will ensure that those stocks can be properly managed. In addition, a single category of QS might not be reflective of the catch history of participants who have traditionally chosen which subdistricts to fish based on economic and safety considerations. This second rationale might suggest that the suboption that distributes QS in each subdistrict based on catch history in the subdistrict be favored, because persons would receive QS based in areas in which they have historically participated.

The boundary between the Eastern and Western subdistricts of the Aleutian Island king crab fisheries was moved in recent years. Prior to the 1996/97 season, the boundary was located at 171° W. longitude. The boundary was moved to 174° W. longitude at the beginning of the 1996/97 season. The analysis of suboption (b), which divides qualifying catch between the Eastern and Western subdistricts, relies on the current boundary for assessing the initial allocation of QS. Doing so credits each fisherman for their participation based on the location of harvests with respect to the current boundary, so that all fishermen receive credit only in areas where they actually fished.

Table 3.3-16 shows the mean, median, and the “average of the four largest allocations” under the different qualifying year options in the Western Aleutian Islands (Adak) golden king crab fishery. Figure 3.3-9 is a graph of the distribution in the fishery under the different options. The table and graph show substantial variation in the distribution of the allocations under the different options. The average allocation to the four leading vessels varies by more than 5 percent across options, with the leading four vessels receiving an average allocation of more than 22 percent under Option 3A, and an average allocation of slightly more than 16 percent under Option 1B. Options 1A and 1B include substantially more vessels in the allocation (22 vessels) than the other options (which include between 10 and 14 vessels in their allocations). The median (midpoint) of the allocation distribution is slightly larger under Options 3A and 3B (approximately 4 and 4.5 percent, respectively) than under the other options (all of which have a median of approximately 2.5 percent).

Table 3.3-16 Mean, median, and average of the four largest allocations under the different qualifying year options in the Western Aleutian Islands (Adak) golden king crab fishery (as portion of the fishery).

Fishery	Mean	Median	Average of four largest allocations
Western Aleutian Islands (Adak) Golden King Crab			
Option 1A -1992-1993 to 1998-1999 (All seasons)	0.045	0.022	0.170
Option 1B -1992-1993 to 1998-1999 (Drop one season)	0.045	0.023	0.167
Option 2A -1995-1996 to 1998-1999 (All seasons)	0.071	0.025	0.212
Option 2B -1995-1996 to 1998-1999 (Drop one season)	0.071	0.026	0.210
Option 3A -1996-1997 to 1998-1999 (All seasons)	0.100	0.038	0.223
Option 3B -1996-1997 to 1998-1999 (Drop one season)	0.100	0.046	0.217
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	0.091	0.028	0.213
Option 4B -1996-1997 to 2000-2001 (All seasons)	0.091	0.026	0.216

Source: NPFMC Crab Database 2001 - Version 1

Table 3.3-17 shows the mean, median, and the “average of the four largest allocations” under the different qualifying year options in the Eastern Aleutian Islands (Dutch Harbor) golden king crab fishery. Figure 3.3-10 is a graph of the distribution in the fishery under the different options. The table and graph show more similarity in the allocations under the different options than in the Western Aleutian Islands (Adak) golden king crab fishery. The average allocation to the four leading vessels varies by, at most, 2.5 percent under the options, with the leading four vessels receiving an average allocation of almost 18 percent under Option 2A and an average allocation of almost 15.5 percent under Option 4A. The mean and median allocations, however, differ substantially under the different alternatives. The mean, which is a function of the number of vessels receiving an allocation, ranges from slightly more than 5 percent under Options 1A and 1B, to slightly more than 9 percent under Options 3A and 3B. The median (or the midpoint in the allocation distribution) is approximately 1.5 percent, under Options 1A and 1B, and is almost 9 percent, under Option 3B. The reason for the low median allocation under Options 1A and 1B is likely that these allocation alternatives include additional vessels that receive relatively small allocations. The number of vessels receiving an allocation under the Options ranges from 11 under Option 3A and 3B, to 19 under Options 1A and 1B.

Table 3.3-17

Mean, median, and average of the four largest allocations under the different qualifying year options in the Eastern Aleutian Islands (Dutch Harbor) golden king crab fishery (as portion of the fishery).

Fishery	Mean	Median	Average of four largest allocations
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab			
Option 1A -1992-1993 to 1998-1999 (All seasons)	0.053	0.014	0.172
Option 1B -1992-1993 to 1998-1999 (Drop one season)	0.053	0.014	0.170
Option 2A -1995-1996 to 1998-1999 (All seasons)	0.077	0.060	0.179
Option 2B -1995-1996 to 1998-1999 (Drop one season)	0.077	0.054	0.178
Option 3A -1996-1997 to 1998-1999 (All seasons)	0.091	0.084	0.172
Option 3B -1996-1997 to 1998-1999 (Drop one season)	0.091	0.088	0.169
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	0.083	0.074	0.154
Option 4B -1996-1997 to 2000-2001 (All seasons)	0.083	0.077	0.157

Source: NPFMC Crab Database 2001 - Version 1

Table 3.3-18 shows the mean, median, and the “average of the four largest allocations” under the different qualifying year options for the “GHL Split” option that would base the allocation to each participant on the combined history in the Eastern and Western Aleutian Islands golden king crab fishery. Figure 3.3-11 is a graph of the distribution in these fisheries under the different options. The average allocation to the four leading vessels varies by, at most, 2.5 percent under the options, with the leading four vessels receiving an average allocation of almost 18 percent under Option 3A, and an average allocation of approximately 15.5 percent under Option 1B. The mean and median allocations, however, differ substantially under the different alternatives. The mean, which is a function of the number of vessels receiving an allocation, ranges from approximately 4 percent under Options 1A and 1B, to slightly more than 8 percent under Options 3A, 3B, 4A, and 4B. The median (or the midpoint in the allocation distribution) is slightly less than 1.3 percent under Options 1A and 1B, and is almost 8 percent under Option 3B. The reason for the low median allocation under Options 1A and 1B is likely that these allocation alternatives include additional vessels that receive relatively small allocations. The number of vessels receiving an allocation under the Options ranges from 12 under Option 3A, 3B, 4A, and 4B, to 23 under Options 1A and 1B.¹⁷

¹⁷A complete analysis of the option for combining the allocations from the Eastern and Western Aleutian Islands requires a vessel by vessel comparison of the allocations, which is not completed for this draft.

Table 3.3-18

Mean, median, and average of the four largest allocations under the different qualifying year options for combining the allocations in the Eastern and Western Aleutian Islands golden king crab fishery (as portion of the fishery).

Fishery	Mean	Median	Average of four largest allocations
GHL Split EAI (Dutch Harbor)/Western Aleutian Islands (Adak) Golden King Crab			
Option 1A -1992-1993 to 1998-1999 (All seasons)	0.043	0.013	0.157
Option 1B -1992-1993 to 1998-1999 (Drop one season)	0.043	0.013	0.155
Option 2A -1995-1996 to 1998-1999 (All seasons)	0.071	0.049	0.172
Option 2B -1995-1996 to 1998-1999 (Drop one season)	0.071	0.049	0.169
Option 3A -1996-1997 to 1998-1999 (All seasons)	0.083	0.069	0.178
Option 3B -1996-1997 to 1998-1999 (Drop one season)	0.083	0.078	0.173
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	0.083	0.063	0.169
Option 4B -1996-1997 to 2000-2001 (All seasons)	0.083	0.059	0.172

Source: NPFMC Crab Database 2001 - Version 1

Figure 3.3-9

Allocation in the western Aleutian Islands golden king crab fishery.

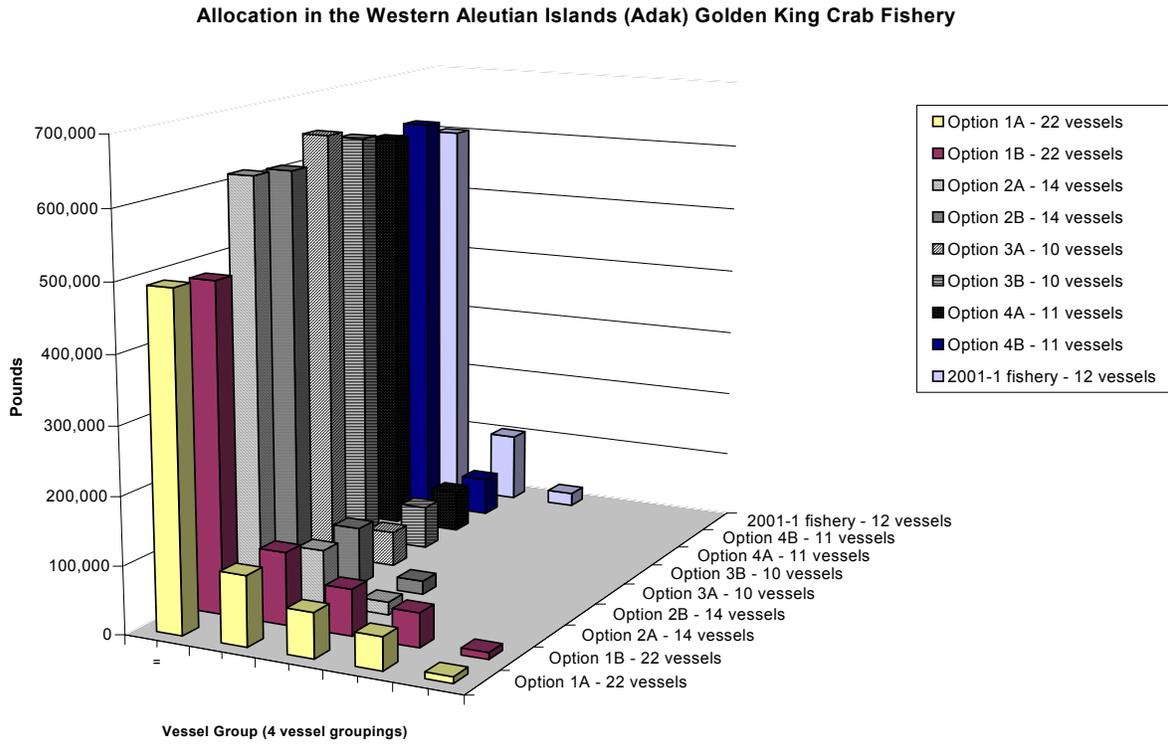


Figure 3.3-10

Allocation in the eastern Aleutian Islands golden king crab fishery

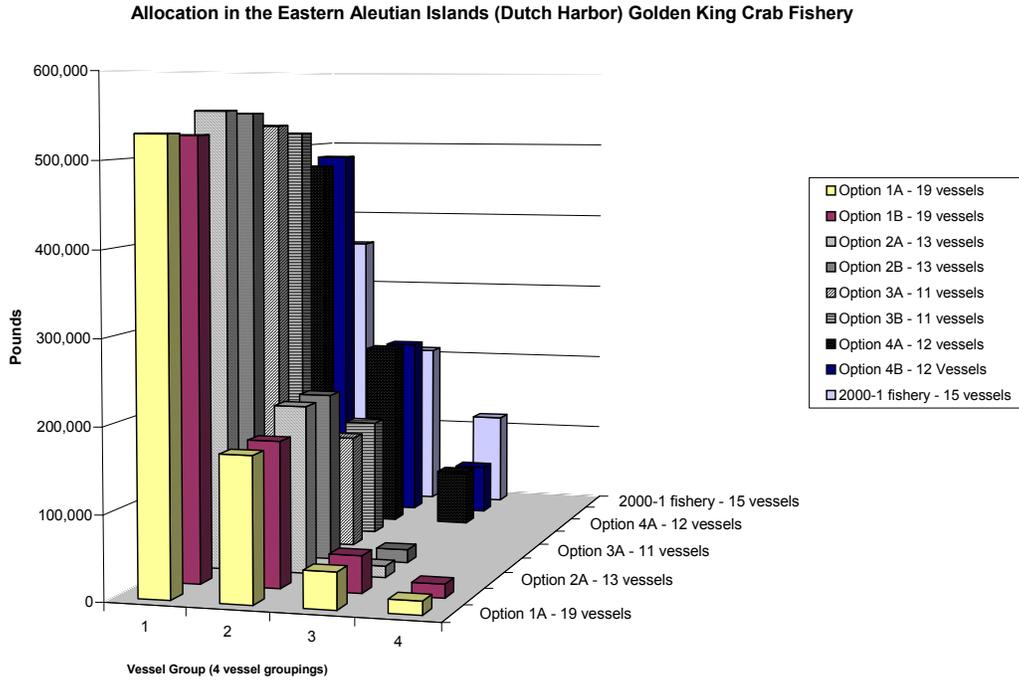
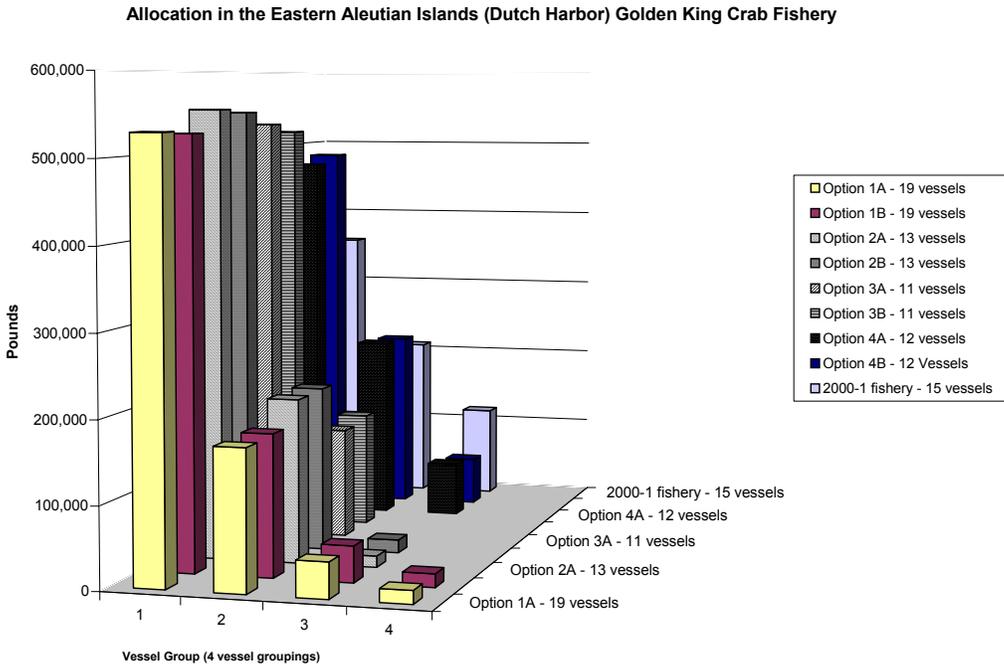


Figure 3.3-11

Allocation in the Aleutian Island golden king crab fishery east/west Combined option.



Option 5A cannot be directly analyzed because data are not available for the 2001-2002 season. Table 3.3-19 shows the number of qualified and unqualified vessels that participated in the Aleutian Islands golden king crab fisheries in the 2001-2002 season. As the table shows, 9 qualified vessels participated in the Western (Adak) subregion, 10 qualified vessels participated in the Eastern (Dutch Harbor) subregion, and 10 unique qualified vessels participated in the fisheries combined. These are fewer vessels than would receive an allocation under Option 4A, for each of the respective fisheries. Since fewer vessels have participated in the fisheries in 2001-2002 than are qualified for an allocation under Option 4A, it is possible that the allocation under Option 5A would be slightly more concentrated than the allocation under Option 4A. If harvests are more equally distributed among participants in the 2001-2002 season than in prior seasons, it is also possible that allocations would be less concentrated under Option 5A. The specific implications of including history from these recent years in the allocation, however, cannot be determined without examining harvest data.

Table 3.3-19 Participation in the Aleutian Islands golden king crab fisheries during the 2001-2002 season.

Fishery	Season	Vessel type	Qualification	Number of vessels
Western Aleutian Islands (Adak) Golden King Crab	2001-2002		Unqualified	3
		Catcher vessel	Qualified	8
		Catcher/processor	Qualified	1
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	2001-2002		Unqualified	5
		Catcher vessel	Qualified	10
GHL Split EAI (Dutch Harbor)/W AI (Adak) Golden King Crab	2001-2002		Unqualified	6
		Catcher vessel	Qualified	10
		Catcher/processor	Qualified	1

Source: Westward Region, ADF&G, Vessel Registration Files and NPFMC Crab Database 2001 - Version 1

The Adak red king crab fishery

The Council motion includes the following qualifying year options for the distribution of QS in the Western Aleutian Islands (Adak) red king crab fishery:

1.4.2.9 Adak red king crab

Option 1. 1992 - 1996

- (a) All seasons
- (b) Best 2 seasons
- (c) Not appropriate for rationalization

Option 2. 1992/1993 - 1995/1996 (4 seasons)

- (a) best 3 seasons

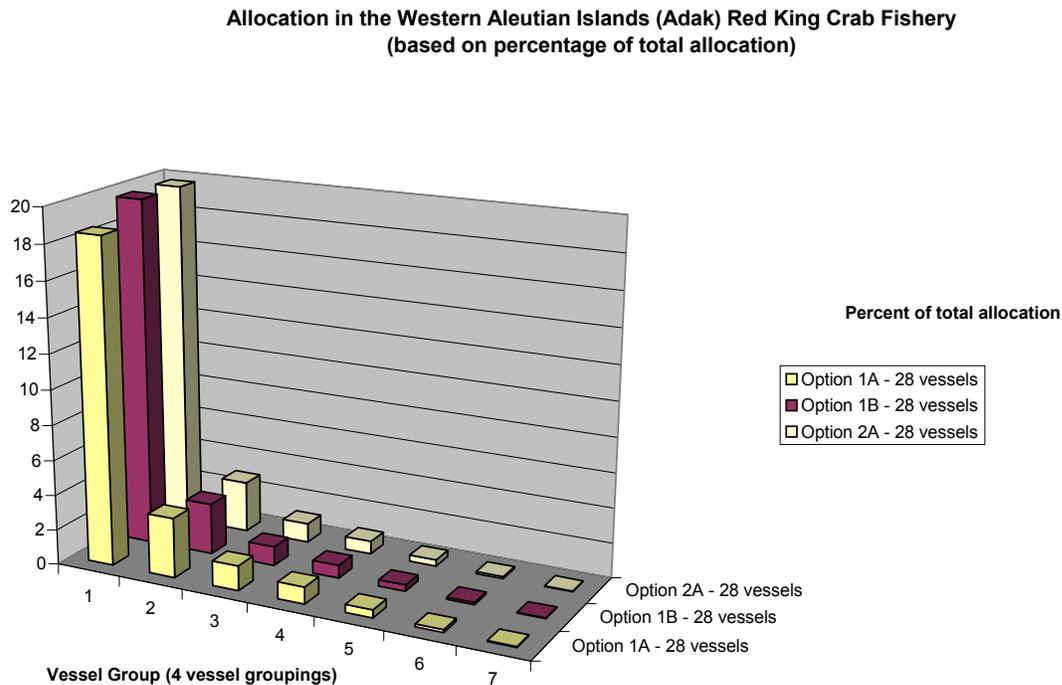
Because the western Aleutian Island (Adak) red king crab fishery is conducted in a season that extends across two calendar years, the seasons evaluated are the 1992-93 season to the 1995-96 season. This fishery was last open in 1995-96 season. A discussion of whether this fishery is appropriate for rationalization appears in Section 3.3.1.

Table 3.3-20 shows the mean, median, and average of the four largest allocations under the different qualifying year options in the western Aleutian Islands (Adak) red king crab fishery. Figure 3.3-12 is a graph of the distribution in the fishery under the different options.¹⁸ The average allocation to the four leading vessels is similar under the different options, varying by slightly more than 1 percent. The median (midpoint) allocation differs by less than one-quarter of one percent under the two allocation options. Under both options allocations would be made to 28 vessels.

¹⁸Since this fisher has been closed since the 1995-6 season, no graph of the activity in the fishery is provided, and allocation estimates are based only on the percent of the total allocation.

Figure 3.3-12

Allocation in the western Aleutian Island red king crab fishery.



In reviewing the above projected allocations, it is important to bear in mind that the allocations are based on the activities of each individual vessel and that allocations are not aggregated across vessels that are commonly owned. Ownership data that would enable projected allocations to be aggregated to show the actual distribution of allocations is unavailable to the analysts.

Allocations in multiple fisheries

Several persons will receive shares in multiple crab fisheries under the proposed allocation options. Because of the number of options, showing all persons' allocations is not possible. To give some indication of the number of persons that would receive allocations in more than one fishery, Table 3.3-21 shows the number

Table 3.3-20 Mean, median, and average of the four largest allocations under the different qualifying year options in the western Aleutian Islands (Adak) red king crab fishery (as portion of the fishery).

Fishery	Mean	Median	Average of four largest allocations
Western Aleutian Islands (Adak) Red King Crab			
Option 1A -1992 - 1996 (All seasons)	0.036	0.008	0.197
Option 1B -1992 - 1996 (Best 2 seasons)	0.036	0.010	0.185
Option 2A -1992-1993 - 1995-1996 (All seasons)	0.036	0.008	0.197

Source: NPFMC Crab Database 2001 - Version 1

of vessels¹⁹ with qualified landings in a fishery that also have a qualified landing in another fishery. Each entry shows the total number of vessels with a qualified landing in each of two fisheries. The diagonal shows the number of persons that have a qualified landing in each fishery. Beginning in the upper left hand corner, 23 persons have a qualified landing in the WAI (Adak) brown king crab fishery. Reading across the row, of those 23 persons, 6 have a qualified landing in the WAI (Adak) red king crab, 20 have a qualified landing the in the Bristol Bay red king crab fishery.

Table 3.3-22 shows the percent of persons with qualified landings in a fishery that also have a qualifying landing in another fishery. For example, the first entry in the third row of that table shows that of the persons with a qualified landing in the Bristol Bay red king crab fishery, 20 also have a qualified landing in the WAI (Adak) golden king crab fishery.

The tables are difficult to draw conclusions from because of the number of fisheries. The most overlapping allocations occur with the Bristol Bay red king crab, Bering Sea *C. opilio*, and Bering Sea *C. bairdi* fisheries. Reading down the columns for these fisheries, one can see that over 85 percent of persons with a qualified landing in any fishery, have a qualified landing in each of these fisheries, as well. In other fisheries, the overlap is smaller and more variable. At the low end, few participants in other fisheries have qualified landings in the Aleutian Islands golden king crab fisheries. Approximately 20 percent or fewer of the vessels with qualified landings in the other fisheries have a qualified landing in the Aleutian Islands golden king crab fisheries. Generally, the overlap in qualified landings is substantial. The relationships, however, differ substantially from fishery to fishery.

Allocations to catcher/processors

Table 3.3-23 below shows the percentage of the initial allocation of QS that would be made to catcher/processors. in each fishery. Allocations to catcher/processors in the Bering Sea *C. opilio* fishery range from approximately 9 percent, to approximately 11 percent, under the different allocation options. In the Bristol Bay red king crab fishery catcher/processor allocations would be slightly more than 5 percent, under all of the Options, except Option 3A, which would allocate only 4.4 percent to catcher/processors. In the Bering Sea *C. bairdi* fishery the allocation to catcher/processors would be between 7 and 9 percent, depending on the option selected. In the Pribilof red king crab fishery and the Eastern Aleutian Islands (Dutch

¹⁹ Calculations in this section are on a vessel basis because of the lack of availability of ownership data.

Harbor) golden king crab fishery the only options for which catcher/processor allocations can be shown (for confidentiality reason) are those in which no allocations are made to catcher/processors. Similarly in the Western Aleutian Islands (Adak) golden king and red king crab and the Pribilof blue king crab fisheries, allocations to catcher/processors cannot be shown under any of the options. In the St. Matthew blue king crab fishery, allocations to catcher/processors are estimated to be between slightly more than 2 percent and slightly more than 3 percent, under the different allocation options. The total number of vessels shown to receive an allocation in this table is subject to some double counting because catcher/processors that also delivered to other processors are included in the count of both catcher/processors and catcher vessels.

Table 3.3-21

Number of vessels with a qualified landing in fishery A that also have a qualified landing in fishery B.

Fishery A	Fishery B									
	WAI (Adak) golden king crab	WAI (Adak) red king crab	Bristol Bay red king crab	Bering Sea C. opilio	Bering Sea C. bairdi	AI golden king crab GHL split	EAI (Dutch Harbor) golden king crab	Pribilof blue king crab	Pribilof red king crab	St. Matthew blue king crab
WAI (Adak) golden king crab	23	6	20	22	21	23	20	3	9	18
WAI (Adak) red king crab	6	28	26	28	27	6	4	9	15	24
Bristol Bay red king crab	20	26	266	252	263	20	17	77	115	178
Bering Sea C. opilio	22	28	252	256	255	22	19	77	114	178
Bering Sea C. bairdi	21	27	263	255	266	21	18	77	115	177
AI golden king crab GHL split	23	6	20	22	21	23	20	3	9	18
EAI (Dutch Harbor) golden king crab	20	4	17	19	18	20	20	2	7	16
Pribilof blue king crab	3	9	77	77	77	3	2	84	84	52
Pribilof red king crab	9	15	115	114	115	9	7	84	122	83
St. Matthew blue king crab	18	24	178	178	177	18	16	52	83	180

Source: NPFMC Crab Database 2001 - Version 1

Table 3.3-22

Percent of vessels with a qualified landing in fishery A that also have a qualified landing in fishery B

Fishery A	Fishery B									
	WAI (Adak) golden king crab	WAI (Adak) red king crab	Bristol Bay red king crab	Bering Sea C. opilio	Bering Sea C. bairdi	AI golden king crab GHL split	EAI (Dutch Harbor) golden king crab	Pribilof blue king crab	Pribilof red king crab	St. Matthew blue king crab
WAI (Adak) golden king crab	1.000	0.261	0.870	0.957	0.913	1.000	0.870	0.130	0.391	0.783
WAI (Adak) red king crab	0.214	1.000	0.929	1.000	0.964	0.214	0.143	0.321	0.536	0.857
Bristol Bay red king crab	0.075	0.098	1.000	0.947	0.989	0.075	0.064	0.289	0.432	0.669
Bering Sea C. opilio	0.086	0.109	0.984	1.000	0.996	0.086	0.074	0.301	0.445	0.695
Bering Sea C. bairdi	0.079	0.102	0.989	0.959	1.000	0.079	0.068	0.289	0.432	0.665
AI golden king crab GHL split	1.000	0.261	0.870	0.957	0.913	1.000	0.870	0.130	0.391	0.783
EAI (Dutch Harbor) golden king crab	1.000	0.200	0.850	0.950	0.900	1.000	1.000	0.100	0.350	0.800
Pribilof blue king crab	0.036	0.107	0.917	0.917	0.917	0.036	0.024	1.000	1.000	0.619
Pribilof red king crab	0.074	0.123	0.943	0.934	0.943	0.074	0.057	0.689	1.000	0.680
St. Matthew blue king crab	0.100	0.133	0.989	0.989	0.983	0.100	0.089	0.289	0.461	1.000

Source: NPFMC Crab Database 2001 - Version 1

Table 3.3-23

Number of vessels and the percentage of the initial allocation of quota shares to catcher/processors in each fishery

Fishery and Qualifying Period	Vessel Type	Number of Vessels	Share of Total Allocation
Bering Sea Opilio			
Option 1A -1994 - 1999 (Best of 5 seasons)	CP	18	0.105
	CV	236	0.895
Option 2A - 1992 - 1999 (Best of 7 seasons)	CP	18	0.109
	CV	240	0.891
Option 3A -1995 - 1999 (All seasons)	CP	16	0.097
	CV	231	0.903
Option 3B - 1995 - 1999 (Best of 4 seasons)	CP	16	0.102
	CV	231	0.898
Option 4A -1996 - 2000 (Best of 4 seasons)	CP	16	0.092
	CV	233	0.908
Bristol Bay Red King Crab			
Option 1A -1993 - 1999 (All seasons)	CP	16	0.052
	CV	255	0.948
Option 1B - 1992 - 1999 (Best of 4 seasons)	CP	16	0.054
	CV	255	0.946
Option 2A -1993 - 1999 (All seasons)	CP	16	0.052
	CV	255	0.948
Option 2B - 1992 - 1999 (Best of 5 seasons)	CP	16	0.054
	CV	255	0.946
Option 3A -1996 - 2000 (Best of 4 seasons)	CP	10	0.044
	CV	246	0.956
Bering Sea Bairdi (EBS Tanner Crab)			
Option 1A -1992 - 1996 (All seasons)	CP	16	0.074
	CV	252	0.926
Option 1B - 1992 - 1996 (Best of 4 seasons)	CP	16	0.079
	CV	252	0.921
Option 2A -1991-1992 - 1996 (Best of 5 seasons)	CP	16	0.088
	CV	253	0.912
Option 2B -1991-1992 - 1996 (Best of 4 seasons)	CP	16	0.091
	CV	253	0.909
Pribilof Red King Crab			
Option 1A -1993 - 1998 (Best of 4 seasons)	CP	2	*
	CV	120	*
Option 2A -1994 - 1998 (All seasons)	CP	0	0.000
	CV	109	1.000
Option 2B - 1994 - 1998 (Drop one season)	CP	0	0.000
	CV	109	1.000
Pribilof Blue King Crab			
Option 1A -1993 - 1998 (Best of 4 seasons)	CP	1	*
	CV	83	*
Pribilof Red and Blue King Crab			
Option 1A -1993 - 1998 (Best of 4 seasons)	CP	2	*
	CV	120	*
Option 2A -1994 - 1998 (All seasons)	CP	1	*
	CV	108	*
Option 2B - 1994 - 1998 (Drop one season)	CP	1	*
	CV	108	*
St. Matthew Blue King Crab			
Option 1A -1993 - 1998 (Best 4 seasons)	CP	6	0.031
	CV	138	0.969
Option 2A - 1994 - 1998 (All seasons)	CP	6	0.021
	CV	133	0.979
Option 2B - 1994 - 1998 (Drop one season)	CP	6	0.023
	CV	133	0.977

3.4 The IFQ program elements

The proposed alternatives include elements and options outlining an IFQ program. The alternatives include programs with only harvester individual quotas and with both harvester and processor individual quotas. This section is an analysis of the other elements and options of the IFQ program. The first section analyzes those elements and options that are part of a harvester only IFQ program. The second part of the section analyzes additional elements and options that are part of a, so called, two-pie IFQ program.

3.4.1 The harvester only IFQ program

This subsection outlines the elements and options that define the ownership, use, and transfer of harvesting shares and provisions that define distribution, use, and transfer of processor shares.

3.4.1.1 Transferability

Several elements and options are included in the Council motion defining the transferability and ownership of QS and IFQs. Each of the options contains several suboptions.

National Research Council report recommendations.

The National Research Council report on IFQs, “Sharing the Fish,” contains several recommendations concerning the need for transferability of shares in an IFQ fishery. According to the report, whether liberal transfer of shares is permitted by a program is dependent on the objectives of the program. If economic efficiency and downsizing are primary objectives, “transferability should be as free as possible.” Other goals, such as “protecting an owner-operator mode of production, preventing absentee ownership, or protecting fishery-dependent coastal communities” may require restrictions of transferability--either geographically or by designating those eligible to receive transfers of shares.

The report also states that leasing of shares can provide flexibility to adapt to changes, but can be disadvantageous to certain groups, including communities. The committee concluded that leasing should be permitted with restrictions, if necessary, to prevent possible negative consequences (such as absentee ownership).

Limits on the consolidation of shares are also recommended by the NRC report. The level and regional scope of those limits is dependent on the fishery and the needs of the program. Control or prevention of vertical integration, monopoly, and regional aggregation of shares are all identified as legitimate objectives of ownership and use caps.

Eligibility to receive QS or IFQs by transfer.

The following three options for defining the persons eligible to receive QS or IFQs by transfer are contained in paragraph 1.6 of the Council motion:

- 1.6 Transferability and restrictions on ownership of QS/IFQs:
- 1.6.1 Persons eligible to receive QS/IFQs by transfer:
- Option 1.
- (a) All persons or entities eligible to document a U.S. fishing vessel are eligible to own or purchase harvester QS and IFQs
 - (b) Persons or entities with 75% U.S. ownership
- Suboption: Initial recipients of harvesting quota share are grandfathered
- Option 2. U.S. citizens who have had at least (3 options):
- a. 30 days of sea time*
 - b. 150 days of sea time*
 - c. 365 days of sea time*
- Suboption: Initial recipients of harvesting quota share are grandfathered
- Option 3. Entities that have a U.S. citizen with 20% or more ownership and at least
- a. 30 days of sea time*
 - b. 150 days of sea time*
 - c. 365 days of sea time*
- Suboption: Initial recipients of harvesting quota share are grandfathered
- *Definition of sea time (3 options):
- Option 1. Sea time in any of the U.S. commercial fisheries in a harvesting capacity
 - Option 2. Sea time in a harvesting capacity in any commercial fishery of the State of Alaska or the Alaska EEZ
 - Option 3. Sea time in any BSAI crab fishery

Each option specifically defines persons eligible to purchase QS or IFQs. In addition to those persons meeting the eligibility criteria, each option contains a suboption under which persons receiving an initial allocation (but failing to meet the eligibility criteria) would be “grandfathered” under each rule, i.e., are eligible to own, transfer, or purchase QS or IFQs.

Under Option 1a, all persons or entities eligible to document a U.S. fishing vessel would be eligible to purchase and own QS and IFQs. Since the current rules, created by the AFA, permit all citizens and entities with at least 75 percent U.S. ownership to document a U.S. fishing vessel, Options 1a and 1b are almost identical. A few vessels, however, have petitioned for exceptions to the AFA requirements that allow them to document a vessel notwithstanding their failure to meet the citizenship requirements. These vessels would be permitted to receive QS and IFQs under Option 1a, but would not be permitted to receive QS or IFQs under Option 1b. Both options, however, generally establish a 75 percent citizenship requirement for the purchase and ownership of QS and IFQs.

Under Option 2, only U.S. citizens that exceed a minimum amount of active sea time would be eligible to purchase and own QS and IFQs. Option 3 would extend eligibility to entities (such as partnerships and corporations) that have a U.S. citizen with 20 percent or more ownership, who satisfies the minimum sea time requirements. These two options are very similar, but have one critical distinction. Option 2 would only allow

individuals to receive QS and IFQs, while Option 3 would permit corporations, partnerships, and similar entities to receive QS and IFQs.

Three suboptions are proposed as the minimum sea time requirements under the second and third suboption: 30, 150, or 365 days. In addition, three suboptions would define the fisheries in which a person must meet that sea time requirement. The first of these suboptions would require that the person have the minimum sea time in a U.S. commercial fishery in a harvesting capacity (as opposed to sea time in tendering or processing capacity). The second suboption would require that a person have the minimum sea time in a harvesting capacity in a commercial fishery of the State of Alaska or in the EEZ off Alaska. The third option would require that the person have the minimum sea time in any BSAI crab fishery (without requirement that the time be in harvesting).

The choice of options depends on the extent to which the Council wishes to limit entry to persons that have participated in (1) commercial fishing, (2) commercial fishing in or off Alaska, or (3) specifically the crab fisheries the BSAI. In considering the options, it is important to realize that none requires *current* participation in any fisheries.

These options could be administered by the RAM Division of NOAA Fisheries in much the same way as the current eligibility requirements for purchasers of halibut and sablefish QS in those IFQ programs. Under those programs, a person that wishes to purchase QS must file an application with RAM showing satisfaction of the eligibility criteria. RAM issues eligibility certificates to all applicants meeting those criteria, showing that they satisfy the requirements for the purchase and ownership of QS.

Leasing of QS (or the sale of IFQs)²⁰

Paragraph 1.6.2 of the Council motion includes the following two options to govern the leasing of QS:

- | | |
|-------|---|
| 1.6.2 | Leasing of QS (Leasing is equivalent to the sale of IFQs without the accompanying QS.)
Leasing is defined as use of IFQ on a vessel which QS owner holds less than 5-50% ownership of vessel or on a vessel on which the owner of the underlying QS is not present:
Option 1. Leasing QS is allowed with no restrictions
Option 2. Leasing QS is not allowed
Option 3. A brown king crab QS holder may annually swap with any other brown king crab QS holder, on a pound for pound basis, IFQs in one district for IFQs in the other district. |
|-------|---|

Leasing under the proposed option would be defined as the use of the IFQs on a vessel which the QS holder owns less than a specified percent interest in, or on a vessel that the owner of the underlying QS is not present. The percentage ownership proposed for determining usage that constitutes a lease ranges from 5 percent to 50 percent. In the event the Council chooses to restrict but not ban leasing, the Council must also determine this minimum ownership level.

²⁰ Operationally, the lease of QS is the equivalent to the sale of IFQs, since the latter effectively expire annually.

Under the first option, leasing would be permitted without restriction. QS owners could freely transfer IFQs to others for use on vessels other than those they own or are part owners of. As defined, leasing would not include the use of IFQs on a vessel on which the owner of the underlying QS is present, enabling skippers and crew to use their IFQs without violating any provision against leasing.

As noted by in "Sharing the Fish," leasing of QS might be permitted if economic efficiency is a goal of the rationalization program. In fisheries with high operating costs, the efficiencies (i.e., benefits) of leasing might be substantial. Consider the case of a QS holder who has made several deliveries of crab in a season, but continues to hold a small number of unused IFQs. Returning to the grounds might cost the person more than would be realized on the sale of the crab covered by the remaining IFQs. Leasing would enable that person to realize a reasonable return on the balance of his/her IFQs. By transferring the IFQs to another fisherman that also holds unused IFQs, the crab could be harvested at a lower aggregate cost.

Option 2 would prohibit all leasing of QS. Prohibitions on leasing are generally favored as a means to discourage absentee ownership (or the ownership of shares of a fishery by persons that are not actively engaged in the fishery). Although data on ownership of vessels is unavailable, anecdotal evidence suggests that a large share of the BSAI crab fleet is operated by hired skippers and crews. The effectiveness of the leasing provision for discouraging absentee ownership might also be questionable because of the definition of leasing adopted in this case. If prohibited leasing is defined as the use of IFQs on a vessel not owned by the owner of the underlying QS, absentee ownership is unaffected. This provision would only ensure that QS ownership was consolidated with vessel ownership.

In the event the Council elects to limit leasing the Council must determine the threshold level of ownership that a QS holder must have in a vessel for the use of those shares on the vessel not to be considered a lease.

Option 3 pertains only to the Aleutian Islands golden king crab fishery. This option was suggested as a way to reduce any burden on fishermen from suboption a. in Section 1.4.2.7 of the Council motion. That suboption would allocate each fisherman a share in both the eastern and western subdistrict, based on historical catch in the subdistricts combined. Allowing a pound for pound trade between the subdistricts is thought to reduce the likelihood that fishermen will be forced to fish outside of their traditional fishing grounds. Allowing pound for pound trades is intended to preserve a fisherman's total catch when making transfers. The provision would be effective only if leasing were not permitted. If leasing is permitted trades could be on any terms that the parties deem acceptable, and may not be on a pound for pound basis. In addition, if the allocations in the two areas differ substantially, a limited amount of shares are likely to be available for trading on a pound for pound basis. It may also be the case that a pound of crab in one area is more (or less) valuable than a pound in the other area. This could be because of size or quality differences in the animals themselves, or the price offered by available regional processor(s), or even just the higher operating cost in one area, as compared to the other. Any one, or combination of these factors could increase the transaction costs of negotiating a "pound-for-pound" exchange across areas. These are largely empirical questions for which data are not currently available. They, nonetheless, deserve consideration when evaluating whether to select this option.

3.4.1.2 QS ownership and use caps

The Council motion includes options that would establish ownership caps in each of the rationalized fisheries.

National Research Council report recommendations.

As noted in the NRC study “Sharing the Fish,” ownership and use caps are generally favored as a means to prevent excessive shares (or the ownership of a disproportionate amount of shares by a single person or entity). In fisheries with excess capital, it is likely that issuance of transferrable QS will result in some consolidation, as surplus capacity leaves the fishery. While this consolidation might be favored on economic efficiency grounds (e.g., for exploiting economies of scale), concentration of share holdings in a relatively few individuals or entities can result in excessive market power. The concentration of market power can affect working conditions, prices, and wages, and harm smaller participants in a fishery.²¹ Although caps on ownership and use of shares are generally viewed as means to prevent excessive concentration of shares, the level of the cap could vary among fisheries depending on the particular nature of the fishery and the objectives of the cap.

The Council might pursue several of the different objectives in its setting of ownership caps. Caps on excessive shares can be used to:

- (a) prevent consolidation of market power that is used to influence ex- vessel prices. If one, or a small group of quota share owners are able to consolidate interests in the fisheries, it is possible that they would be able to withhold supplies of fish to drive up the ex- vessel prices.
- (b) influence the availability of quota shares in the market to facilitate entry to the fishery. Consolidation of quota share in the hands of a few owners could prevent the development of an active market for shares. Such a market is necessary for effective entry into these fisheries.
- (c) prevent consolidation of market power that is used to influence crew shares and working conditions. The concentration of shares can also facilitate control of the labor market by the participants in the market.
- (d) limit windfalls granted during the allocation of shares. If allocations in excess of the caps are not permitted, ownership caps can be used to limit the windfall granted to persons receiving allocations in excess of the share.
- (e) ensure that the resource supports a reasonable number of participants. Ownership caps can be used to limit consolidation, which could result in the resource supporting the activities of few participants.

The Council must determine both the rationale for its ownership and use caps, and the appropriate level of those caps necessary to serve those ends. Assessing whether the Council’s selections would serve its purpose is complicated by several factors including:

- fluctuation of crab stocks,
- unavailability of ownership data,
- the amount of consolidation that would occur without caps,

²¹ Concentration of shares in a fishery is unlikely to affect final product markets, as most fisheries’ outputs compete in a world market. Concentration of shares, however, could affect the balance of power between harvesters and processors. That balance is discussed more fully in Section 3.16 below.

- unpredictability of ex- vessel prices, and
- unpredictability of product prices.

The fluctuation of stocks and unpredictability of ex- vessel prices lead to uncertainty of harvest revenues, preventing accurate estimation of the number of participants the different fisheries can support. Knowing the amount of consolidation that would occur without caps would provide a gauge of the impacts of the caps. Ex-vessel price predictions are particularly complicated, given the novelty of the rationalization alternatives under consideration. These information shortcomings also limit the ability to assess the potential threat of market consolidation to competition in both ex- vessel and labor markets. The unavailability of ownership data prevent estimation of the current distribution of interests in the fishery, preventing an accurate assessment of the number of participants currently supported in the fishery. The unpredictability of product prices in the world market for crab products will likely affect ex- vessel prices, further complicating any estimation of the revenues generated by the fishery and the number of participants that the fishery could support.

Several factors could be considered to assess whether the caps serve the objectives of the Council. The Council could decide the fisheries differ in ways that justify different ownership and use caps. The number of participants that would remain in a fishery if all participants buy shares up to the cap would illustrate the potential limit on concentration of shares. The number of participants in the fishery historically will provide some indication of the number of participants that the fishery has supported historically.²² The number of participants historically also provides some insight into whether the cap is consistent with past participation levels. Also, since the initial allocation is a reflection of historic participation, the number of persons that would receive allocations at or above each cap level also provides insight into whether the cap is consistent with historic participation. The analysis below is intended to provide the Council with a discussion of the options and available data that might form the basis for a decision of an acceptable ownership cap(s). The specific data on which the Council relies in making its decision will depend on the specific ends of its choice of cap.

Paragraph 1.6.3 of the Council motion includes the following options for capping the ownership of QS:

²²Historical participation for each fishery is shown in Section 2.2. But, given entry and exit over time, one may not be able to conclude that these numbers accurately reflect those “supported”, or “supportable” by the fisheries.

- 1.6.3 Separate and distinct QS ownership caps - apply to all harvesting QS categories pertaining to a given crab fishery with the following provisions:
- (a) initial issues that exceed the ownership cap would be grand fathered;
 - (b) apply individually and collectively to all Q.S. holders in each crab fishery;
 - (c) percentage-cap options for the Bristol Bay red king crab, *Opilio*, *Bairdi*, Pribilofs red king crab, Pribilofs blue king crab and St. Matthew blue king crab fisheries (a different percentage cap may be chosen for each fishery):
 - Option 1. 1 % of the total Q.S. pool for the fishery
 - Option 2. 5% of the total Q.S. pool for the fishery
 - Option 3. 8% of the total Q.S. pool for the fishery
 - (d) percentage-cap ranging from 10%-40% for the Dutch Harbor and western Aleutian Island brown king crab (a different percentage cap may be chosen for each fishery or may be applied to the combined fisheries if not categorized separately).
 Suboption: No initial issuance shall exceed the cap specified. Any amount of Q.S. that would be issued to a person in excess of the cap shall be distributed to other qualified persons receiving an allocation in the fishery:
 - a) equally or
 - b) proportionally.
 - (e) percentage-cap ranging from 10%-30% for Adak red king crab (if Q.S. for this fishery are issued).
 - (f) in the *opilio* fishery, the cap can be reduced to 0.5% of the total Q.S. pool in the event the GHIL increases to over 400 million pounds (with those over this cap prior to the reduction grand fathered).

In the Council options, persons receiving an initial allocation greater than the Q.S. ownership cap would be exempt from the cap, except that the cap would apply to the purchase of Q.S. after the initial allocation.²³ The cap would apply individually to each Q.S. holder and collectively to all Q.S. holders that have a shared interest in Q.S. Consider the case of a corporation that holds 1,000 Q.S., with an individual that holds a 60 percent share of the corporation. The entire 1,000 shares would be credited to the corporation for determining its compliance with the cap. In addition, 600 shares (or 60 percent of the 1,000 shares) would be credited to the individual for determining the individual's compliance with the cap. Since detailed ownership information is unavailable, quantitative analysis of compliance with a cap is limited.

The options for capping the ownership of Q.S. vary between the fisheries. The first set of options apply to the Bristol Bay red king crab, the *C. opilio*, *C. bairdi*, Pribilof red king crab, Pribilof blue king crab, and St. Matthew blue king crab fisheries.²⁴ Proposed caps are 1, 5, and 8 percent of the Q.S. pool. These caps would limit consolidation of the fishery to a minimum of 100, 20, and 13 Q.S. owners, respectively, if all Q.S. holders own quota amounts equal to the cap.

²³An option that would apply only to the Aleutian Islands golden king crab fishery, no person would be exempt from the cap.

²⁴Although not specified, the options make no mention of the EAI red king crab fishery or the WAI *C. bairdi* fishery. These two fisheries have been closed for several years. It is not clear how the options would apply to these fisheries.

An additional option would reduce the cap to 0.5 percent in the *C. opilio* fishery in the event that the GHL in that fishery increases to over 400 million pounds. The effect of this cap would be to limit the maximum allocation to 2 million pounds (assuming a 400 million pound annual harvest). In addition, if all persons remained below the cap, the fleet size would remain in excess of 200. The cap, however, could be ineffective if substantial consolidation occurs prior to the cap becoming effective. For example, in the current fishery (with approximately 28 million pounds annual harvests) it is possible that many persons will consolidate shares in excess of the one-half of one percent cap. If the one-half of one percent cap is triggered by an annual harvest allocation of 400 million pounds, those participants over the cap would be unaffected.

Different ownership cap alternatives are proposed for the EAI golden king and WAI golden king crab fisheries. One alternative would apply the cap to the combined Q.S. pool from both fisheries. Another alternative would apply to the cap independently to each fishery. The options for the level of the cap in these fisheries range from 10 to 40 percent, without specification of discrete values. At the upper end of the range (40 percent), the cap would limit consolidation to a minimum of 3 Q.S. owners in each fishery (or in both fisheries if the cap is applied to the combined Q.S. pool). At the low end (10 percent), the cap would limit consolidation to a minimum of 10 Q.S. owners in each fishery (or in both fisheries if the cap applies to the combined Q.S. pool). The Council might favor smaller caps in the event that the allocation is based on the combined Q.S. in both fisheries. Larger caps might be favored in the golden king crab fisheries because these fisheries have historically supported relatively fewer participants. In addition, longline pot fishing techniques and limited grounds may limit the ability of the grounds to support as many fishermen as the other BSAI crab fisheries. In addition, the higher costs of participating in these fisheries could justify higher caps. Some of the larger participants in the fishery argue that larger caps and allocations are justified because they participate in fewer of the other fisheries, depending almost entirely on the golden king crab fisheries.

The provisions pertaining to the golden king crab fisheries also include a suboption that would prohibit any initial allocation from exceeding the cap. Under the suboption, any shares that would be allocated in excess of the cap would be reallocated to other persons receiving an allocation either, equally or in proportion to their initial allocations. This rule is intended to prevent excessive windfalls from the initial allocation,

A third set of caps is proposed for the WAI (Adak) red king crab fishery. As in the golden king crab fisheries, a range of caps are proposed in the alternative, with a maximum of 30 percent and a minimum of 10 percent. The maximum consolidation in the fishery would be 4 Q.S. owners if the 30 percent cap is applied and 10 Q.S. owners if the 10 percent cap is applied.

The distinction between ownership and use caps

In a share based program, the distinction between ownership and use caps can be illusory. For example, consider a cap on share ownership that limits an individual's holdings to a particular percentage of the share pool. If the cap applies only to Q.S. holdings, the cap operates as only a limit on long term holdings. The cap could be inadequate for limiting consolidation in a program that permits leasing of Q.S. (or equivalently sales of IFQs) since a person could consolidate an interest in excess of the cap through long term leases of Q.S. If the cap is interpreted as a cap on both Q.S. and IFQ holdings, the consolidation of interests in excess of the cap would not be permitted. This extension of the cap to IFQ holdings, however, would have the effect of limiting not only ownership, but also use of shares by individuals. Use is effectively limited since IFQ holdings are a prerequisite to harvesting. In assessing the different caps, the Council should consider the scope of the caps (or whether the caps will apply to Q.S. and IFQs). Application of the caps to both Q.S. and

IFQs will effectively prevent consolidation through leasing and operate as an individual use cap.²⁵ Applying caps to IFQs would not necessarily limit the use of shares by a vessel since IFQs of multiple IFQ holders could be harvested from a single vessel. Vessel use caps would determine the limitations on harvest of shares from a vessel.

Analysis of the proposed caps

Ownership caps were analyzed based on the initial allocations to each vessel set out above. The caps were analyzed in two ways. Both methods are based on the allocations calculated in Section 3.3 above. As noted, those allocations are based on the activity of single vessels and do not consider common ownership of vessels. The analysis of ownership caps relied on vessel ownership and LLP license holder data, from NOAA Fisheries RAM Division, to aggregate the allocations made to each vessel. The aggregation is incomplete for fully analyzing caps since the RAM Division files identify only the owner of record and do not provide full ownership information. Ownership of allocations is likely consolidated more than is indicated by the analysis. The level of consolidation, however, cannot be determined based on available records.²⁶ Since no information is available concerning the percentage of ownership of any vessel or LLP license by any person, the analysis credits each registered owner with full ownership of the entire allocation. Without information concerning the percentage of ownership of shares by each person with an interest in the shares, quantitative comparison of the two methods of applying ownership caps is not possible. The results were very similar with ownership aggregated based on LLP license ownership, showing slightly greater consolidation of shares under most options in most fisheries. The analysis based on LLP ownership is shown here in Table 3.4-1 and the analysis based on vessel ownership is shown in Appendix 3-2. In both cases, the analysis likely underestimates consolidation of shares (since the ownership records used for the analysis are incomplete). In some cases, ownership could be overestimated since the entire allocation is credited to each owner of record. The analysis examines the range of caps proposed by the Council motion for each fishery. In addition, a cap level below those proposed is presented. This is only presented to provide the Council with a better understanding of the distribution of ownership interests in the fishery under the allocation options proposed.

²⁵ Application of the caps to both types of shares would be consistent with interpretation of caps in the halibut and sablefish IFQ program, in which use caps are interpreted as limiting IFQ use and the ownership of both Q.S. and IFQs. A similar broad interpretation in this program would apply the ownership caps to both the ownership of Q.S. and IFQs.

²⁶ At the June meeting of the Council industry representatives volunteered to provide full ownership information of vessels to aid with this analysis. Three attempts were made to collect these data. Two vessel owner representatives collected data from vessel owners. Due to confidentiality concerns that data is aggregated to a level that obscures ownership, showing only vessel ownership consolidation generally. Processor representatives successfully collected vessel ownership data from the major processors. That data applies to approximately 45 vessels and is used to analyze vertical integration in this Section below.

Table 3.4-1

Q.S. ownership caps analyzed using LLP license holder data

<i>Fishery</i>	<i>Sum of Owners Over 8 Percent Cap</i>	<i>Sum of Owners Over 5 Percent Cap</i>	<i>Sum of Owners Over 1 Percent Cap</i>	<i>Sum of Owners Over 0.5 Percent Cap</i>	<i>Number of Owners</i>
Bering Sea Opilio					
Option 1A -1994 - 1999 (Best of 5 seasons)	0	0	16	109	297
Option 2A - 1992 - 1999 (Best of 7 seasons)	0	0	13	107	298
Option 3A -1995 - 1999 (All seasons)	0	0	17	111	288
Option 3B - 1995 - 1999 (Best of 4 seasons)	0	0	17	112	288
Option 4A -1996 - 2000 (Best of 4 seasons)	0	0	16	105	290
Bristol Bay Red King Crab					
Option 1A -1993 - 1999 (All seasons)	0	0	13	91	312
Option 1B - 1992 - 1999 (Best of 4 seasons)	0	0	12	89	312
Option 2A -1993 - 1999 (All seasons)	0	0	11	89	312
Option 2B - 1992 - 1999 (Best of 5 seasons)	0	0	12	83	312
Option 3A -1996 - 2000 (Best of 4 seasons)	0	0	10	91	303
Bering Sea Bairdi (EBS Tanner Crab)					
Option 1A -1992 - 1996 (All seasons)	0	0	16	120	312
Option 1B - 1992 - 1996 (Best of 4 seasons)	0	0	19	119	312
Option 2A -1991-1992 - 1996 (Best of 5 seasons)	0	0	17	115	312
Option 2B -1991-1992 - 1996 (Best of 4 seasons)	0	0	17	102	312
Pribilof Red King Crab					
Option 1A -1993 - 1998 (Best of 4 seasons)	*	*	45	88	151
Option 2A - 1994 - 1998 (All seasons)	*	*	48	76	135
Option 2B - 1994 - 1998 (Drop one season)	*	*	49	77	135
Pribilof Blue King Crab					
Option 1A -1993 - 1998 (Best of 4 seasons)	0	4	49	71	105
Option 2A - 1994 - 1998 (All seasons)	0	4	49	71	105
Option 2B -1994 - 1998 (Drop one season)	0	4	49	71	105
Pribilof Red and Blue King Crab					
Option 1A -1993 - 1998 (Best of 4 seasons)	0	0	56	94	151
Option 2A - 1994 - 1998 (All seasons)	0	0	50	81	136
Option 2B -1994 - 1998 (Drop one season)	0	*	50	81	136
St. Matthew Blue King Crab					
Option 1A -1993 - 1998 (Best 4 seasons)	0	0	33	129	166
Option 2A - 1994 - 1998 (All seasons)	0	0	50	119	163
Option 2B - 1994 - 1998 (Drop one season)	0	0	42	123	163
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab					
Option 1A -1992-1993 to 1998-1999 (All seasons)	0	*	*	9	23
Option 1B -1992-1993 to 1998-1999 (Drop one season)	0	*	*	9	23
Option 2A -1995-1996 to 1998-1999 (All seasons)	0	*	6	11	16
Option 2B -1995-1996 to 1998-1999 (Drop one season)	0	*	6	11	16
Option 3A -1996-1997 to 1998-1999 (All seasons)	0	*	6	11	14
Option 3B -1996-1997 to 1998-1999 (Drop one season)	0	*	7	11	14
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	0	*	6	11	15
Option 4B -1996-1997 to 2000-2001 (All seasons)	0	*	6	11	15
Western Aleutian Islands (Adak) Golden King Crab					
Option 1A -1992-1993 to 1998-1999 (All seasons)	*	*	*	5	23
Option 1B -1992-1993 to 1998-1999 (Drop one season)	*	*	*	5	23
Option 2A -1995-1996 to 1998-1999 (All seasons)	*	*	*	7	17
Option 2B -1995-1996 to 1998-1999 (Drop one season)	*	*	*	7	17
Option 3A -1996-1997 to 1998-1999 (All seasons)	*	*	*	*	13
Option 3B -1996-1997 to 1998-1999 (Drop one season)	*	*	*	4	13
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	*	*	*	*	14
Option 4B -1996-1997 to 2000-2001 (All seasons)	*	*	*	*	14
GH-L Split EAI (Dutch Harbor)/Western Aleutian Islands (Adak) Golden King Crab					
Option 1A -1992-1993 to 1998-1999 (All seasons)	0	*	*	8	26
Option 1B -1992-1993 to 1998-1999 (Drop one season)	0	*	*	9	26
Option 2A -1995-1996 to 1998-1999 (All seasons)	0	*	*	10	17
Option 2B -1995-1996 to 1998-1999 (Drop one season)	0	*	*	10	17
Option 3A -1996-1997 to 1998-1999 (All seasons)	0	*	*	10	15
Option 3B -1996-1997 to 1998-1999 (Drop one season)	0	*	*	10	15
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	0	*	*	10	15
Option 4B -1996-1997 to 2000-2001 (All seasons)	0	*	*	10	15
Western Aleutian Islands (Adak) Red King Crab					
Option 1A -1992 - 1996 (All seasons)	*	*	6	8	38
Option 1B -1992 - 1996 (Best 2 seasons)	*	*	6	9	38
Option 2A -1992-1993 -1995-1996 (Best 4 seasons)	*	*	6	8	38

* Withheld for confidentiality.

The Bering Sea *C. Opilio* fishery

The table shows that no persons would exceed either an 8 or 5 percent cap under any of the allocation options in the Bering Sea *C. opilio* fishery. Whether no persons actually would exceed these caps cannot be determined without full ownership data. Without repetition, interpret the following reported numbers of Q.S. holders in relation to caps, with similar care. Between 17 and 13 persons would exceed a 1 percent cap with the most exceeding the cap under Option 3A. Approximately 5 percent of the fleet would exceed this 1 percent cap under any of the options. Approximately one-third of all persons receiving an allocation would exceed a one-half percent cap in all cases.

This is the only fishery in which a one-half percent cap is under consideration. Under the option that has been proposed, the cap would apply only if the GHL exceeds 400 million pounds. In deciding whether the one-half percent cap is appropriate, the Council may wish to consider that a substantial percentage of the fleet will exceed the cap at the initial allocation. If any fleet consolidation occurs after the allocation and prior to the GHL rising to over 400 million pounds, the number of persons over the cap would increase by even more. In addition, the development of a cap that would be triggered by changes in the GHL may create an incentive for over-consolidation with Q.S. holders rushing to purchase shares in times when the GHL is thought to be on the rise. Such incentives may be disruptive to the market for Q.S. in the fishery.

The Bristol Bay red king crab fishery.

The table shows no persons exceeding either an 8 or 5 percent cap under any of the allocation options in the Bristol Bay red king crab fishery. Between 13 and 10 persons would exceed a 1 percent cap with the most exceeding the cap under Option 1A. Slightly less than 5 percent of the fleet would exceed the 1 percent cap under all options. Between 25 and 30 percent of all persons receiving an allocation would exceed a one-half percent cap.

The Bering Sea *C. Bairdi* fishery.

The table shows no persons exceeding either an 8 or 5 percent cap under any of the allocation options in the Bering Sea *C. bairdi* crab fishery. Between 19 and 16 persons would exceed a 1 percent cap with the most exceeding the cap under Option 1B. Slightly more than 5 percent of the fleet would exceed this 1 percent cap under all options. Between 33 and 40 percent of all persons receiving an allocation would exceed a one-half percent cap under all of the options.

The Pribilof red king crab fishery.

The number of persons exceeding the proposed 8 and 5 percent caps in the Pribilof red king crab fishery cannot be shown for any of the options, because of confidentiality restrictions. Between 49 and 45 persons would exceed a 1 percent cap, with the most exceeding the cap under Option 2B (slightly more than 35 percent of the fleet). Under Option 1A slightly less than 30 percent of the fleet would exceed the 1 percent cap. Slightly more than 55 percent of all persons receiving an allocation would exceed a one-half percent cap under all of the options.

The Pribilof blue king crab fishery.

No persons would exceed the proposed 8 percent cap in the Pribilof blue king crab fishery. Four persons would exceed 5 percent. Forty-nine persons (or slightly more than 45 percent of the fleet) would exceed a 1 percent cap, and 71 persons (or slightly more than two-thirds of the of the persons receiving an allocation) would exceed a one-half percent cap.

The Pribilof red and blue king crab fishery.

The table shows no persons exceeding the proposed 8 percent cap in the Pribilof red and blue king crab fishery. The number of persons exceeding the proposed 5 percent cap in the Pribilof red and blue king crab fishery cannot be shown because confidentiality restrictions require that data be aggregated to at least four persons. Between 50 and 56 persons would exceed a 1 percent cap with the most exceeding the cap under Option 1A (slightly more than 37 percent of the fleet). Under Option 2A and 2B 37 percent of the fleet would exceed the 1 percent cap. Approximately 60 percent of the fleet would exceed one-half percent cap under options 2A and 2B, while 62 percent would exceed one-half percent cap under option 1A.

The St. Matthew blue king crab fishery.

The table shows no persons exceeding either an 8 or 5 percent cap under any of the allocation options in the St. Matthew blue king crab fishery. Under Option 2A, 50 persons (slightly more than 30 percent of the persons receiving an allocation) would exceed a 1 percent cap. Under Option 1A, 33 persons (or slightly less than 20 percent of the persons receiving an allocation) would exceed the cap. Slightly more than 75 percent of all persons receiving an allocation would exceed a one-half percent cap under all of the options.

The Aleutian Island golden king crab fisheries.

One table is presented for each of the three different allocation options for the Aleutian Island golden king crab fisheries. The first two tables show the ownership cap analysis in the Eastern Aleutian Island subdistrict and the Western Aleutian Islands subdistrict, where the allocation in each district is based on catch from that district. The third table shows the analysis if a single allocation is made based on total harvests from both subdistricts combined.

In the Eastern Aleutian Island (Dutch Harbor) golden king crab fishery no persons will exceed a 40 percent ownership cap at initial allocation. The number of persons exceeding the proposed 20 percent cap cannot be shown for any of the options, because of confidentiality restrictions. The number of persons exceeding a 10 percent cap is 6 or 7 under all of the options, except options 1A and 1B where the number exceeding the cap is not revealed, because of confidentiality restrictions. The number of person receiving an allocation over 5 percent of the total allocation is approximately 40 percent under Options 1A and 1B and ranges from slightly less than 70 percent to slightly less than 80 percent for the other options. The high concentration of allocations is not surprising, because few persons qualify for an initial allocation in the fishery.

In the Western Aleutian Island (Adak) golden king crab fishery the number of persons exceeding the caps between 40 percent and 10 percent cannot be shown for any of the options, because of confidentiality restrictions. The number of persons receiving an allocation in excess of 5 percent of the total allocation is 5 (or slightly more than 20 percent of those receiving an allocation) under Options 1A and 1B, 7 (or slightly more than 40 percent) under Options 2A and 2B, and 4 (or slightly more than 30 percent) under Option 3B.

The number of persons exceeding 5 percent of the total allocation under Options 3A and 4A cannot be revealed because of confidentiality restrictions. As in the Eastern Aleutian Island golden king crab fishery, the high concentration of allocations is not surprising, because few persons qualify for an initial allocation in the fishery.

No persons will exceed a 40 percent ownership cap at initial allocation if the allocation in the Aleutian Island golden king crab fishery is based on harvests from both subdistricts combined. The number of persons exceeding the 20 percent and 10 percent caps cannot be shown for any of the options, because of confidentiality restrictions. The number of persons receiving an allocation in excess of 5 percent of the total allocation ranges from 8 persons (or approximately one-third of those receiving an allocation) under Options 1A and 1B to 10 persons (or approximately two-thirds of those receiving an initial allocation) under Options 3A, 3B, 4A, and 4B. The slightly lower concentration of shares in the combined fishery is not surprising, since the allocation includes all persons eligible to receive an allocation in either subdistrict.

The western Aleutian Islands (Adak) red king crab fishery

The number of persons exceeding the 30 percent and 20 percent caps in the Western Aleutian Islands (Adak) red king crab fishery cannot be shown for any of the options, because of confidentiality restrictions. Six persons (or approximately 15 percent of those persons receiving an allocation) would exceed a 10 percent cap. Eight or 9 persons (or slightly more than 20 percent of those receiving an allocation) would receive an allocation of more than 5 percent under both options.

IFQ use caps on a vessel

Paragraph 1.7.4 of the Council motion contains the following two options for limiting the use of IFQs on a single vessel:

1.7.4 Use caps on IFQs harvested on any given vessel:

Option 1.

- a) fleet average percent of the catch
- b) highest single vessel percentage of the catch

Time periods considered for determining the catch shall be:

- a) the IFQ qualifying years;
 - b) the IFQ qualifying years plus the years from the end of the qualifying period through the year of the final Council action.
- Option 2. No use caps

The Council is considering vessel use caps that would limit the amount of IFQs that could be harvested on any vessel. Once a vessel reaches its IFQ use cap it could no longer be used to harvest that species of crab in that year. Use caps could be applied to ensure that a certain number of vessels continue to participate in the rationalized fisheries. Even if ownership caps are created, in a fishery without use caps, owners could work together and fish several persons' shares on a single vessel. This consolidation of fishing would clearly affect skippers and crew resulting in loss of employment, since fewer vessels would be operating. Captains

and crew employed in the fisheries would likely have longer periods of work. Crew shares, however, could be affected if concentration of shares allowed the remaining participants to influence share payments. On the other hand, use caps could prevent skippers and crew from purchasing Q.S. or IFQs to fish on vessels owned by others. If the use cap is reached with IFQs owned by the vessel owner, the vessel owner is unlikely to allow crew owned IFQs to be fished from the vessel. To overcome this limitation, an exemption could be made from the use cap for harvesting of IFQs, if the IFQ holder is on board the vessel. Furthermore, in the event that a special category of skipper and crew shares is created, as proposed by Section 1.8 of the Council motion, those shares could be exempted from the cap. Exempting skippers' from the cap may tend to give them more bargaining power on compensation for using their quota on a vessel that is close to the cap.

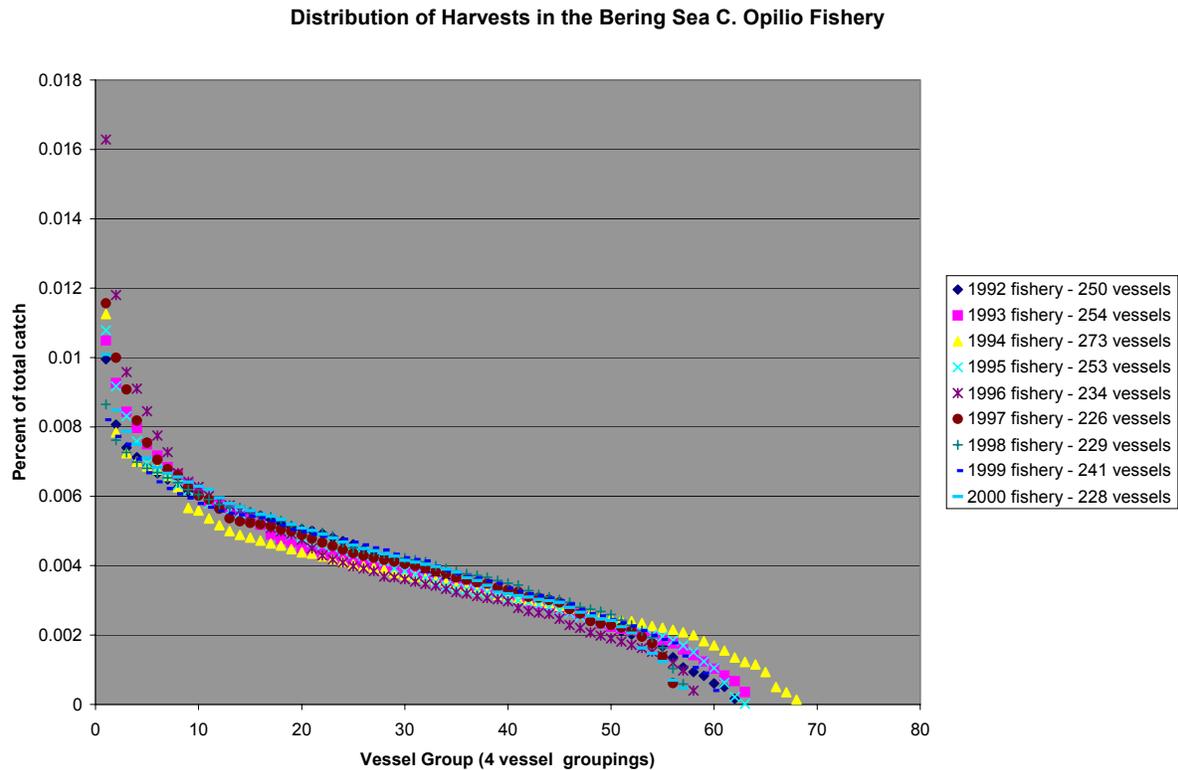
Option 1 includes a range of options. It states that the cap will be based on a range that is determined by the average or highest annual catch by a vessel in a fishery. The Council could select either the average annual vessel catch, or the average highest single vessel harvest over a period of years. The years that would be used to determine the caps are either (1) the IFQ qualifying years or (2) the IFQ qualifying years plus the years from the end of the qualifying period through year of final Council action. Caps would be based on a percentage of the overall quota since a cap based on pounds may not accommodate fluctuations in the GHL. Alternatively, the Council could select a specific cap for each fishery that is between the average annual vessel harvest and the highest annual vessel harvest. Option 2 would create no use caps.

Histograms for each of the fisheries, showing fishing activity in each year from the earliest year under consideration for use as a qualifying year through the most recent fishery for which data are available, are shown below.

The Bering Sea *C. Opilio* fishery

Figure 3.4-1 shows the distribution of harvests in the Bering Sea *C. opilio* fishery from 1992 to 2001. The distribution graphs are similar in most of the seasons. The highest percent of harvests by the four leading vessels occurred in 1996, when those vessels averaged over 1.6 percent of the total harvests. Typically, the leading 4 vessels average between 1 and 1.2 percent of the total harvests in the fishery. Mean harvests in the fishery are approximately 0.4 percent each year.

Figure 3.4-1 Distribution of harvests in the Bering Sea C. opilio fishery



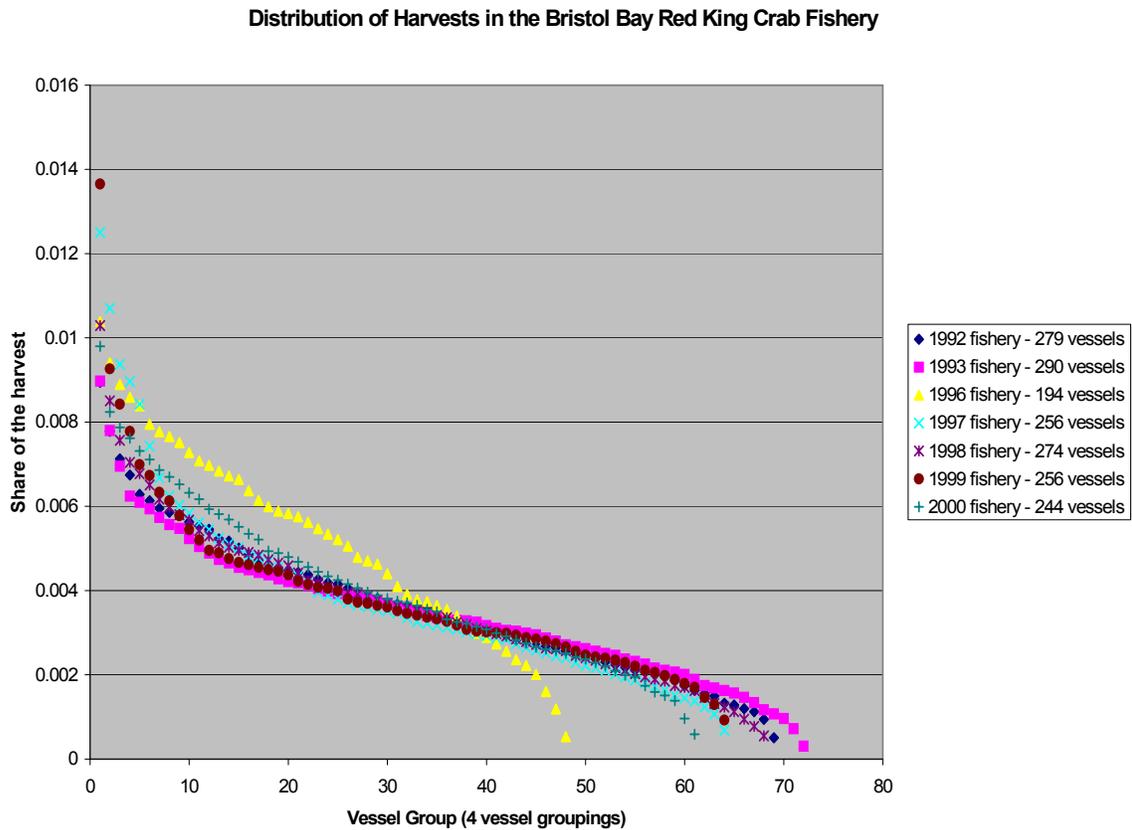
The Bristol Bay red king crab fishery.

Figure 3.4-2 shows the distribution of harvests in the Bristol Bay red king crab fishery. The distribution graphs are similar in most of the seasons, with the exceptions being the 1996, and 2000 season, when the number of vessels participating was slightly lower than in other seasons. In those years, the range of the distribution of harvests is somewhat greater than in other years. The highest percent of harvests by the four leading vessels occurred in 1999, when those vessels averaged almost 1.2 percent of the total harvests. Typically, the leading 4 vessels average approximately 1 percent of the total harvests in the fishery.

Mean harvests in the fishery range from slightly more than one-third of one percent in 1998, to slightly more than one-half of one percent in 1996.

Figure 3.4-2

Distribution of harvests in the Bristol Bay red king crab fishery

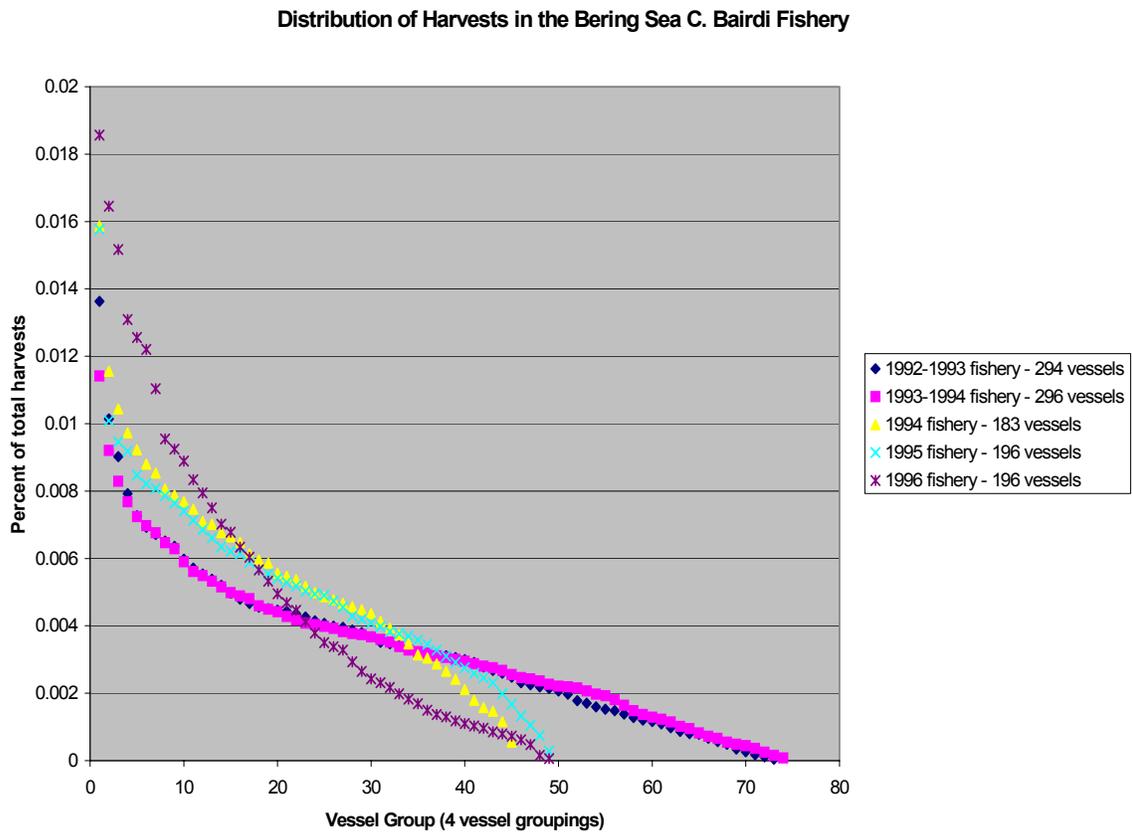


The *C. bairdi* fishery

Figure 3.4-3 shows the distribution of harvests in the Bering Sea *C. bairdi* fishery. The distributions are similar in most of the seasons, but are more extreme in the three most recent season when the fewest number of vessels participated in the fishery. In those years, the distribution of harvests is substantially greater than in other years. The highest percent of harvests by the four leading vessels occurred in 1996, when those vessels averaged almost 2 percent of the total harvests. Typically, the leading 4 vessels averaged approximately 1.5 percent of the total harvests in the fishery. Mean harvests in the fishery range from slightly more than one-third of one percent in 1993-1994 season to slightly more than one-half of one percent in the 1994 season.

Figure 3.4-3

Distribution of harvests in the Bering Sea *C. bairdi* fishery

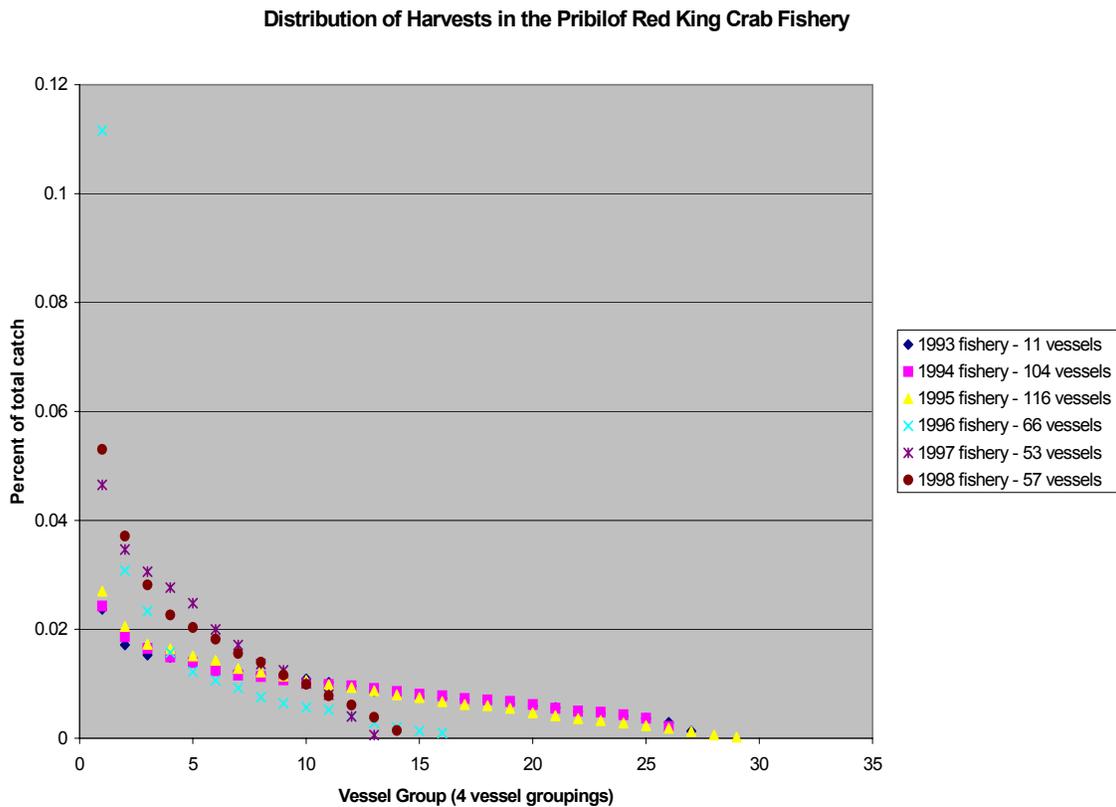


The Pribilof red king crab fishery.

Figure 3.4-4 shows the distribution of harvests in the Pribilof red king crab fishery. The distributions in this fishery in 1996, differed from that of other years in that the four leading vessels had substantially higher harvests than most other vessels in the fishery (in excess of 10 percent of all harvests). With the exception of that year, the leading 4 vessels average between 3 and 5 percent of the total harvests in the fishery. As in the other fisheries, in years when the number of vessels participating has been low, the distribution of harvests has been notably greater. Mean harvests in the fishery range from slightly less than one percent in 1993 season to slightly less than two percent in the 1997 season.

Figure 3.4-4

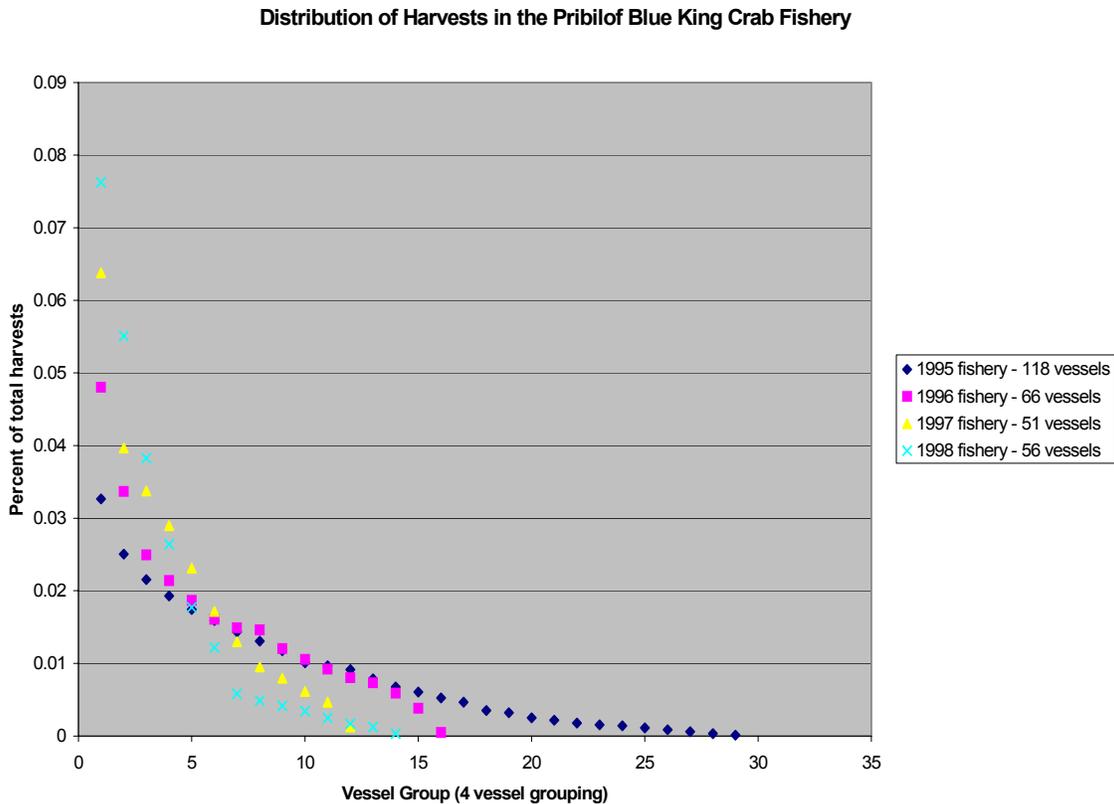
Distribution of harvests in the Pribilof red king crab fishery



The Pribilof blue king crab fishery.

Figure 3.4-5 shows the distribution of harvests in the Pribilof blue king crab fishery. The distribution of harvests in this fishery differ from year to year with the four leading vessels average harvests ranging from slightly more than 3 percent of the total harvests in 1995, to slightly less than 8 percent of the total harvests in 1998. The average of the four leading vessels increased steadily in the four years shown. Generally, in years when the number of vessels participating has been low, the distribution of harvests has been notably greater. In 1998, however, several vessels had relatively low harvests (less than one percent), which resulted in greater extremes than might be expected given the number of vessels participating that year. Mean harvests in the fishery range from slightly less than one percent in 1995 season, to slightly less than two percent in the 1997 season.

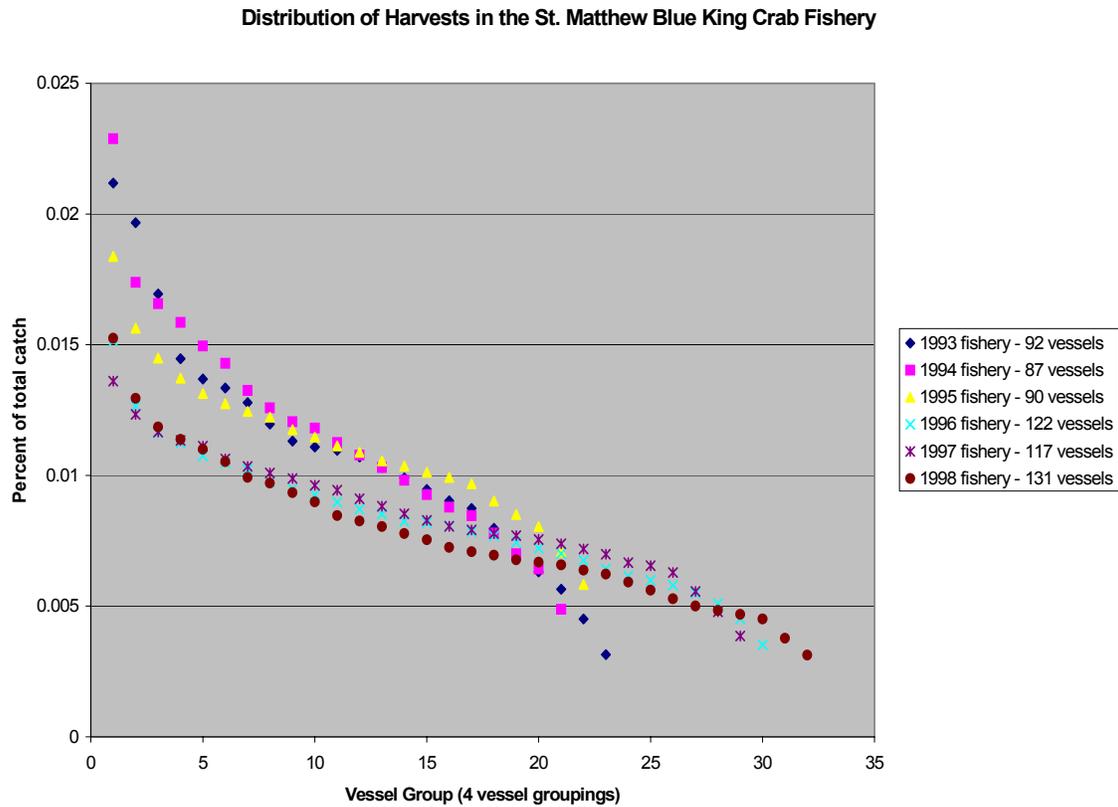
Figure 3.4-5 Distribution of harvests in the Pribilof blue king crab fishery



The St. Matthew blue king crab fishery.

Figure 3.4-6 shows the distribution of harvests in the St. Matthew blue king crab fishery. The distributions in this fishery differ slightly from year to year with the four leading vessels average harvests ranging from slightly less than 1.4 percent of the total harvests in 1997 to slightly more than 2 percent of the total harvests in 1994. From 1996 to 1998, the most recent years in the fishery, the graphs of the distribution of harvests are relatively flat, with the leading 4 vessels averaging approximately 1.5 percent of total harvests. Mean harvests in the fishery range from approximately three-fourths of one percent in 1998 season, to slightly more than one percent in the 1994 season.

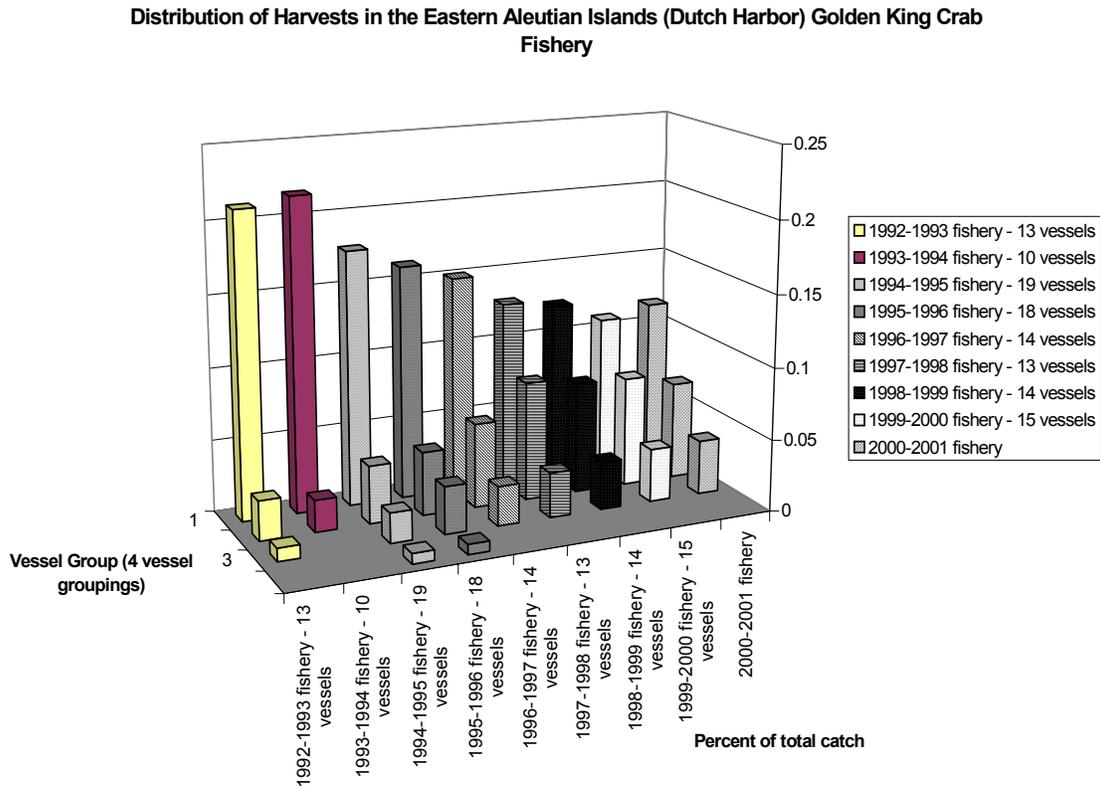
Figure 3.4-6 Distribution of harvests in the St. Matthew blue king crab fishery



The eastern Aleutian Island (Dutch Harbor) golden king crab fisheries.

Figure 3.4-7 shows the distribution of harvests in the Eastern Aleutian Island (Dutch Harbor) golden king crab fishery. The harvest distribution graphs in this fishery have flattened in recent years with the harvests of the four leading vessels declining from over 20 percent of total harvests in 1992-1993 season, to slightly more than 10 percent of the total harvests in the 1999-2000 season. The flattening has occurred despite the number of vessels in the fishery remaining fairly constant over this period. This is likely a reflection of increased competition among participants, which has the decreased season length as fishers have harvested the GHJ more quickly. Mean harvests in the fishery range from slightly more than 5 percent in 1994-1995, season to 10 percent in the 1993-1994 season.

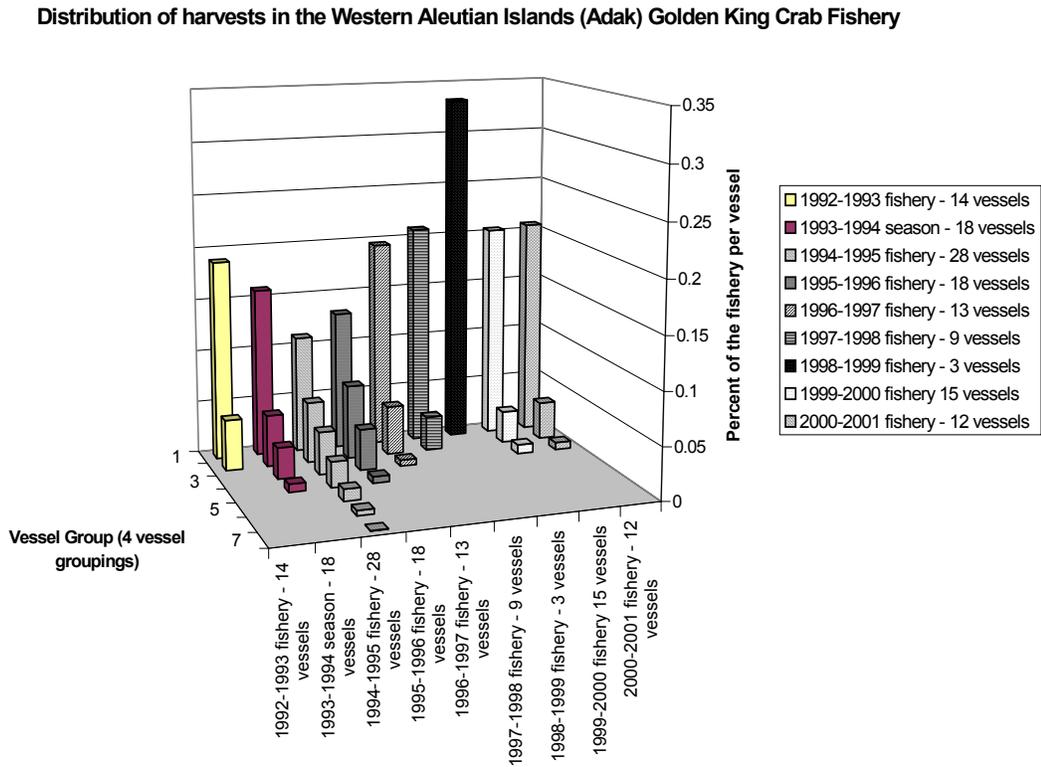
Figure 3.4-7 Distribution of harvests in the eastern Aleutian Islands golden king crab fishery



The western Aleutian Island (Adak) golden king crab fisheries.

Figure 3.4-8 shows the distribution of harvests in the Western Aleutian Island (Adak) golden king crab fishery. The distributions in this fishery have fluctuated greatly, as has the number of vessels participating in the fishery. The four leading vessels have typically harvest between 15 and 20 percent of the total harvest. In two seasons, however, the average harvests of these vessels was slightly more than 10 percent. In the two most recent seasons, the average harvest of the leading 4 vessels was approximately 20 percent of the total harvest. Mean harvests in the fishery range from less than 5 percent in 1994-1995 season, to over 33 percent in the 1998-1999 season, when only 3 vessels participated in the fishery.

Figure 3.4-8 Distribution of harvests in the western Aleutian Islands golden king crab fishery

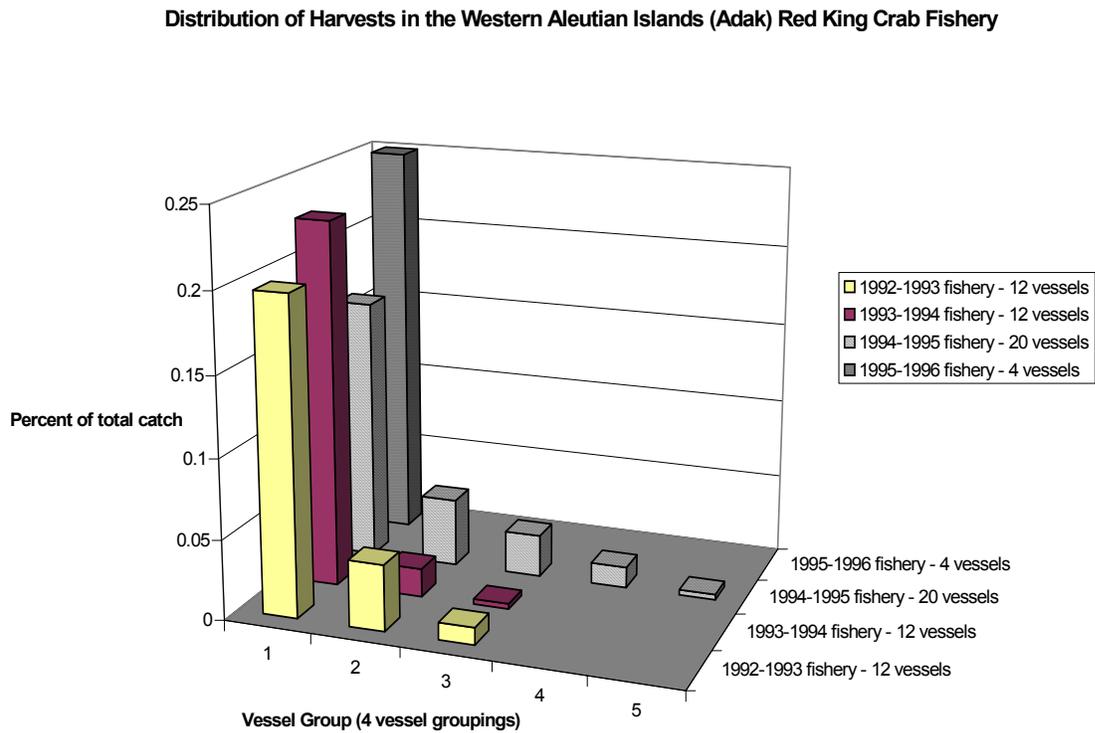


The western Aleutian Islands (Adak) red king crab fishery

Figure 3.4-9 shows the distribution of harvests in the western Aleutian Island (Adak) red king crab fishery. The harvest distribution graphs in this fishery follow no apparent pattern, but as with the other fisheries are generally flatter in years when more vessels participated. The average harvests of the four leading vessels ranged from slightly more than 15 percent in the 1994-1995 season, to 25 percent in the 1995-1996 season, when only 4 vessels participated in the fishery. Mean harvests in the fishery range from slightly more than 5 percent in 1994-1995 season, to 25 percent in the 1995-1996 season.

Figure 3.4-9

Distribution of harvests in the western Aleutian Islands red king crab fishery



3.4.2 The two-pie quota program

In a two-pie quota program both harvesters and processors would receive an allocation of shares in the fishery. Harvesters would receive harvester shares that provide a harvest privilege (as in the harvester only quota program). In addition, processors would receive processor shares that would provide the privilege to process crab. This section describes the two-pie quota system options including options that pertain to processing quota shares (PQS) and individual processing quotas (IPQs) and options intended to govern the interaction of harvesters and processors under the program. The two pie program also contains elements and options that change the nature of harvesting shares (or Q.S.) to govern the delivery of harvested crab to processors.

3.4.2.1 Processor shares

In a two pie system, processors would receive an initial allocation of PQS. Similar to harvester Q.S., each PQS unit grants the holder the processing rights to a certain percentage of the annual available resource for the applicable crab fishery. Prior to the season opening, the PQS holder would be issued IPQs that allow the holder to process an amount of crab (specified in pounds of delivered crab) during the season. Consequently, PQS represent *long-term* privilege to receive the right to process a *percentage* of the annual available resource

in a fishery. IPQs represent the *single-season* privilege to process an amount of crab in *pounds*. While IPQs expire automatically at the end of the season, PQS establish an interest in the fishery for the duration of the program.

The existence of processor shares under a two-pie system would change the crab delivery requirements for harvesters. In a one-pie IFQ system or open access fishery, a harvester may deliver harvests to any processor. In a two-pie system, harvesters can only deliver harvests to a processor that holds unused IPQs. One alternative two-pie system under consideration would allocate a portion of the harvesting shares as “open delivery” shares, which would not require delivery to an IPQ holder. No IPQs would be required to accept delivery of crab caught with open delivery IFQs.

National Research Council report recommendations.

The NRC report “Sharing the Fish” included a discussion of the merits of allocating either a portion of the quota to processors or alternatively creating a separate class of shares for processors. Processors are thought to have had mixed results under IFQ programs. When adversely affected, processors are argued to suffer from stranded capital and lower profitability. Processor losses could also have negative impacts on isolated communities. Processors that are successful in IFQ fisheries tend to obtain results through “contractual methods or vertical integration”. The study concludes that if protection of processors is an “appropriate social goal, this could be accomplished by allocating separate harvester and processor quota.” The report also suggested that other methods, such as buyouts or permitting processors to own harvester quota might be preferred to processor quotas, if processor protection is a concern.

3.4.2.2 Structure of the analysis

The Council motion contains two alternative methods for allocating processing shares to catcher/processors. Under the first method, catcher/processors would receive a processing allocation based on their processing history in the same manner that shares are allocated to shore based and floating processors. Under the second method, catcher/processors would receive a share allocation based on their harvests as a catcher/processor, which would include both a harvesting and processing allocation. The outcome of these two allocation methods may differ, since different qualifying years are proposed for the harvesting and processing sectors. Because of these differences, the quantitative analysis of the processing allocations under the different methods are separated. Before presenting the quantitative analysis, the different alternatives that apply to the processing sector under a two-pie IFQ program are described and analyzed qualitatively.

3.4.2.3 Categories of processor shares

As in the harvesting sector, categories of processing shares would be established for each crab fishery included in the two-pie quota system. Under paragraph 2.1 of the Council motion options for the PQS in the following fishery categories are under consideration:

- Bristol Bay red king,
- Aleutian Islands golden king,
- Western Aleutian Islands (Adak) red king,
- Eastern Aleutian Islands (Dutch Harbor) red king,
- Pribilof Island blue king,
- Pribilof Island red king,

St. Matthew blue king,
Bering Sea *C. opilio*,
Bering Sea *C. bairdi*
Eastern Aleutian Islands *C. bairdi*, and
Western Aleutian Islands *C. bairdi*.

Currently, no options have been specified for issuing of PQS for the Eastern and Western Aleutian Islands *C. bairdi* and the Eastern Aleutian Islands (Dutch Harbor) red king crab fisheries—three fisheries that have been closed during the qualifying periods.

3.4.2.4 Initial allocation of processing shares

Paragraph 2.1 of the Council motion sets out the following option for determining the eligibility to receive a PQS initial allocation:

- 2.1 Eligible Processors - processors (including catcher/processors) eligible to receive an initial allocation of processing quota shares (PQs) are defined as follows:
- (a) U.S. Corporation or partnership (not individual facilities) that
 - (b) processed crab for any crab fishery included in the IFQ program during 1998 or 1999.

Under this provision, U.S. corporations or partnerships that processed crab in any crab fishery included in this program in 1998 or 1999, would receive an initial allocation of PQS. Eligibility is on a company or partnership basis (not facility basis) so that a company that has operated multiple facilities over time, but operated a single facility in 1998 or 1999, would receive an initial allocation for all crab processed by any of its facilities during the qualifying period. The provision would not prevent the allocation of PQS to U.S. corporations or partnerships that were owned (in whole or in part) by foreign corporations or persons. Eligibility requirements can be used to limit allocations to current participants. Thirty-eight processors are eligible to receive an allocation applying these criteria.

Under each of the options, the initial allocation would be based on processing history as determined by the buyer of record on ADF&G fish tickets.

Under option 1, the initial allocation would be based on 3 years of processing history for each fishery included in the two-pie quota program. In each fishery open in recent years, the initial allocation would be based on a processor's three year processing history in accordance with the following equation:

$$\frac{\text{Year 1 Processing} + \text{Year 2 Processing} + \text{Year 3 Processing}}{\text{Total Processing of Eligible Processors for Three Years}} = \text{PQS}$$

The *C. bairdi* fishery has been closed for several recent seasons. Because of the absence of recent history in the fishery, a processor's initial allocation in *C. bairdi* fishery would be determined using the average of the processor's initial allocations in the Bristol Bay king crab fishery and the *C. opilio* fishery. For example, if a processor received 3 percent of the Bristol Bay king crab allocation and 9 percent of the *C. opilio* allocation, the processor would receive an allocation of 6 percent of the *C. bairdi* fishery. Option 1 proposes no initial allocation rule for PQS in the EAI red king crab, the WAI red king crab, the EAI *C. bairdi*, or the WAI *C. bairdi* fisheries.

Because State managers have recommended that the WAI red king crab fishery be included in the rationalization program, the Council may wish to consider selecting qualifying year options for allocations of processor shares in that fishery.

Paragraph 2.3 of the Council motion sets out the following options for the initial allocation of PQS :

2.3 Initial allocation of processing quota shares

Option 1. Processing quota shares shall be initially issued to Eligible Processors based on three-year average processing history* for each fishery, determined by the buyer of record listed on ADF&G fish tickets, as follows:

- (a) 1997 - 1999 for Bristol Bay red king crab
- (b) 1996 - 1998 for Pribilof red king crab
- (c) 1996 - 1998 for Pribilof blue crab
- (d) 1996 - 1998 for St. Mathew blue crab
- (e) 1997 - 1999 for opilio crab
- (f) Bairdi crab based on 50/50 combination of processing history for BBRKC and opilio
- (g) 1996/97, 1997/98 and 1998/99 seasons for brown king crab
- (h) The council shall/may determine if the 4 species not included are appropriate for PQs, Dutch Harbor red king, E AI tanner, W AI tanner, and Adak red king
- (i): The qualifying years for issuance of IPQ in the Western Aleutian Islands (Adak) red king crab fishery will be:

Option A. 1992/93 to 1995/96

Option B. Based on Western Aleutian Islands brown king crab IPQ

Option C. 0 - 50% of IPQs would be allocated to the community of Adak

Option 2. Processing quota shares shall be initially issued to Eligible Processors based on the processing history for Opilio, BBRKC or brown king crab, determined by the buyer of record listed on ADF&G fish tickets, using the best 4 seasons during the 1996 - 2000 seasons.

Suboption: Extend this option to 1996 - 2002 for Opilio (best 6 of 7 seasons)

1996 - 2001 for BBRKC (best 5 of 6 seasons)

1996/7 - 2001/2 for brown king crab (best 5 of 6 seasons)

Option 3. If an eligible processor is no longer active in the crab fisheries, the history of the processor will be allocated to open delivery shares but will retain its regional designation.

Option 4. If the buyer can be determined to be an entity other than the entity on the fish ticket, then the IPQ shall be issued to that buyer.

* The three-year average shall be the three-year aggregate pounds purchased by each Eligible Processor in a fishery divided by the three-year aggregate pounds purchased by all Eligible Processors in that fishery.

Under option 2, PQS would be initially allocated to eligible processors based on processing history in the Bristol Bay red king crab, the *C. opilio*, and the golden king crab fishery using the best 4 seasons during the 5 seasons between 1996 and 2000. Allocations under this option are assumed to be made on a fishery basis with the allocation in each fishery based solely on processing activity in that fishery.

The suboption under Option 2 would extend the qualifying years to include the most recent years in each fishery that has been open (the Bering Sea *C. opilio*, the Bristol Bay red king, and the Aleutian Islands golden king crab fisheries). Because data are unavailable for quantitative analysis of these options, the analysis is limited to a qualitative discussion of the possible effects of the inclusion of these years. The effects of using processing history from recent years in the allocation depends on the change in participation, which is unknown. Anecdotal information suggests that processing facilities have been removed from the fisheries in recent years. Whether this would result in more concentration of shares or changes in the distribution of processing shares cannot be determined. If the closed facilities are owned by processors that consolidated their activities from several facilities into a single facility, it is possible that the concentration could be unaffected. If processors left the fishery altogether, it is possible that including recent history could result in more concentration of processing allocations. In addition, the inclusion of recent years could have distributional effects and result in changes in concentration simply from changes in the distribution of processing activity.

Option 3 provides that if an eligible processor is no longer active in the crab fisheries, the history of that processor would be allocated as open delivery shares, but will retain its regional designation. To analyze this option will require that a standard be developed for being “no longer active in the crab fisheries”. A possible standard would be to provide that a processor that has not processed crab in two years is considered no longer active in the fisheries. If this standard is applied using 1999 and 2000 (the most recent years for which data is available), all processors that would receive allocations were active, so no processing allocations would be reallocated as Class B shares.

Option 4 provides that if the buyer of crab is determined to be an entity other than the entity identified on the fish ticket, the allocation shall be made to the buyer. This provision could be adopted to ensure that entities that contract for custom processing services obtain an allocation for crab processing which they support. Custom processing occurs when an entity contracts with a processor to take delivery and process crab on its behalf. A more complete discussion of custom processing appears in Section 3.15. Because the data are unavailable to specifically identify custom processing activity in each fishery in each year, the analysis of this option is limited. Custom processing of species under consideration for inclusion in the rationalization program in the areas that participate in processing of BSAI crab is between 5 and 10 percent of all processing. Whether allocations should be made to the entity that actually processed crab or the entity that contracted for that processing is largely a policy judgment.

3.4.2.5 Transferability of processing shares

Transferability of shares is frequently supported as a means to improve economic efficiency. A more complete discussion of the benefits of transferability of shares is contained in the analysis of harvest shares in Section 3.3 above. The same rationale for transferability of harvest shares also apply to processing shares. Paragraph 2.6 of the Council motion contains the following three options that would govern the transfer of processing shares:

- 2.6 Transferability of processing shares - provisions for transferability include the following:
- (a) Processing quota shares and IPQs would be freely transferable, including leasing
 - (b) IPQs may be used by any facility of the Eligible Processor (without transferring or leasing)
 - (c) Processing quota shares and IPQs categorized for one region cannot be transferred to a processor for use in a different region.

Under Option (a) both PQS and IPQs would be fully transferrable without restriction. Since the option contains no limitations on the class of entities that could purchase PQS and IPQs, it would be possible for new processors to enter the fishery by purchasing IPQs or PQS. Option (b) provides that the use of IPQs by any facility of the owner of the underlying PQS would not be considered a transfer of the IPQ for administrative purposes. Option (c) would prohibit the transfer of PQS and IPQs between regions. This third option would be necessary to preserve the regional distribution of processing activity.

3.4.2.6 Processing quota ownership and use caps.

Several alternatives for capping the ownership and use of PQS and IPQs are included in the Council motion. The motion also provides that “different percentage caps may be chosen for each fishery”. The following three options pertain to ownership caps:

- 2.7.1 Ownership caps
- Option 1. based on maximum share for processors by fishery plus a percentage of 5%, 10% or 15%.
 - Option 2. Ownership cap equal to largest share issued to processor at initial issuance.
 - Option 3. Range of caps from average to maximum with grandfather clause.

PQS ownership caps should be analyzed using both the individual and collective rule and the threshold ownership rule using 10%, 25%, and 50% minimum ownership standards for inclusion in calculating the cap. PQS ownership caps are at the company level.

Option 1 sets out three alternative levels for ownership caps, each based on the initial allocation in the applicable fishery. Under this option, the cap in a fishery would equal the maximum PQS delivered to a single processor in the initial allocation plus a specified percentage (5, 10, or 15 percent). So, if the maximum initial allocation in a fishery were 24 percent, then the PQS ownership cap in that fishery would be 29, 34, or 39 percent depending on which percentage was selected.

Under Option 2, the cap would equal the maximum initial issuance to a processor. The largest processor would not be allowed to increase its holding of processing quota, but all other processors would be allowed to purchase quota until they reached the cap.

Under Option 3, the Council would select the cap from a range of the average initial issuance of PQS to the maximum initial issuance of PQS. As currently written, the low cap considered under this option would be the average initial issuance. This would prohibit the ownership of more than the average initial allocation, except for those receiving more than that amount at the allocation would be grand fathered for their initial

allocations. These companies would be prohibited from increasing their PQS holdings. (Note: This option could result in a very low cap, if there are several very low initial allocations that reduce the average initial allocation.)

Options 1, 2, and 3 all present problems for analysis. Any option that is based on the maximum initial allocation could not be analyzed directly with fish ticket data, since data can be revealed only in summary. Summary reporting requires that information be aggregated up to at least four companies. This requirement limits the effectiveness of any analysis, as only the average of the four highest processing allocations can be reported. Once established, the cap would be known, but that would occur only after the initial issuance of PQS.

The Council motion specifies that the analysis should consider application of the rule, both “individually and collectively”, and using a “threshold ownership” standard. Applying the caps using the individual and collective standard means that each person that owns an interest in a processor that holds processing shares would be considered to own a portion of the shares equivalent to their interest in the processor. For example, if a person owns 10 percent of a processor that owns 2,000 PQS, that person would be considered to own 200 PQS. The cap would be applied collectively to the holdings of the company (so the company could not exceed the share cap) and to the individual (so that the individual could not exceed the share cap by owning interests in several companies). This standard of determining ownership is used in the halibut and sablefish IFQ program.

The threshold ownership rule would consider any entity that holds in excess of some threshold interest in another entity to own all PQS owned by that company. So, if the threshold is set at 20 percent and a company owns 2,000 PQS, a person that owns 25 percent of the company would be considered to own all 2,000 PQS. If the person only owned 10 percent of the company, then that person would be considered to own none of the company’s PQS holdings. This standard of determining ownership is used by the AFA sideboards.

A potential pitfall of applying either ownership standard is that they permit persons that commonly own a facility to defeat the cap by titling the shares in individual names. For example, if a closely held corporation with three shareholders transfers its PQS to individuals, each shareholder could hold shares up to the cap. Doing so would allow the group to collectively hold three times the cap, limiting the effectiveness of the cap in preventing consolidation. Use caps are therefore also important to preventing unwanted consolidation.

To quantitatively analyze the options using either of these standards would require detailed ownership information, that is currently unavailable to the analysts. Consequently, the analysts have relied on knowledge of the industry, with some assistance from processor representatives to aggregate PQS allocations at the company level.

Caps on ownership and use of processing shares could be used to prevent consolidation of market power in a few firms. These caps might be favored as a means to ensure competition in the processing labor market. In addition, share concentration could influence the market power of processors with respect to harvesters. Harvesters are concerned that if processing shares become consolidated in the hands of a few firms, those

firms could have the ability to control the ex- vessel price of crab.²⁷ In addition, caps on ownership could be used to facilitate a market for processing shares, contributing to entry of processors to these fisheries.²⁸

In considering the appropriate caps, the Council might also consider whether a regionalization program is adopted. If so, the Council could consider developing either lower caps or caps that would be applied on a regional basis. If the object of caps is to ensure an adequate level of competition in the processing sector, regionally dividing the fishery could limit that competition. Regionally designating harvest shares could limit the number of potential purchasers of crab harvested with regionally designated shares, if caps are not applied regionally. For example, the Council could adopt a 20 percent cap on processing shares, anticipating that the cap would ensure that 5 processors would compete for harvests in a fishery. If that cap is applied on a fishery wide basis rather than a regional basis, it is possible that one processor could own all of the North shares in the Bristol Bay red king crab fishery, one processor could own all of the North shares in the *C. bairdi* fishery, and two processors could own all of the North processing shares in the *C. opilio* fishery. These share divisions could substantially limit the delivery opportunities for holders of North class A harvest shares in these fisheries. The Council, however, must also balance the need for competition in the processing sector against the potential efficiency gains from allowing some consolidation of processing activities. A small allocation in a region may be able to support only a limited number of processing facilities. A processing share cap that is too low could result in inefficiencies detrimental to both the processing and harvesting sectors.

Paragraph 2.7.2 of the Council motion also includes the following two options for capping the annual use of IPQs by a processor:

2.7.2	Use caps	
	Option 1.	Annual use caps ranging from 30% - 60% of the GHL (or TAC) by fishery.
	Option 2.	Annual use caps of quota share equal to the largest PQ holder's share in each specific fishery.

Under option 1, the Council would select the IPQ use cap for each fishery at a value between 30 and 60 percent.

Under option 2, the use cap for each fishery would be equal to the largest PQS holder's share in the fishery. The use cap under this option would be set at the ownership share of the largest PQS holder at the time of initial allocation. If the use cap is substantially below the ownership cap, this option could have unintended consequences (and prevent the realization of economies of scale in processing). In that case, the lease of PQS to processors with shares close to or at the maximum would be prevented by the use cap. If the ownership cap is not binding (i.e., no processor is near the cap) and the use cap is lower than the ownership cap, this option could have the effect of preventing leasing by the largest PQS holder. This might limit the ability of harvesters and processors to coordinate deliveries of crab, particularly late in the season, when few IPQs remain in the market. The tables and discussion concerning ownership caps also provide perspective on the applicability and effects of the proposed use caps.

²⁷A more complete discussion of the rationale for ownership caps appears in section 3.4.1. That discussion is focused on the harvest sector, but the conceptual reasons for caps apply to both sectors.

²⁸ Ownership and use caps, together with an allocation of processing shares, are the only options that would guarantee a minimum number of participants in the processing sector.

3.4.2.7 Provision affecting the interactions between harvesters and processors.

The Council motion includes several provisions that are intended to affect the interactions between harvesters and processors under the two-pie program. Paragraph 2.5 of the Council motion contains the following option that would define “open delivery” Q.S. and IFQs, which can be delivered to any licensed processor regardless of whether the processor holds unused IPQs:

2.5 Implementation of the open delivery processing portion of the fishery

Catcher vessel Q.S./IFQs are categorized into Class A and Class B shares. Purchases of crab caught with Class A shares would count against IPQs while purchases of crab caught with Class B shares would not. Crab caught with Class B shares may be purchased by any processor on an open-delivery basis.

That paragraph is intended to work with paragraph 1.3.3 of the Council motion, which provides:

1.3.3 Processor delivery categories - Q.S./IFQs for the CV sector may be assigned to processor delivery categories if Processor quota shares (PQs) are included in the program. Two processor delivery categories (options for the percentage split between class A/B shares for initially allocated Q.S. appear under the Processing Sector Elements):

- (a) Class A - allow deliveries only to processors with unused PQs
- (b) Class B - allow deliveries to any processor

These provisions establish a program under which all Q.S. and IFQs are classified as class A shares (which must be delivered to processors with unused IPQs) or class B shares (which can be delivered to any processor). Crab delivered under a class A IFQ would count against IPQs held by the processor, while crab delivered under a class B IFQ would not count against any IPQs held by the processor.²⁹ Although the provision provides that crab harvested with class B IFQs can be delivered to any processor, some Council discussions have suggested that only eligible processors would be permitted to accept deliveries of crab harvested with class B IFQs. Such a limitation could affect entry to the processing sector and might change the balance of market power between harvesters and processors. The issue of market power between the sectors is discussed in Section 3.16 below.

The Council motion includes several options that would allocate different percentages of shares as class A Q.S. and class B Q.S. As a rule, the share of a fishery issued as class A Q.S. (for which corresponding class A IFQs would be issued) will equal the share of the fishery for which IPQs will be issued. This provides a one-to-one relationship between the IPQs and class A IFQs (which must be delivered to processors holding IPQs). Class B Q.S. would be issued for the remainder of the fishery, so that Q.S. for the harvesting sector would be allocated for 100 percent of the fishery (unless a portion of the harvest allocation is made to skippers and crews).

²⁹ It is assumed that the provision requiring the delivery of crab harvested with class A shares to processors with “unused PQs” is intended to require delivery to processors with “unused IPQs”, since PQs are not useable but are a privilege to receive IPQs for use in future seasons.

The Council could have several market related reasons for development of the different classes of shares. Issuing IPQs for less than the whole fishery might balance market power between the harvest sector and the processing sector. Providing harvesters with the power to deliver a portion of their allocation to any processor (including those without IPQs) could provide market leverage to the harvester. Also, the class B shares (that do not require IPQs) might facilitate market entry by processors that have no history in crab processing, if processors that do not hold IPQs are permitted to purchase crab from harvesters harvesting crab with class B IFQs.

If the Council elects to establish class A and class B harvesting shares, it must determine the percentage of the Q.S. pool of each share type will be issued, which is equivalent to determining the share of the fishery for which IPQs would be issued. Paragraph 2.4 of the Council motion contains the following 5 options for issuance of IPQs to PQS holders:

2.4	Percentage of season’s GH L or TAC for which IPQs are distributed
	IPQs will be issued for a portion of the season’s GH L or TAC for each species to provide open delivery processing as a means to enhance price competition:
	Option 1. 100% GH L (or TAC) would be issued as IPQs
	Option 2. 90% GH L (or TAC) would be issues as IPQs - the remaining 10% would be considered open delivery.
	Option 3. 80% of GH L (or TAC) would be issued as IPQs - the remaining 20% would be considered open delivery.
	Option 4. 70% of GH L (or TAC) would be issued as IPQs - the remaining 30% would be considered open delivery.
	Option 5. 0% - no processing shares

Depending on the option chosen by the Council, IPQs would be issued for between 100 and 0 percent of the fishery. Likewise, between 100 and 0 percent of the Q.S. issued would be class A Q.S. A complete discussion of the market implications of these different alternatives appears in Section 3.16. It is important to bear in mind that to the extent that processors or their affiliates are allocated harvest shares based on vessels that they own, changing the portion of the GH L (or TAC) for which processing shares are issued will not affect negotiating strength of independent vessel owners in the fishery. So, if processors receive 20 percent of the allocation in a fishery and processors receive an allocation of processor shares for only 90 percent of the GH L (or TAC), then only 8 percent of the class B shares would be held by harvesters that are not vertically integrated (i.e., already controlled by a processor).

3.4.2.8 Controls on vertical integration.

In addition to the provisions concerning the allocation of only a portion of the annual fishery to processors, the Council motion includes options that are intended to limit vertical integration in the fishery. The first two of these options could be applied to either a harvest only IFQ program or a two-pie quota program. The third option applies only in the context of a two-pie quota program. The Council motion includes the following three options:

1.6.4 Controls on vertical integration (ownership of harvester QS by processors):

- Option 1: No controls
- Option 2: A cap of 1%, 5% or 8%, with grandfathering of initial allocations
- Option 3: An entity that owns PQs may not own harvester Q.S. in addition to those harvester Q.S. that were issued to the PQ holder in the initial allocation.

Vertical integration ownership caps on processors should be analyzed using both the individual and collective rule and the threshold ownership rule using 10%, 25%, and 50% minimum ownership standards for inclusion in calculating the cap. PQS ownership caps are at the company level.

Option 1 would impose no restrictions on the ownership of Q.S. by processors. Option 2 would put a cap on the ownership of Q.S. by processors by limiting the ownership of Q.S. to a specified percentage of the Q.S. pool – 1, 5, or 8 percent. Option 3 would prohibit any holder of PQS from purchasing any Q.S. in addition to those Q.S. received in the initial allocation. As written, option 3 would prevent the transfer of Q.S. to not only owners of shore based processors, but also to catcher/processors. If limits are placed on vertical integration, the Council should be clear as to whether catcher/processors are subject to those limits.

Controls on vertical integration might be favored for two reasons. First, the ownership of harvest shares could give processors an advantage in negotiating prices for harvests of vessels that are not processor owned. This is a particular concern, if the Council selects a program that includes processor shares. Vertical integration may also give processors an advantage over processors that are not vertically integrated. The likelihood of vertical integration providing processors with either of these advantages is discussed in greater detail in Section 3.16. On the other hand, vertical integration of harvesting and processing could have efficiency benefits, as activities in the two sectors can be better coordinated by a vertically integrated firm (NRC, 1999).

3.4.2.9 Penalties for the failure to use IPQs

The Council motion contains the following provision concerning the use of IPQs by processors:

2.8.2 Penalties - Eligible Processors must fully utilize their processing quota shares in the season while a fishery is open or lose the amount that is not utilized for one season in the next season.

- Distribution of unused quota:
 - Option 1. Distributed to other processors proportionally
 - Option 2. Distributed to other processors equally
 - Option 3. Allocate to open delivery
 - Suboption 1. If QS is reclassified from Class A to Class B:
 - a) reclassification of Class A QS will be distributed proportionally among all Class A QS holders
 - b) reclassification of Class A QS will be distributed equally among all Class A QS holders
 - c) reclassification of the unused Class A QS to B class

All three options for reclassification of these temporary B QS should require a regionalization designation to maintain the appropriate regional allocations. Additionally, include discussion of reasons a processor may not use its quota, including physical inability (e.g. plant breakdown); harvesters being unable to deliver when the processor is able to process; bona fide price disagreement; concern over exceeding the processor quota allotment (when there is only a small amount of processor quota remaining); and bonafide dispute over quality of the crab.

- Hardship provisions

Under this option, processors that fail to use their IPQs would forfeit the unused PQS for one season. Three options are proposed for distribution of the unused PQS. The first option would distribute those shares to all processors that hold PQS in proportion to their PQS holdings. So, if a processor held 10 percent of the total PQS in a fishery, that processor would receive 10 percent of the PQS forfeited by a processor that did not use their IPQs. Under the second option, forfeited PQS would be allocated equally among all holders of PQS in the fishery.

Under the third option, the forfeited PQS would become open delivery shares. In other words, the PQS would be forfeited and would, in effect, cease to exist for one season. To implement this option, RAM would have to change the classification of a portion of the Q.S. in the fishery. An amount of Q.S. equal to the amount of forfeited PQS would change from Class A (under which harvested crab must be delivered to a processor with unused IPQs) to Class B (under which harvested crab can be delivered to any processor). The following three options are possible for the reclassification of Q.S. from Class A to Class B:

- a. reclassification of Class A Q.S. proportionally among all Class A Q.S. holders
- b. reclassification of Class A Q.S. equally among all Class A Q.S. holders
- c. reclassification of the unused Class A Q.S.

The first of these options would reclassify shares of all class A Q.S. holders from class A to class B, in proportion to Q.S. holdings. The second option would reclassify shares of all class A Q.S. holders, but would distribute that reclassification equally among all class A Q.S. holders. The third option would reclassify only

those class A Q.S. that were unused. This last option might be preferred, since it creates a link between the unused Q.S. and unused PQS. The option, however, may create an incentive for the harvester to forgo harvesting crab to obtain class B Q.S. for use in next season. Whether this advantage could be large enough for a harvester to forgo harvesting crab would depend on the ex- vessel prices and cannot be predicted.

Processors might be unable to process crab for several reasons. Damage to facilities, disputes with crew, or price disputes with harvesters are a few possible reasons. Damage or loss of facilities, acts of God, and labor disputes are considered justifiable reasons for breaking contracts and, therefore, should be considered as possible exemptions from the penalties for unprocessed IPQs. The use of custom processing contracts could also be used as a mechanism to ensure a processor uses their entire allocation each year. Under a custom processing agreement, a processor could have all of their crab processed, even if they, themselves, were unable to process for many of the reasons listed above. Concern about exceeding quotas is a less compelling reason for not meeting a processing quota, since processors weigh crab as it is offloaded by vessels. A processor should not have a problem staying within its quota. Price disputes could also lead to unprocessed IPQs. It is difficult to judge whether this problem will actually occur and whether the problem is likely to result from a legitimate price dispute or posturing of the parties.

Another potential barrier to meeting quota is coordinating deliveries of crab from harvesters holding class A IFQs to exactly match the processor's holdings of IPQs. The extent of this coordination problem cannot be predicted and could be affected by the exact program selected. Both the allocation of class A quota to skippers and crews and the development of a regionalization program could make coordination more difficult.

3.4.2.10 Catcher/processor provisions.

Catcher/processores require extra attention in developing a two-pie quota system, because of their participation in both the harvest and processing sectors. The Council motion includes several provisions intended to specifically address the unique position of catcher/processores in the crab fisheries. Section 1.3.2 contains the following provision concerning catcher/processor shares:

1.3.2	Harvesting sector categories - Q.S./IFQs will be assigned to one of the following harvesting sector categories: 1) catcher vessel (CV), or 2) catcher/processor (CP) Q.S.-IFQ for the Catcher/Processor sector is calculated from the crab that were both harvested and processed onboard the vessel. This shall confer the right to harvest and process crab aboard a catcher processor in accordance with section 1.7.2.
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Under this provision catcher/processores would be allocated "catcher/processor" shares that would convey both harvesting and processing privileges. Although this provision describes only a single method of allocating processing privileges to catcher/processores, other sections of the motion indicate that this provision should be read as one of two options.

Paragraph 1.7.2 of the Council motion includes the following options for the initial issuance of harvest sector Q.S. and processing sector PQS to catcher/ processors:

1.7.2 Catcher/Processor shares:

1.7.2.1 Catcher/Processors shall be granted “A” and “B” class CV-QS in the same manner as catcher vessels.

1.7.2.1.1 Catcher/Processors shall be granted CP-QS in the same manner as catcher vessels.

1.7.2.2 Catcher/Processors shall be granted PQ’s based on their processing history.

Under section 1.7.2.1, catcher/processors would be issued class A and class B Q.S. under the initial allocation in the same manner as catcher vessels. Similarly, under section 1.7.2.2, PQS would be issued to each catcher/processor based on its processing history in the same manner as PQS are issued to inshore processors. Alternatively, under section 1.7.2.1.1 catcher processors would be granted CP-Q.S. (which would include harvesting and corresponding processing privileges).

Since catcher/processors harvest and process crab, specific rules would be developed concerning their acquisition of harvesting shares (particularly from catcher vessels) and processing shares (particularly from other processors outside the catcher/processor sector). Paragraph 1.7.2.3 of the Council motion provides the following options concerning the transfer of harvesting and processing shares to and from catcher/processors:

1.7.2.3 Allowances for Catcher/Processors:

- Option 1. Catcher/Processors are prohibited from purchasing additional PQs from shore based processors but are free to acquire PQs from other Catcher/Processors.
- Option 2. Catcher/Processors shall be allowed to purchase additional IPQs from shore based processors as long as the shares are processed within 3 miles of shore in the designated region.
- Option 3. Catcher/Processors may purchase additional CV-Q.S. but cannot process unless sufficient unused IPQs are held.
- Option 4. Catcher/Processors may sell processed or unprocessed crab. Depending on the type of model (one-pie, two-pie, etc.), unprocessed crab may be delivered to:
 - (a) processors that hold unused IPQs, or
 - (b) any processor
- Option 5. Only catcher processors that both caught and processed crab onboard their qualifying vessels in any BSAI crab fishery during 1998 or 1999, will be eligible for any CP Q.S. in any IFQ or Co-op program.
- Option 6. CP-Q.S. initially issued to a catcher/processor shall not be regionally or community designated.

Options 1 and 2 pertain to the transfers of processing shares. Option 1 would prohibit the transfer of processing shares to catcher processors from shore based processors, preventing any growth in processing by the catcher/ processor sector. This option could prevent catcher/processers from acting as either motherships or floating processors, a practice that some catcher/processers currently engage in. Option 2, on the other hand, would permit the transfer of processing shares from shore based processors to catcher processors, but would impose a requirement that the crab processed with those purchased shares be processed within 3 miles of shore in the designated region of the shares. This requirement is intended to ensure that any fish taxes arising from use of the IPQs prior to their sale would continue to be collected. This provision, however, might make it uneconomical for a catcher/processor to purchase shares, since their use could require the vessel to interrupt fishing to motor to shore to process their catch. One of the cooperative alternatives includes an alternative provision that would require payment of the taxes without constraining the location of the processing activity. Such a provision would achieve the same end (of ensuring that the tax revenues are received), but would not impose the cost of changing locations on the vessels.

Option 3 would permit the transfer of catcher vessel Q.S. to catcher/processers, but limit processing of crab to the amount for which the catcher/processor holds unused IPQs. Under this option, the catcher/processor sector could increase its harvest activity, subject to any caps on ownership and use of Q.S. and IFQs. Processing activity would be limited by the provisions that require IPQs to process crab.

Option 4 would permit catcher/processers to deliver harvests to shore based processors subject to the same rules that govern catcher vessel deliveries of crab to shore based processors.

Option 5 provides that only catcher/processers that processed crab in 1998 or 1999, would be eligible for an allocation of catcher/processor shares (that carry both harvesting and processing privileges). This provision relies on the same years for determining eligibility for processing shares.

Option 6 provides that catcher/processor shares would not be subject to a regional designation when issued.

These options must be read in the context of the following options that govern the transfer of PQS or catcher/processor shares:

1.7.2.4 Transfers to shore-based processors:

- (a) Catcher/Processors shall be allowed to sell PQ's to shore based processors.
- (b) When CP-PQ shares without a regional designation are sold to a shore based processor, the shares become designated by region.
- (c) Catcher/Processors shall be allowed to sell CP/Q.S. to shore based processors.
- (d) When CP/Q.S. shares, without a regional designation, are sold to a shore based processor, the shares become CV and PQ shares designated by region.

Provisions (a) and (b) would apply if catcher/processers are allocated processing shares in the same manner as processing shares are allocated to shore based processors. Under these options catcher /processors would be permitted to transfer PQS and IPQs to shore based processors. This provision could result in a transfer of processing shares from the catcher/processor sector to the shore based processing sector. On transferring PQS

or IPQs to the operator of a shore based facility, those shares would become regionally designated in the region of the operator's shore based facility.

Provisions (c) and (d) would apply if catcher/processors are allocated a catcher/processor share that includes both a harvesting and processing privilege. These provisions would permit catcher/processors to transfer their shares to shore based facilities. If that transfer is made the catcher/processor share would be separated into a catcher vessel harvesting share and a processing share, both of which would take on the regional designation of the shore based facility. Although not expressly provided, the provision suggests that the catcher/processor could transfer the harvesting privilege and processing privilege separately, with both taking on the same regional designation.

In considering the implications of rationalization for catcher/processors and their activities in the rationalized fishery, a few additional points merit brief discussion. If the Council adopts a program that allocates processing shares to catcher/processors in the same manner as those shares are allocated to shore based facilities (based on their processing activity) it is possible that some catcher/processors will be unable to process all of their own harvest allocations. This might occur even though a catcher/processor has always processed its own catch and has never made deliveries of unprocessed crab to other processing facilities. Two factors could make this occur. First, vessel buyback could remove some catcher vessel harvest history from the fishery. Catcher/processors have both harvesting and processing history and are less likely to participate in the buyback because their processing history is unlikely to be valued in the buyback. The harvest allocation of catcher/processors will, therefore, rise relative to their processing history. The effects of the vessel buyback are more fully discussed in Section 3.12. A second factor that could lead to a mismatch of harvest and processing allocations to catcher/processors is that different qualifying years are proposed for harvesting and processing allocations. If a catcher/processor had relatively better years in the years used for allocating harvest history, it would also receive more harvest history than processing history. So, even without the vessel buyback program, catcher/processors could receive fewer processing shares than harvest shares and would be unable to process their entire harvest allocation. Whether this mismatch can be effectively corrected by purchasing processing rights, depends on the provisions for transfer of processing shares. One option currently under consideration would prevent catcher/processors from purchasing any additional processing shares. This would restrict the market for processing shares, available to catcher/processors, to those shares that are initially issued to catcher/processors. If this provision is adopted, catcher/processors may not be issued shares in an amount that allows them to process their entire harvest allocation, and the shortfall could not be corrected in the absence of other catcher/processors selling out of the fishery. If a mismatch does occur, it might be expected that catcher/processors would either divest of harvest shares in excess of their processing share holdings or would elect to deliver a portion of their harvest allocation to a shore based or floating processor.

Allocating a catcher/processor a distinct catcher/processor share would overcome the difficulty of catcher/processors being unable to process their entire harvest allocations. The allocation of these catcher/processor shares might be thought by some to be unfair, since they may convey processing rights to catcher/processors in excess of their processing history as determined using the same years used by shore-based and floating processors. This is, of course, an artifact of the "qualifying years" selected by the Council, since, by definition, a catcher/processor processes an amount equal to its catch.

An additional option, that appears in the Council motion section on cooperatives presents an alternative to requiring catcher/processors to process shares purchased from shore based processors within 3 miles of shore. The specific provision appears in Section 6.1, paragraph 5 of the Council motion:

6.2

5. Taxes

Require owners of CP vessels to pay a fee equivalent to the tax that would have been imposed had the CP operated in State waters.

This provision would require the catcher/processor to pay a fee in an amount equal to the tax that would have been owing, had the catcher/processor processed its catch in State waters. This provision would apply to all processing activity (not only the processing of purchased processing shares). The provision would allow the catcher/processers to continue to operate without the burden of needing to process catch within 3 miles of shore and would ensure that State tax revenues are received for all BSAI crab processing. In terms of revenues, this provision would result in greatest revenues from crab processing.

3.4.3 Quantitative analysis of the processor related provisions.

The Council motion contains two different frameworks for allocating processing privileges to catcher/processers. Under the first framework, catcher/processers would be allocated processing shares based on their processing activities, in the same way that allocations are made to shore based and floating processors. The second framework would make a single allocation of harvesting and processing shares to catcher/processers that would be based on the harvest history of the catcher/processor.

The quantitative analysis of the processing sector is separated into two parts to accommodate these different frameworks. The first relies on the framework under which catcher/processers are allocated harvesting and processing allocations separately, based on independent assessments of harvesting and processing activities. The second analysis considers the case of catcher/processers receiving a single share allocation that includes both a harvesting and processing right. For clarity, the two quantitative analyses are separated in their entirety. Under each framework, allocations, ownership, and use caps, and caps on vertical integration are presented.

3.4.3.1 Processing allocations with independent harvest and processing allocations to catcher/processers

This section of the analysis quantitatively examines the processor allocation alternatives under the assumption that catcher/processers are allocated processing shares using the same criteria used to allocate processing shares to shore based processors. In the analysis, allocations of processing shares to catcher/processers are not separated from those of shore based and floating processors. Under the options under consideration, to qualify for a harvest allocation, a catcher/processor would need to satisfy the landing requirements necessary to obtain an LLP license. To obtain a processing allocation, the catcher/processor would have to have processed crab in either 1998 or 1999. Because these requirements are not identical, a catcher/processor could be allocated one type of share and not the other. For comparison purposes, Table 3.4-2 below shows the allocation of processing shares to catcher/processers. Confidentiality protections limit the amount of information that can be revealed concerning these allocations. In the Bering Sea *C. opilio*, the Bristol Bay red king crab, and the Bering Sea *C. bairdi* fisheries, catcher/processers will receive allocations of approximately 7 to 8 percent of the total processing share allocation. In the three Pribilof king crab fisheries no catcher/processers will receive processing share allocations.

The initial allocation of processing shares.

Allocations to processors (including catcher/processors) in each fishery were estimated using ADF&G fish ticket files. Processor share allocations are significantly more concentrated than vessel share allocations. This relative concentration occurs for two reasons. First and of most importance, there are relatively fewer processors active in the fisheries than vessels active in the fishery. Second and of less importance, more complete ownership information is available concerning processors. Processor allocations were aggregated to the company level. Company ownership of major facilities was determined based on existing records, with the assistance of processor representatives. The facility ownership aggregations used by the analysts appear in Appendix 3-3 hereto.³⁰ This allowed the analysts to obtain a fairly reliable ownership aggregation of facilities. Reliable records of vessel ownership are not available. Allocations of processing to catcher/processors are included and are calculated in the same manner as for floating and shore based facilities, but are not aggregated at the company level because of the lack of vessel ownership data.

³⁰ Some of the companies listed in Appendix 3-3 have common owners. Peter Pan and Steller Sea have some common ownership, as do Westward Seafoods and Alyeska Seafoods. Depending on the rules chosen for determining ownership for purposes of applying caps, these companies with common owners might be considered a single entity. These companies were considered separate entities for purposes of the AFA.

Table 3.4-2 Allocation of processing shares to catcher/processors

<i>Fishery/Option</i>	<i>Total allocation of processing shares to catcher/processors</i>	<i>Number of catcher/processors receiving processing shares</i>
Bering Sea Opilio		
Option 1 - 1997 - 1999 (Three year average)	0.069	12
Option 2 - 1996 - 2000 (Best 4 seasons)	0.070	14
Bristol Bay Red King Crab		
Option 1 -1997 - 1999 (Three year average)	0.081	11
Option 2 - 1996 - 2000 (Best 4 seasons)	0.079	11
Bering Sea Bairdi (EBS Tanner Crab)		
Option 1 - 1997 - 1999 (50/50 combination of BBRKC and opilio)	0.075	12
Pribilof Red King Crab		
Option 1 -1996 - 1998 (Three year average)	0.000	0
Pribilof Blue King Crab		
Option 1 -1996 - 1998 (Three year average)	0.000	0
St. Matthew Blue King Crab		
Option 1 - 1996 - 1998 (Three year average)	*	3
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab		
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	*	2
Option 2 - 1996/1997 - 2000/2001 (Best 4 seasons)	*	3
Western Aleutian Islands (Adak) Golden King Crab		
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	*	3
Option 2 - 1996/1997 - 2000/2001 (Best 4 seasons)	*	3
Western Aleutian Islands (Adak) Red King Crab		
Option 1 - 1992/1993 - 1995/1996 (Four season average)	*	2

* Withheld due to confidentiality requirements.

Source: NPFMC Crab Database 2001 - Version 1

As with the vessel distributions, graphs are used to illustrate the allocations under the different options for qualification years for each fishery. To protect confidentiality, the allocations are shown in groups of 4 processors, with processor groupings made in a descending order from the largest estimated allocation to the smallest allocation. The last and smallest grouping contains between 4 and 7 estimated allocations, consistent with confidentiality rules. The estimated allocation shown for each group is the average allocation to members of that group. The allocation is shown as a percentage of the total allocation to processors in the fishery. Because allocations are averages it is possible that the largest allocation to a single processor is significantly different from the average of the four largest processors. In addition to a graph, a table is presented which shows the average of the four largest allocations, the mean allocation, and the median allocation under each option.³¹ Table 3.4-3 below shows the total qualified processing pounds in each fishery, under each of the allocation options. No pounds are reported for the Bering Sea *C. bairdi* fishery, because the proposed allocation in that fishery is based on the allocations in the Bering Sea *C. opilio* and the Bristol Bay red king crab fisheries.

³¹ The mean allocation is the average allocation. The median allocation is the allocation at the midpoint in the distribution, for which half of the allocations are larger and half of the allocations are smaller.

Table 3.4-3 Qualifying processor pounds in the Bering Sea/Aleutian Islands crab fisheries proposed for rationalization (with catcher/processers receiving processing shares).

<i>Fishery/Option</i>	<i>Total qualifying processor pounds</i>
Bering Sea Opilio	
Option 1 - 1997 - 1999 (Three year average)	535,791,583
Option 2 - 1996 - 2000 (Best 4 seasons)	597,939,891
Bristol Bay Red King Crab	
Option 1 - 1997 - 1999 (Three year average)	33,790,746
Option 2 - 1996 - 2000 (Best 4 seasons)	43,639,335
Pribilof Red King Crab	
Option 1 - 1996 - 1998 (Three year average)	1,435,869
Pribilof Blue King Crab	
Option 1 - 1996 - 1998 (Three year average)	1,895,571
St. Matthew Blue King Crab	
Option 1 - 1996 - 1998 (Three year average)	10,206,192
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	9,628,546
Option 2 - 1996/97 - 2000/2001 (Best 4 seasons)	11,819,304
Western Aleutian Islands (Adak) Golden King Crab	
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	6,479,510
Option 2 - 1996/97 - 2000/2001 (Best 4 seasons)	14,015,161
Western Aleutian Islands (Adak) Red King Crab	
Option 1 - 1992/1993 - 1995/1996 (4 season average)	6,479,510

Source: NPFMC Crab Database 2001 - Version 1

The Bering Sea *C. opilio* fishery

Table 3.4-4 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the qualifying year options in the Bering Sea *C. opilio* fishery. Figure 3.4-10 shows the distribution of processing allocations in the fishery. Under Option 1 allocations would be made to 30 processors. The largest four processors would receive an average allocation of slightly less than 14 percent of the total allocation. The median allocation (or midpoint of the allocation distribution) would be approximately one-half of one percent of the total allocation. Option 2 would include two more processors in the allocation. The allocation under Option 2 would concentrate approximately the same portion of the total allocation with the leading four processors. The median (or midpoint) under Option 2 is the same as the median under Option 1. The distribution of shares under either allocation would concentrate almost 90 percent of the processing shares with the leading 12 processors. The effects of the suboption to Option 2 (which would consider participation in the most recent season) cannot be determined, since data from that season are unavailable.

Table 3.4-4

Mean, median, and average allocation to the four processors that would receive the largest distribution under the qualifying year options in the Bering Sea *C. opilio* fishery with catcher/processors receiving processing shares.

Fishery	Mean	Median	Average of four largest allocations
Bering Sea Opilio			
Option 1 - 1997 - 1999 (Three year average)	0.033	0.006	0.139
Option 2 - 1996 - 2000 (Best 4 seasons)	0.031	0.006	0.137

Source: NPFMC Crab Rationalization Database 2001 - Version 1

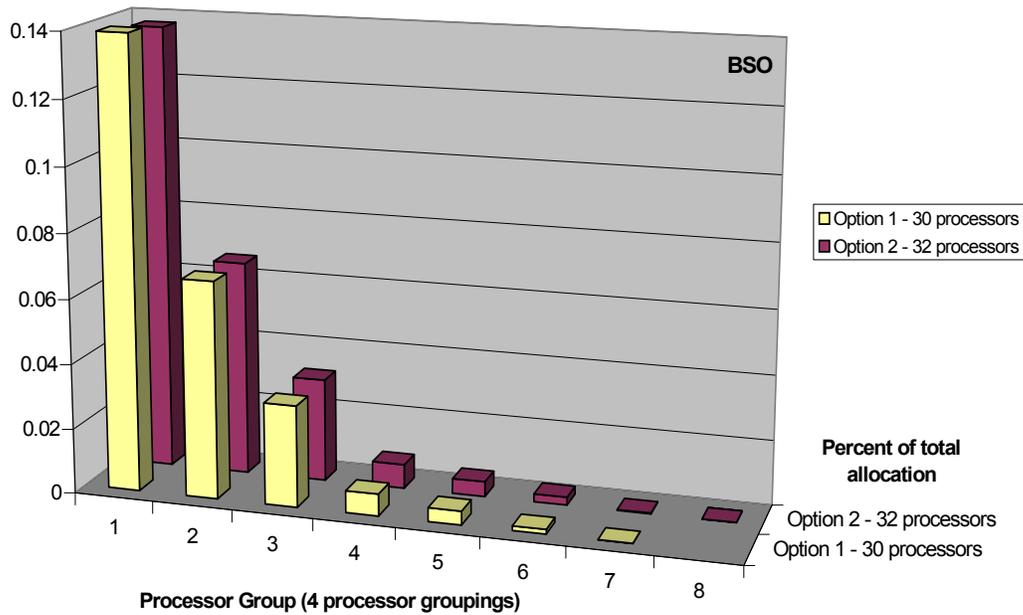


Figure 3.4-10

Distribution of processing allocations in the Bering Sea *C. opilio* fishery with catcher/processors receiving processing shares.

The Bristol Bay red king crab fishery.

Table 3.4-5 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the qualifying year options in the Bristol Bay red king crab fishery. Figure 3.4-11 shows the distribution of processing allocations in the fishery. Under Option 1 allocations would be made to 26 processors. The largest four processors would

receive an average allocation of approximately 15 percent of the total allocation. Option 2 would include 29 processors in the allocation. The allocation under Option 2 would result in slightly less concentration, with the leading four processors averaging approximately 14 percent of the total allocation. The median allocation under both options is approximately 1 percent of the total allocation. The distribution of shares under either allocation would concentrate most of the shares with the leading 12 processors. Concentration of shares in processor allocations in the Bristol Bay red king crab fishery is very similar to the concentration of shares in the Bering Sea *C. opilio* fishery, with over 90 percent of the processing shares allocated to the leading 12 processors. The effects of the suboption to Option 2 (which would consider participation in the most recent season) cannot be determined, since data from that season are unavailable.

Table 3.4-5 Mean, median, and average allocation to the four processors that would receive the largest distribution under the qualifying year options in the Bristol Bay red king crab fishery with catcher/processors receiving processing shares.

Fishery	Mean	Median	Average of four largest allocations
Bristol Bay Red King Crab			
Option 1 - 1997 - 1999 (Three year average)	0.038	0.010	0.151
Option 2 - 1996 - 2000 (Best 4 seasons)	0.034	0.007	0.145

Source: NPFMC Crab Rationalization Database 2001 - Version 1

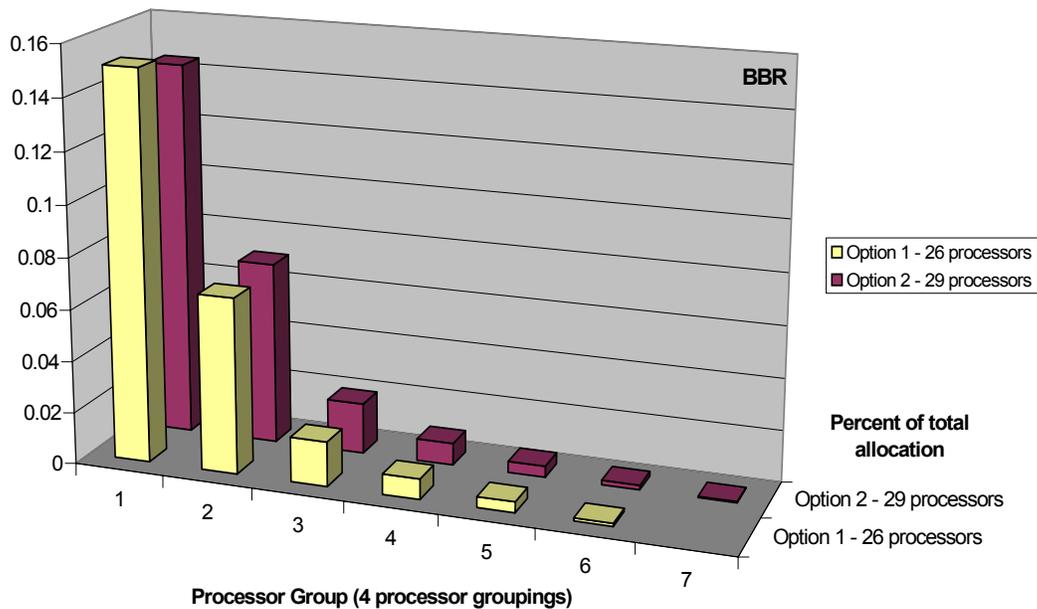


Figure 3.4-11 Distribution of processing allocations in the Bristol Bay red king crab fishery with catcher/processors receiving processing shares.

The *C. bairdi* fishery

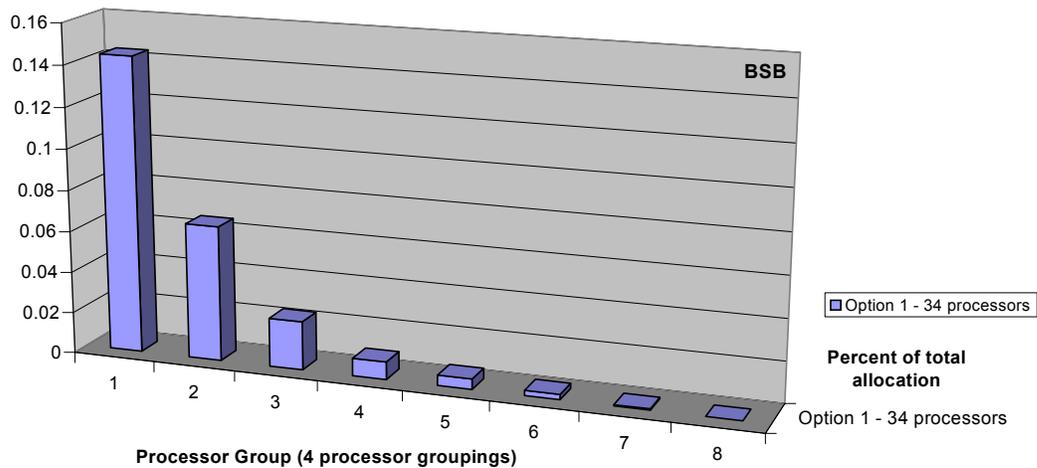
Table 3.4-6 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Bering Sea *C. bairdi* fishery. Figure 3.4-12 shows the distribution of processing allocations in the fishery. Only one option for allocating shares to processors is proposed for this fishery. Under that option, 34 processors would receive an allocation. The largest four processors would receive an average allocation of slightly more than 14 percent of the total allocation. The median (midpoint) allocation would be approximately one-half of one percent of the total allocation. The distribution of shares would concentrate over 90 percent of the shares with the leading 12 processors. Since the allocation in this fishery is based on the allocations in the Bering Sea *C. opilio* fishery and the Bristol Bay red king crab fishery, it is no surprise that the concentration of processor shares is very similar to the concentration of processor shares in those fisheries.

Table 3.4-6 Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Bering Sea *C. bairdi* fishery with catcher/processors receiving processing shares.

Fishery	Mean	Median	Average of four largest allocations
Bering Sea Bairdi Option 1 - 1997 - 1999 (50/50 combination of BBRKC and opilio)	0.029	0.006	0.144

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Figure 3.4-12 Distribution of processing allocations in the Bering Sea *C. bairdi* fishery with catcher/processors receiving processing shares.



The Pribilof red king crab fishery.

Table 3.4-7 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Pribilof red king crab fishery. Figure 3.4-13 shows the distribution of processing allocations in the fishery. Only one option for allocating shares to processors is proposed for this fishery. Under that option, 14 processors would receive an allocation. The largest four processors would receive an average allocation of slightly more than 17 percent of the total allocation. Although the median allocation is higher

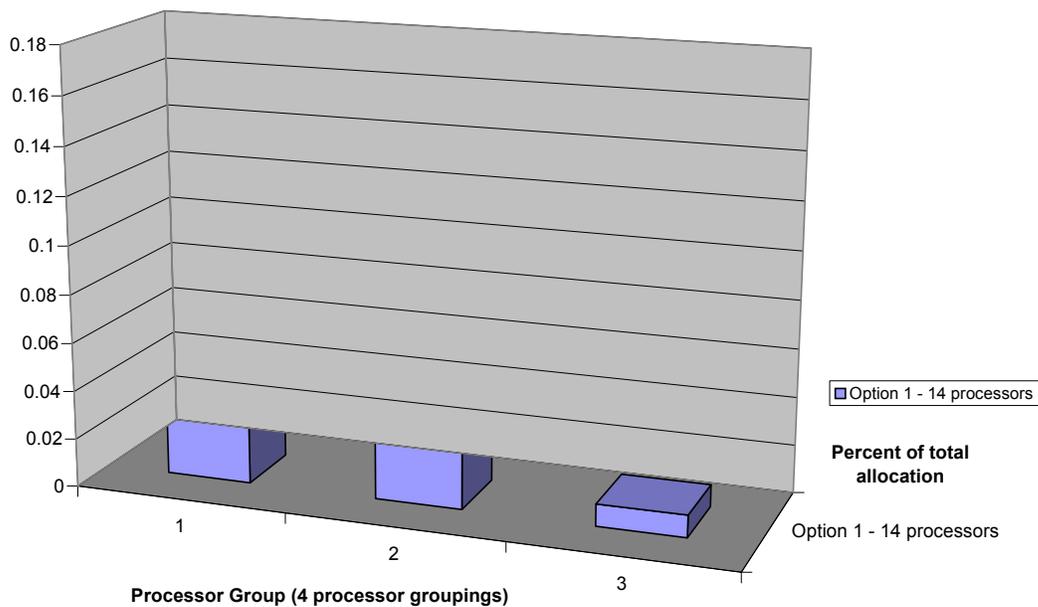
in this fishery (slightly more than 4 percent), over 90 percent of the allocation is concentrated with the leading 8 processors.

Table 3.4-7 Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Pribilof red king crab fishery with catcher/processors receiving processing shares.

Fishery	Mean	Median	Average of four largest allocations
Pribilof Red King Crab Option 1 -1996 - 1998 (Three year average)	0.071	0.042	0.173

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Figure 3.4-13 Distribution of processing allocations in the Pribilof red king crab fishery with catcher/processors receiving processing shares.



The Pribilof blue king crab fishery.

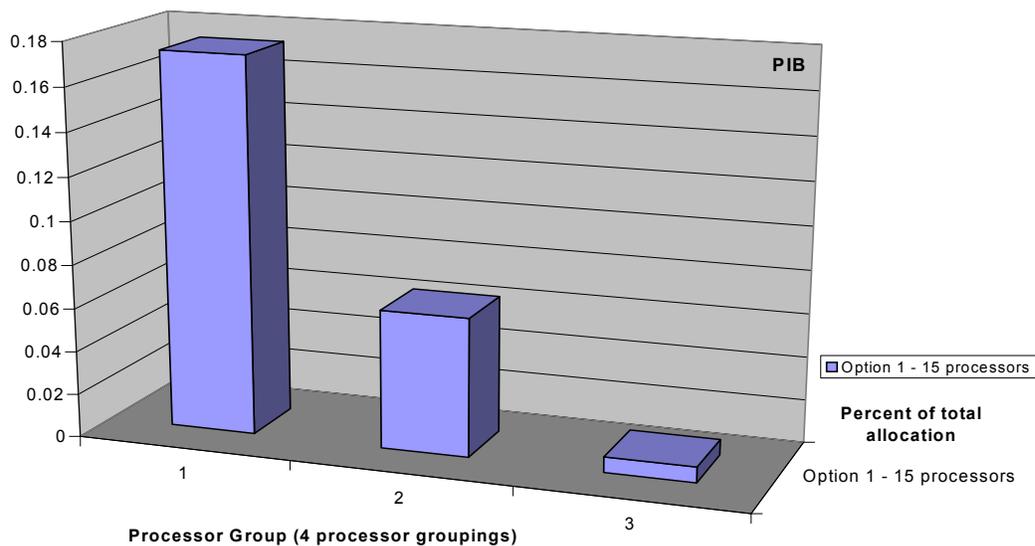
Table 3.4-8 shows the mean (average allocation), median (midpoint of the allocation distribution) , and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Pribilof blue king crab fishery. Figure 3.4-14 shows the distribution of processing allocations in the fishery. Under this allocation option, 15 processors would receive an allocation. The largest four processors would receive an average allocation of slightly more than 17 percent of the total allocation. As in the other fisheries, the median allocation is quite small (less than 3 percent). This is a reflection of the concentration of processing shares under the allocation option, which would allocate over 90 percent of the shares to the 8 leading processors.

Table 3.4-8 Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Pribilof blue king crab fishery with catcher/processors receiving processing shares.

Fishery	Mean	Median	Average of four largest allocations
Pribilof Blue King Crab Option 1 -1996 - 1998 (Three year average)	0.067	0.028	0.174

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Figure 3.4-14 Distribution of processing allocations in the Pribilof blue king crab fishery with catcher/processors receiving processing shares.



The Pribilof red and blue king crab fishery.

Table 3.4-9 shows the mean (average allocation), median (midpoint of the allocation distribution) , and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Pribilof red and blue king crab fishery. Figure 3.4-15 shows the distribution of processing allocations in the fishery. Only one option for allocating shares to processors is proposed for this fishery. Under that option, 15 processors would receive an allocation. The largest four processors would receive an average allocation of slightly more than 17 percent of the total allocation. Although the median allocation is higher in this fishery (slightly less than 4 percent), over 90 percent of the allocation is concentrated with the leading 8 processors.

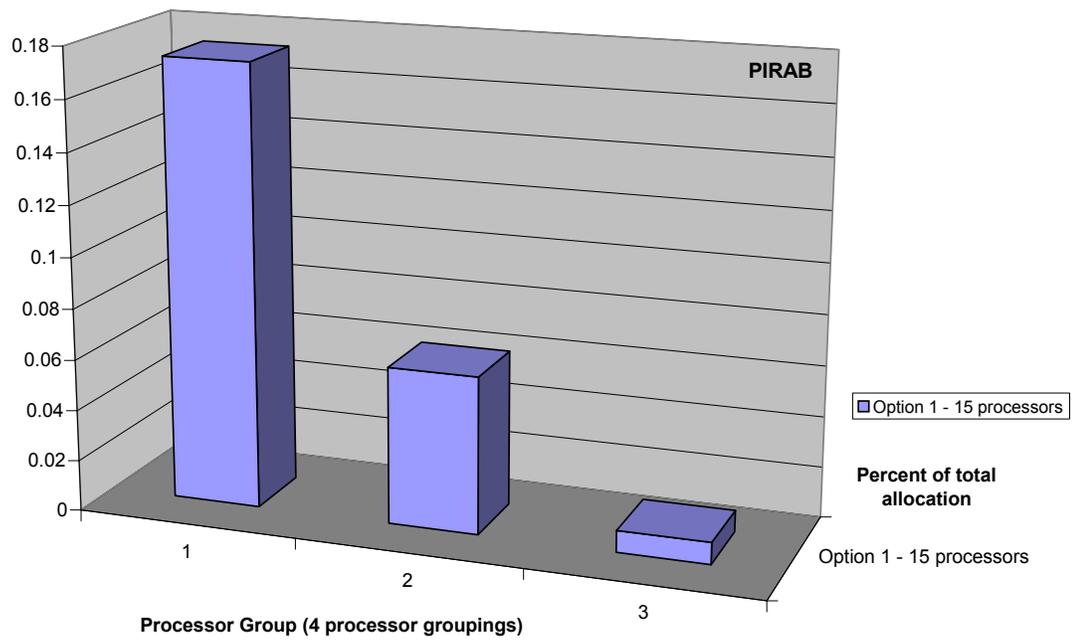
Table 3.4-9 Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Pribilof red and blue king crab fishery with catcher/processors receiving processing shares.

Fishery	Mean	Median	Average of four largest allocations
Pribilof Red and Blue King Crab Option 1 -1996 - 1998 (Three year average)	0.067	0.038	0.173

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Figure 3.4-15

Distribution of processing allocations in the Pribilof red king crab fishery with catcher/processors receiving processing shares.



The St. Matthew blue king crab fishery.

Table 3.4-10 shows the mean (average allocation), median (midpoint of the allocation distribution) , and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the St. Matthew blue king crab fishery. Figure 3.4-16 shows the distribution of processing allocations in the fishery. Only one option for allocating shares to processors is proposed for this fishery. Under that option, 15 processors would receive an allocation. The largest four processors would receive an average allocation of slightly more than 19 percent of the total allocation. The median allocation in the fishery would be slightly less than 2 percent of the total allocation. The concentration of processing shares is evident, in that 98 percent of the allocation would be made to the 8 leading processors.

Table 3.4-10 Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the St. Matthew blue king crab fishery with catcher/processors receiving processing shares.

Fishery	Mean	Median	Average of four largest allocations
St. Matthew Blue King Crab Option 1 - 1996 - 1998 (Three year average)	0.067	0.019	0.191

Source: NPFMC Crab Rationalization Database 2001 - Version 1

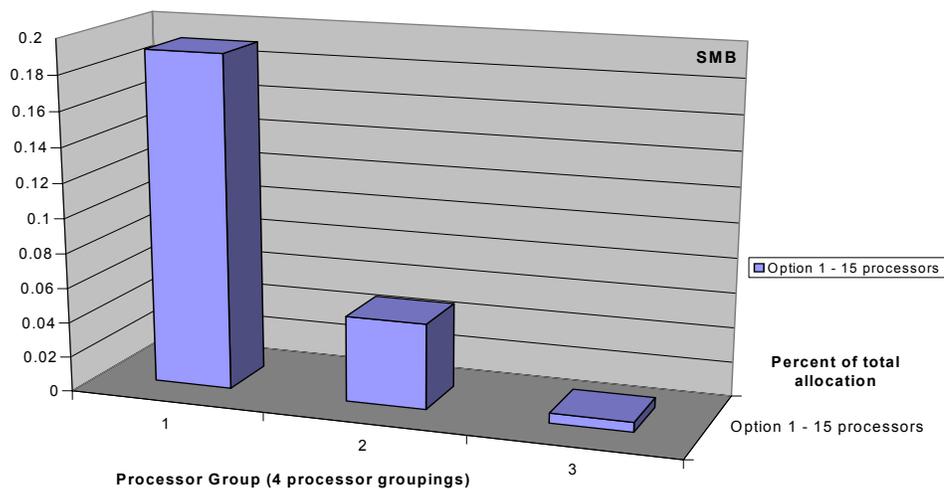


Figure 3.4-16 Distribution of processing allocations in the St. Matthew blue king crab fishery with catcher/processors receiving processing shares.

The eastern Aleutian Island (Dutch Harbor) golden king crab fisheries.

Table 3.4-11 shows the mean (average allocation), median (midpoint of the allocation distribution) , and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Eastern Aleutian Islands (Dutch Harbor) golden king crab fishery. Figure 3.4-17 shows the distribution of processing allocations in the fishery. Under Option 1, allocations would be made to 8 processors. The largest four processors would receive an average allocation of approximately 22 percent of the total allocation. The median (or midpoint) of the allocation distribution would be approximately 8 percent under Option 1. Option 2 would include 12 processors in the allocation. The allocation under Option 2 would result approximately the same concentration with the leading four processors averaging approximately 22 percent of the total allocation. The median allocation under this option is approximately 2.5 percent, less than half the median under Option 1. Option 3 would include 11 processors. The largest four processors would receive the same allocation at 22 percent. The median allocation is approximately 3 percent. The lower median in Option 2 and 3 is likely a reflection of the inclusion of additional processors in the allocation. The effects of the suboption to Option 2 (which would consider participation in the most recent season) cannot be determined, since data from that season are unavailable.

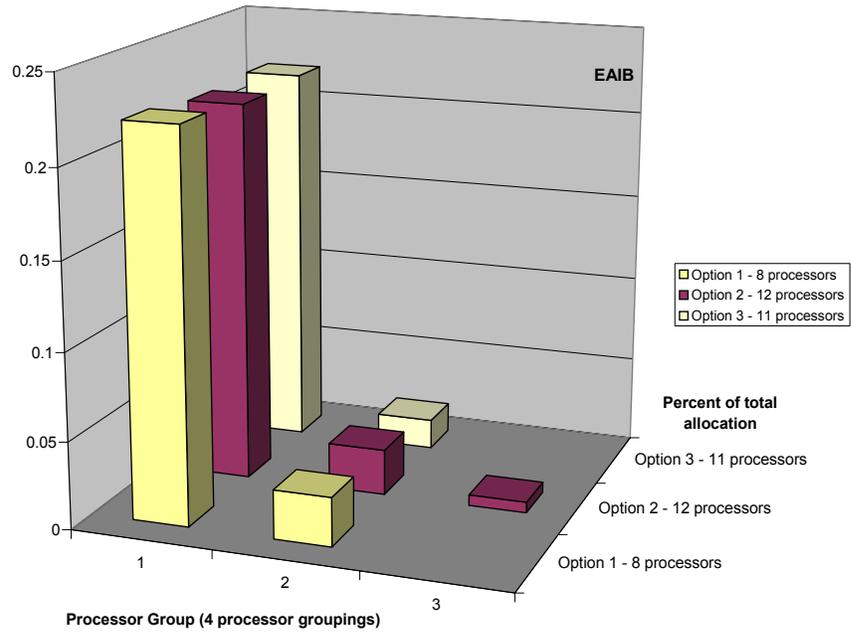
Table 3.4-11 Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the eastern Aleutian Islands golden king crab fisheries with catcher/processors receiving processing shares.

Fishery	Mean	Median	Average of four largest allocations
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab			
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	0.125	0.081	0.222
Option 2 - 1996/1997 - 2000/2001 (Best 4 seasons)	0.083	0.026	0.218
Option 3 - 1996/1997 - 1999/2000 (Four year average)	0.091	0.034	0.220

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Figure 3.4-17

Distribution of processing allocations in the EAI (Dutch Harbor) golden king crab fishery with catcher/processors receiving processing shares.



The WAI (Adak) golden king crab fisheries.

Figure 3.4-18 shows the distribution of processing allocations in the Western Aleutian Islands (Adak) golden king crab fishery. Table 3.4-12 shows the mean (average allocation), median (midpoint of the allocation distribution) , and the average allocation to the four processors that would receive the largest distributions under the qualifying year options in that fishery. Under Option 1 allocations would be made to 11 processors. The largest four processors would receive an average allocation of approximately 24 percent of the total allocation, almost 98 percent of the allocation collectively. The median allocation under Option 1 would be less than 1 percent. Option 2 would include 13 processors in the allocation. The allocation under Option 2 would result a similar amount of concentration with the leading four processors averaging approximately 23 percent of the total allocation. Under this option, the median allocation would be approximately one-half of one percent. The effects of the suboption to Option 2 (which would consider participation in the most recent season) cannot be determined, since data from that season are unavailable. Option 3 would include 12 processors in the allocation with a similar level of concentration among the top four processors. The median allocation would be slightly more than one-half of one percent.

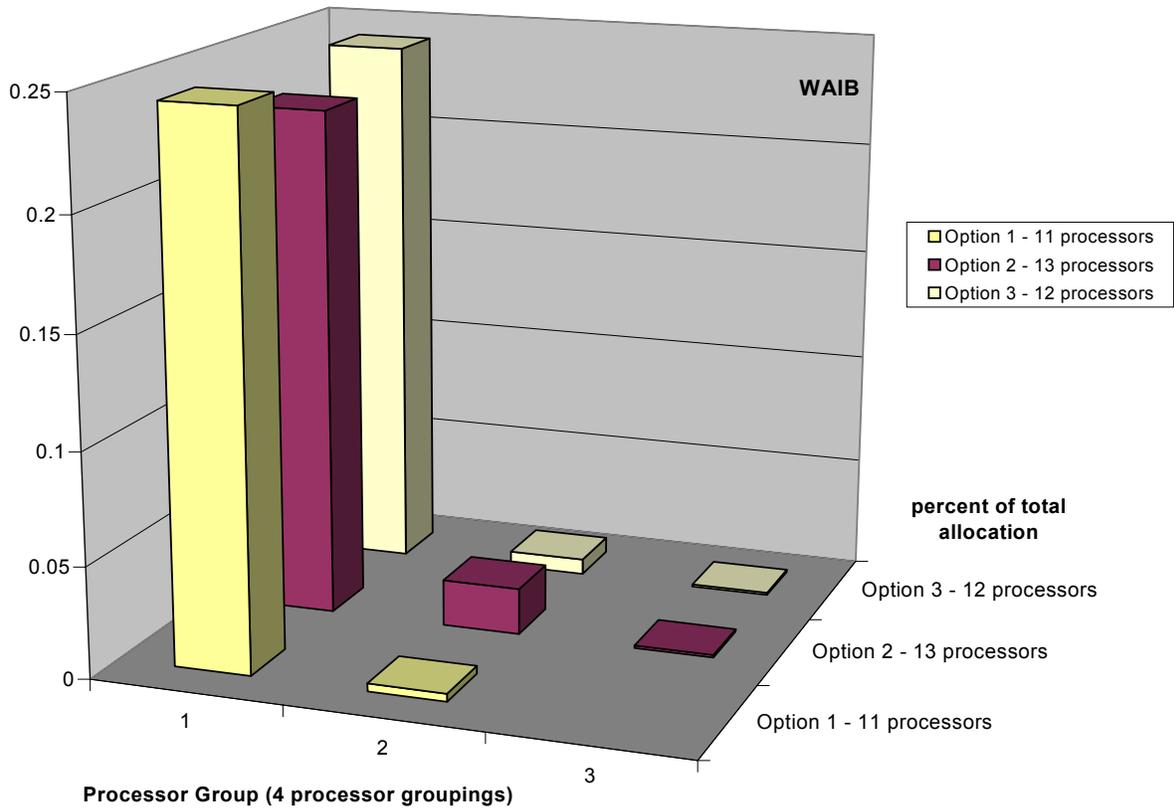
Table 3.4-12 Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the WAI (Adak) golden king crab fisheries with catcher/processors receiving processing shares.

Fishery	Mean	Median	Average of four largest allocations
Western Aleutian Islands (Adak) Golden King Crab			
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	0.091	0.008	0.244
Option 2 - 1996/1997 - 2000/2001 (Best 4 seasons)	0.077	0.005	0.228
Option 3 - 1996/1997 - 1999/2000 (Four year average)	0.083	0.006	0.242

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Figure 3.4-18

Distribution of processing allocations in the WAI (Adak) golden king crab fishery with catcher/processors receiving processing shares.



The WAI (Adak) red king crab fishery

The Council motion specified three different options for the distribution of processing shares in the WAI (Adak) red king crab fishery. Under the first option, processing shares would be allocated based on historical processing between 1992/1993 season, to the 1995/1996 season, the last four seasons the fishery was open. Figure 3.4-19 shows the distribution of processing allocations based on that option. Table 3.4-13 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distributions under that option. Under this option, 12 processors would receive allocations in this fishery. The leading four processors would receive slightly less than 80 percent of the entire allocation. The second option would allocate processing shares based on the allocation in the Western Aleutian Islands golden king crab fishery. The allocations for that fishery are described above. The third allocation option would allocate between 0 and 50 percent of all processing shares in this fishery to the community of Adak. This option would be combined with one of the other two options.

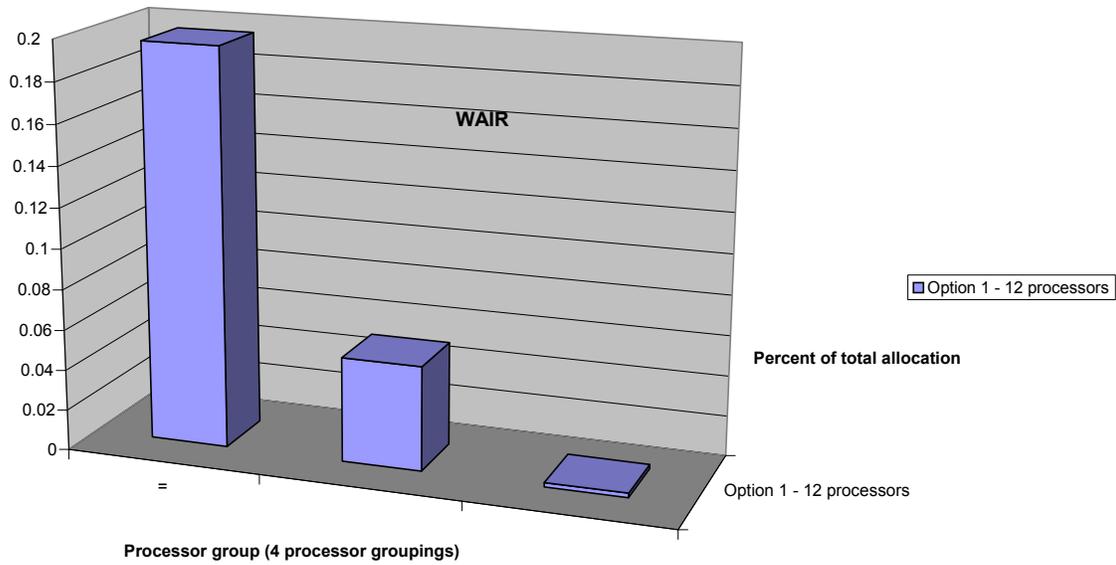
Table 3.4-13 Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the EAI golden king crab fisheries with catcher/processors receiving processing shares.

Fishery	Mean	Median	Average of four largest allocations
Western Aleutian Islands (Adak) Red King Crab Option 1 - 1992/1993 - 1995/1996 (Four season average)	0.083	0.052	0.196

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Figure 3.4-19

Distribution of processing allocations in the WAI (Adak) red king crab fishery with catcher/processors receiving processing shares.



Processing quota ownership and use caps.

This section presents the quantitative analysis of ownership and use caps, using the framework that allocates processing shares to catcher/processors based on processing activity. The quantitative analysis of these options includes tables for each fishery, showing the number of processors over 20, 30, 40, and 50 percent caps based on the initial allocation of processing shares. In addition, the average allocation to the leading four processors under each option is set out to provide the Council with some knowledge concerning the maximum allocation in each fishery. In evaluating the options, however, it should be considered that given the few recipients of processing allocations, the maximum allocation could be substantially larger than the average allocation to the four leading processors. Table 3.4-14 shows the average allocation to the four leading processors and the number of processors that would receive allocations in excess of the proposed caps in each of the fisheries.

The Bering Sea *C. Opilio* fishery

No processors would exceed the a 50, 40, or 30 percent cap under either of the allocation options in the Bering Sea *C. opilio* fishery. The number of processors exceeding the proposed 20 percent cap cannot be shown for either of the options, because of confidentiality restrictions.

The Bristol Bay red king crab fishery.

No processors would exceed the a 50, 40, or 30 percent cap under either of the allocation options in the Bristol Bay red king crab fishery. The number of processors exceeding the proposed 20 percent cap cannot be shown for either option, because of confidentiality restrictions .

The *C. Bairdi* fishery.

No processors would exceed the a 50, 40, or 30 percent cap in the Bering Sea *C. bairdi* fishery. The number of processors exceeding the proposed 20 percent cap cannot be shown, because of confidentiality restrictions .

The Pribilof red king crab fishery.

No processors would exceed the a 50, 40, or 30 percent cap in the Pribilof red king crab fishery. The number of processors exceeding the proposed 20 percent cap cannot be shown, because of confidentiality restrictions .

The Pribilof blue king crab fishery.

No processors would exceed the a 50, 40, or 30 percent cap in the Pribilof blue king crab fishery. The number of processors exceeding the proposed 20 percent cap cannot be shown, because confidentiality restrictions .

The Pribilof red and blue king crab fishery.

No processors would exceed the a 50, 40, or 30 percent cap in the Pribilof red and blue king crab fishery. The number of processors exceeding the proposed 20 percent cap cannot be shown, because of confidentiality restrictions.

Table 3.4-14

Ownership caps on processor shares and average allocation to the leading 4 processors with catcher/processors receiving processing shares.

<i>Fishery/Option</i>	<i>Number of Owners Over 50 Percent Cap</i>	<i>Number of Owners Over 40 Percent Cap</i>	<i>Number of Owners Over 30 Percent Cap</i>	<i>Number of Owners Over 20 Percent Cap</i>	<i>Number of Owners</i>	<i>Average of the top 4 processors</i>
Bering Sea Opilio						
Option 1 - 1997 - 1999 (Three year average)	0	0	0	*	30	13.93%
Option 2 - 1996 - 2000 (Best 4 seasons)	0	0	0	*	32	13.73%
Bristol Bay Red King Crab						
Option 1 -1997 - 1999 (Three year average)	0	0	0	*	26	15.09%
Option 2 - 1996 - 2000 (Best 4 seasons)	0	0	0	*	29	14.48%
Bering Sea Bairdi (EBS Tanner Crab)						
Option 1 - 1997 - 1999 (50/50 combination of BBRKC and opilio)	0	0	0	*	34	14.41%
Pribilof Red King Crab						
Option 1 -1996 - 1998 (Three year average)	0	0	0	*	14	17.34%
Pribilof Blue King Crab						
Option 1 -1996 - 1998 (Three year average)	0	0	0	*	15	17.35%
Pribilof Red and Blue King Crab						
Option 1 -1996 - 1998 (Three year average)	0	0	0	*	15	17.35%
St. Matthew Blue King Crab						
Option 1 - 1996 - 1998 (Three year average)	0	0	*	*	15	19.11%
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab						
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	0	*	*	*	8	22.21%
Option 2 - 1996/1997 - 2000/2001 (Best 4 seasons)	0	*	*	*	12	21.76%
Option 3 - 1996/1997 - 1999/2000 (Four year average)	0	*	*	*	11	21.99%
Western Aleutian Islands (Adak) Golden King Crab						
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	*	*	*	*	11	24.38%
Option 2 - 1996/1997 - 2000/2001 (Best 4 seasons)	0	0	*	*	13	22.76%
Option 3 - 1996/1997 - 1999/2000 (Four year average)	0	0	*	*	12	24.19%
Western Aleutian Islands (Adak) Red King Crab						
Option 1 -1992/3 - 1995/1996 (Four season average)	0	0	*	*	12	19.62%

* Withheld to protect confidentiality

Source: NPFMC Crab Database 2001 - Version 1

The St. Matthew blue king crab fishery.

No processors would exceed the a 50 or 40 percent cap in the St. Matthew blue king crab fishery. The number of processors exceeding the proposed 30 or 20 percent caps cannot be shown, because confidentiality restrictions.

The EAI (Dutch Harbor) golden king crab fisheries.

No processors would exceed the a 50 percent cap under any of the allocation options in the Eastern Aleutian Islands (Dutch Harbor) golden king crab fishery. The number of processors exceeding the 40, 30, and 20 percent caps cannot be shown for either of the options, because of confidentiality restrictions.

The WAI (Adak) golden king crab fisheries.

No processors would exceed the a 50 or 40 percent cap under Option 2 or 3 in the Western Aleutian Islands (Adak) golden king crab fishery. The number of processors exceeding the proposed 50 or 40 percent caps cannot be shown for Option 1, because of confidentiality restrictions. The number of processors exceeding the 30 or 20 percent caps cannot be shown for either of the options, because of confidentiality restrictions.

The WAI (Adak) red king crab fishery

No processors would exceed either a 40 or 50 percent cap on processor shares under the first option for allocating shares in the Western Aleutian Islands (Adak) red king crab fishery. The number of processors exceeding the proposed 30 and 20 percent caps cannot be shown for this option, because confidentiality restrictions. Alternatively, processor shares could be issued in accordance with the allocation specified for the Western Aleutian Islands golden king crab fishery. The analysis of ownership caps in that fishery are discussed above.

Vertical integration

This section presents the quantitative analysis of limits on vertical integration, under the framework that allocates processing shares to catcher/processors based on processing history. In this analysis, catcher/processors harvest share allocations are considered to be allocations to vertically integrated entities, because catcher/processors are directly included in the processing share allocations. The analysis of controls on vertical integration relies on the harvest share allocations calculated in Section 3.3 above. Processor representatives provided the analysts with a list of vessels owned by the major processors. The list was collected from processors who were asked to provide the names of all vessels in which the processor or any affiliate or subsidiary owned an interest of 10 percent or greater. The allocations to vessels were consolidated, based on this list of vessels, to determine the number of processors that would exceed each of the caps specified in the Council motion. A copy of that vessel list is attached hereto as Appendix 2-4. The analysis of catcher/processors allocations relied on vessel ownership records (which are incomplete representations of actual ownership) to aggregate allocations to catcher/processors not included in the list in the appendix.

Table 3.4-15 shows the number of processors that would receive an allocation and the number of persons that would exceed the proposed caps on vertical integration for each of the processor qualifying year options in

<i>Fishery/Option</i>	<i>Number of vessels affiliated with processors</i>	<i>Number of processors affiliated with vessels</i>	<i>Number of processors over the 8% cap</i>	<i>Number of processors over the 5% cap</i>	<i>Number of processors over the 1% cap</i>
Bering Sea Opilio					
Option 1A -1994 - 1999 (Best of 5 seasons)	39	19	0	*	4
Option 2A - 1992 - 1999 (Best of 7 seasons)	39	19	0	*	*
Option 3A -1995 - 1999 (All seasons)	39	19	0	0	5
Option 3B - 1995 - 1999 (Best of 4 seasons)	39	19	0	0	5
Option 4A -1996 - 2000 (Best of 4 seasons)	38	19	0	0	5
Bristol Bay Red King Crab					
Option 1A -1993 - 1999 (All seasons)	44	17	0	*	5
Option 1B - 1992 - 1999 (Best of 4 seasons)	44	17	0	*	4
Option 2A -1993 - 1999 (All seasons)	44	17	0	*	4
Option 2B - 1992 - 1999 (Best of 5 seasons)	44	17	0	*	4
Option 3A -1996 - 2000 (Best of 4 seasons)	39	14	0	*	4
Bering Sea Bairdi (EBS Tanner Crab)					
Option 1A -1992 - 1996 (All seasons)	45	18	0	0	4
Option 1B - 1992 - 1996 (Best of 4 seasons)	45	18	0	*	5
Option 2A -1991-1992 - 1996 (Best of 5 seasons)	45	18	0	*	4
Option 2B -1991-1992 - 1996 (Best of 4 seasons)	45	18	0	*	4
Pribilof Red King Crab					
Option 1A -1993 - 1998 (Best of 4 seasons)	12	6	0	*	*
Option 2A -1994 - 1998 (All seasons)	9	4	0	*	*
Option 2B - 1994 - 1998 (Drop one season)	9	4	0	*	*
Pribilof Blue King Crab					
Option 1A -1993 - 1998 (Best of 4 seasons)	7	4	*	*	*
Pribilof Red and Blue King Crab					
Option 1A -1993 - 1998 (Best of 4 seasons)	12	6	*	*	*
Option 2A -1994 - 1998 (All seasons)	10	5	*	*	*
Option 2B - 1994 - 1998 (Drop one season)	10	5	*	*	*
St. Matthew Blue King Crab					
Option 1A -1993 - 1998 (Best 4 seasons)	18	11	0	0	*
Option 2A - 1994 - 1998 (All seasons)	17	11	0	0	*
Option 2B - 1994 - 1998 (Drop one season)	17	11	0	0	*

Table 3.4-15 Number of processor affiliates receiving an allocation and the number that would exceed the proposed caps on vertical integration

each of the fisheries under consideration for rationalization after consolidating allocations based on the processor owned vessel list.

The Bering Sea *C. opilio* fishery

The table shows that no processors would exceed an 8 percent cap under any of the allocation options in the Bering Sea *C. opilio* fishery. The number of processors that would exceed a 5 percent cap under Option 1A and Option 1B cannot be shown because of confidentiality restrictions. Between four or five processors would exceed the 1 percent cap under Options 1A, 3A, 3B, and 4A. The number of processors exceeding the 1 percent cap under Option 2A cannot be shown because confidentiality restrictions on disclosure require aggregation of information concerning at least 4 persons. 19 processors are affiliated with between 38 and 39 vessels that would receive harvest allocations under the different options.

The Bristol Bay red king crab fishery.

The table shows no processors exceeding the 8 percent cap in the Bristol Bay red king crab fishery. The number of processors exceeding the 5 percent cap cannot be shown because of confidentiality restrictions on disclosure. Four processors would exceed a one percent cap under Options 1B, 2A, 2B, and 3A, while five processors would exceed the one percent cap under Option 1A. 17 processors are affiliated with 44 vessels that would receive allocations under Options 1A, 1B, 2A, and 2B, while 14 processors are affiliated with 39 vessels that would receive allocations under Option 3A.

The Bering Sea *C. bairdi* fishery.

The table shows no processors exceeding the 8 percent cap in the Bering Sea *C. bairdi* fishery. The number of processors that would exceed the 5 percent cap under allocation Options 1B, 2A and 2B cannot be shown, while 4 or 5 would exceed the 1 percent cap under any of the options. 18 processors are affiliated with 45 vessels that would receive allocations under the options.

The Pribilof red king crab fishery.

The table shows no processors exceeding the 8 percent cap in the Pribilof red king crab fishery. The number of processors exceeding the 5 and 1 percent caps cannot be shown because of confidentiality restrictions on disclosure. Six processors are affiliated with 12 vessels that would receive an allocation under Option 1A, while 4 processors are affiliated with 9 vessels that would receive allocations under Options 2A and 2B.

The Pribilof blue king crab fishery.

The number of processors exceeding the 8, 5, and 1 percent caps cannot be shown because of confidentiality restrictions on disclosure in the Pribilof blue king crab fishery. Four processors are affiliated with seven vessels that would receive allocations in this fishery.

The Pribilof red and blue king crab fishery.

The number of processors exceeding the 8, 5, and 1 percent caps cannot be shown because of confidentiality restrictions on disclosure in the Pribilof red and blue king crab fishery. Five to six processors are affiliated with ten to twelve vessels that would receive allocations in this fishery.

The St. Matthew blue king crab fishery.

The table shows no processors would exceed the 8 or 5 percent caps in the St. Matthew blue king crab fishery. The number of processors exceeding the 1 percent caps cannot be shown because of confidentiality restrictions on disclosure. 11 processors are affiliated with 17 or 18 vessels that would receive allocations in this fishery under the proposed options.

The Aleutian Island golden king crab fisheries.

The table presents information concerning the processor allocation under the three different methods of allocating Q.S. in the Aleutian Island golden king crab fisheries. Two sections show the allocations in the Eastern Aleutian Islands subdistrict and the Western Aleutian Islands subdistrict, where the allocation in each

district is based on catch from that district. The third section shows the analysis if a single allocation is made based on total harvests from both subdistricts combined.

In the Western (Adak) subdistrict four processors are affiliated with three vessels that would receive allocations under Options 1A and 1B. Under all of the other options two processors are affiliated with two vessels that would receive allocations in this fishery. No data can be revealed concerning the number of processors over the caps because too few processors are participating in the fishery.

In the Eastern (Dutch Harbor) subdistrict three processors are affiliated with three vessels that will receive allocations under Options 1A and 1B. Two processors are affiliated with 2 vessels that would receive an allocation under Option 4A and 4B. A single processor is affiliated with a single vessel that would receive an allocation under the other options. No processors would exceed the 8 or 5 percent cap under any of the options. Under Options 2A, 2B, 3A, and 3B no processors would exceed the 1 percent cap. The number of processors exceeding the one percent cap under Options 1A, 1B, 4A, and 4B cannot be revealed because too few processors are participating in the fishery.

If the allocation is based on the combined harvests in the two fisheries, four processors are affiliated with five vessels that would receive an allocation under Options 1A and 1B. Two processors are affiliated with 4 vessels that would receive an allocation under Option 4B. Under the other options, two processors are affiliated with two vessels that would receive an allocation. Because few processors would receive an allocation in this fishery, no further information can be provided concerning vertical integration.

The WAI (Adak) red king crab fishery

In the Western Aleutian Islands (Adak) red king crab fishery, three processors are affiliated with four vessels that would receive an allocation under either of the allocation options. Because few processors would receive an allocation in this fishery, no further information can be provided concerning vertical integration.

3.4.3.2 Processing allocations with catcher/processors receiving catcher/processor shares

This section of the analysis quantitatively examines the processor allocation alternatives under the assumption that catcher/processors are allocated catcher/processor shares that include both a harvesting and processing privilege. Catcher/processors are therefore allocated a portion of the processing allocation of each fishery independently from and prior to processing allocations to shore based and floating processors.

Prior to analyzing the allocations to processors, one must first determine the allocation to catcher/processors that would occur prior to the allocation of processing shares. Two options for allocation of shares to catcher processors are under consideration. The first would allocate catcher/processor shares to catcher/processors that meet only the harvest eligibility requirements. The second would require catcher/processors to meet the eligibility requirements of both harvesters and processors. Under this second option a catcher/processor that meets only the requirements for a harvest allocation, it would receive harvest shares only (rather than catcher/processor shares). Harvesters are required to meet the eligibility requirements for an LLP license to receive an allocation of harvest shares. Processors are required to have processed crab in either 1998 or 1999 to be eligible to receive processing shares. The number of vessels that are eligible to receive catcher/processor shares if only harvester eligibility requirements must be met are shown in Table 3.3-22. The number of vessels that are eligible to receive catcher/processor shares if both harvester and processor eligibility

requirements must be met are shown in Table 3.4-16.³² The share of the fishery that would be allocated to catcher/processors in any fishery under this option cannot be shown because of confidentiality restrictions. An upper bound on that allocation is shown in Table 3.3-22 above, which shows the harvest share allocations to catcher/processors that meet harvest eligibility requirements. Since a few of those vessels do not meet the processor eligibility requirement, the allocation of catcher/processor shares would be less than the allocation shown in that table. The catcher/processor share allocation would be removed prior to making any allocation of processing shares to processors. The catcher/processor share allocation also is made

³²Under this alternative, catcher/processors would be allocated processing shares for any processing of deliveries received from catcher vessels.

Table 3.4-16

Vessels eligible to receive catcher/processor shares independent of the

<i>Fishery/Option</i>	<i>Number of Vessels Qualified for Catcher/Processor Shares</i>
Bering Sea Opilio	
Option 1A -1994 - 1999 (Best 5 seasons)	13
Option 2A - 1992 - 1999 (Best 7 seasons)	13
Option 3A -1995 - 1999 (All seasons)	12
Option 3B - 1995 - 1999 (Best 4 seasons)	12
Option 4A -1996 - 2000 (Best 4 seasons)	12
Bristol Bay Red King Crab	
Option 1A -1993 - 1999 (All seasons)	12
Option 1B - 1992 - 1999 (Best 4 seasons)	12
Option 2A -1993 - 1999 (All seasons)	12
Option 2B - 1992 - 1999 (Best 5 seasons)	12
Option 3A -1996 - 2000 (Best 4 seasons)	9
Bering Sea Bairdi (EBS Tanner Crab)	
Option 1A -1992 - 1996 (All seasons)	12
Option 1B - 1992 - 1996 (Best 4 seasons)	12
Option 2A -1991-1992 - 1996 (Best 5 seasons)	12
Pribilof Red King Crab	
Option 1A -1993 - 1998 (Best 4 seasons)	2
Option 2A -1994 - 1998 (All seasons)	0
Option 2B - 1994 - 1998 (Drop one season)	0
Pribilof Blue King Crab	
Option 1A -1993 - 1998 (Best 4 seasons)	1
Pribilof Red and Blue King Crab	
Option 1A -1993 - 1998 (Best 4 seasons)	2
Option 2A -1994 - 1998 (All seasons)	0
Option 2B - 1994 - 1998 (Drop one season)	0
St. Matthew Blue King Crab	
Option 1A -1993 - 1998 (Best 4 seasons)	5
Option 2A - 1994 - 1998 (All seasons)	5
Option 2B - 1994 - 1998 (Drop one season)	5
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	
Option 1A -1992-1993 to 1998-1999 (All seasons)	1
Option 1B -1992-1993 to 1998-1999 (Drop one season)	1
Option 2A -1995-1996 to 1998-1999 (All seasons)	0
Option 2B -1995-1996 to 1998-1999 (Drop one season)	0
Option 3A -1996-1997 to 1998-1999 (All seasons)	0
Option 3B -1996-1997 to 1998-1999 (Drop one season)	0
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	1
Western Aleutian Islands (Adak) Golden King Crab	
Option 1A -1992-1993 to 1998-1999 (All seasons)	3
Option 1B -1992-1993 to 1998-1999 (Drop one season)	3
Option 2A -1995-1996 to 1998-1999 (All seasons)	1
Option 2B -1995-1996 to 1998-1999 (Drop one season)	1
Option 3A -1996-1997 to 1998-1999 (All seasons)	1
Option 3B -1996-1997 to 1998-1999 (Drop one season)	1
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	1
GHL Split EAI (Dutch Harbor)/WAI (Adak) Golden King Crab	
Option 1A -1992-1993 to 1998-1999 (All seasons)	3
Option 1B -1992-1993 to 1998-1999 (Drop one season)	3
Option 2A -1995-1996 to 1998-1999 (All seasons)	1
Option 2B -1995-1996 to 1998-1999 (Drop one season)	1
Option 3A -1996-1997 to 1998-1999 (All seasons)	1
Option 3B -1996-1997 to 1998-1999 (Drop one season)	1
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	1
Western Aleutian Islands (Adak) Red King Crab	
Option 1A -1992 - 1996 (All seasons)	2
Option 1B -1992 - 1996 (Best 2 seasons)	2

allocation to harvesters. Concentration of processing shares is slightly greater if catcher/processors are issued catcher/processor shares since catcher/processors do not receive allocations of processing shares instead receiving their allocations in advance of the issuance of processing shares.

The initial allocation of processing shares.

Allocations to processors (excluding catcher/processors that process their own harvests) in each fishery were estimated using ADF&G fish ticket files. Processor share allocations are significantly more concentrated than vessel share allocations. Processor allocations were aggregated to the company level. Company ownership of facilities was determined based on existing records with the assistance of processor representatives. The facility ownership aggregations used by the analysts appear in Appendix 3-3 hereto.

Graphs are used to illustrate the allocations under the different options for qualification years for each fishery. To protect confidentiality, the allocations are shown in groups of 4 processors, with processor groupings made in a descending order from the largest estimated allocation to the smallest allocation. The last and smallest grouping contains between 4 and 7 estimated allocations, since at least 4 processors' activities must be included under confidentiality rules. The estimated allocation shown for each group is the average allocation to members of that group. The allocation is shown as a percentage of the total allocation to processors in the fishery. Because allocations are averages it is possible that the largest allocation to a single processor is significantly different from the average of the four largest processors. In addition to a graph, a table is presented which shows the average of the four largest allocations, the mean allocation, and the median allocation under each option.³³ Table 3.4-17 below shows the total qualified processing pounds in each fishery under each of the allocation options. No pounds are reported for the Bering Sea *C. bairdi* fishery because the proposed allocation in that fishery is based on the allocations in the Bering Sea *C. opilio* and the Bristol Bay red king crab fisheries.

The Bering Sea *C. opilio* fishery

Table 3.4-18 shows the mean for all processors (average allocation), median for all processors (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the qualifying year options in the Bering Sea *C. opilio* fishery. Figure 3.4-20 shows the distribution of processing allocations in the fishery. Under Option 1 allocations would be made to 21 processors. The largest four processors would receive an average allocation of approximately 14.6 percent of the total allocation. The median allocation (or midpoint of the allocation distribution) would be approximately one-half of one percent of the total allocation. Option 2 would include 5 more processors in the allocation. The allocation under Option 2 would concentrate slightly less of the allocation with the leading four processors, who would average approximately 14.5 percent of the total allocation. The median (or midpoint) under Option 2 would be substantially smaller than the median under Option 1, falling to approximately one tenth of one percent. The distribution of shares under either allocation would concentrate almost 90 percent of the processing shares with the leading 12 processors. The effects of the suboption to Option 2 (which would consider participation in the most recent season) cannot be determined since data from that season are unavailable.

³³ The mean allocation is the average allocation. The median allocation is the allocation at the midpoint in the distribution, for which half of the allocations are larger and half of the allocations are smaller.

Table 3.4-17 Qualifying processor pounds in the Bering Sea/Aleutian Islands crab fisheries proposed for rationalization (with catcher/processors receiving catcher/processor shares).

Fishery	Mean	Median	Average of four largest allocations
Bering Sea Opilio			
Option 1 - 1997 - 1999 (Three year average)	0.048	0.034	0.146
Option 2 - 1996 - 2000 (Best 4 seasons)	0.038	0.001	0.144

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Table 3.4-18 Mean, median, and average allocation to the four processors that would receive the largest distribution under the qualifying year options in the Bering Sea *C. opilio* fishery (under allocation with catcher/processors receiving catcher/processor shares).

Fishery/Option	Total qualifying processor pounds
Bering Sea Opilio	
Option 1 - 1997 - 1999 (Three year average)	498,935,235
Option 2 - 1996 - 2000 (Best 4 seasons)	553,019,673
Bristol Bay Red King Crab	
Option 1 - 1997 - 1999 (Three year average)	32,104,574
Option 2 - 1996 - 2000 (Best 4 seasons)	41,646,255
Pribilof Red King Crab	
Option 1 - 1996 - 1998 (Three year average)	1,435,869
Pribilof Blue King Crab	
Option 1 - 1996 - 1998 (Three year average)	1,895,571
St. Matthew Blue King Crab	
Option 1 - 1996 - 1998 (Three year average)	*
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	*
Option 2 - 1996/97 - 2000/2001 (Best 4 seasons)	*
Western Aleutian Islands (Adak) Golden King Crab	
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	*
Option 2 - 1996/97 - 2000/2001 (Best 4 seasons)	*
Western Aleutian Islands (Adak) Red King Crab	
Option 1 - 1992/1993 - 1995/1996 (4 season average)	*

* Withheld due to confidentiality requirements.

Source: NPFMC Crab Database 2001 - Version 1

The Bristol Bay red king crab fishery.

Table 3.4-19 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the qualifying year options in the Bristol Bay red king crab fishery. Figure 3.4-21 shows the distribution of processing allocations in the fishery. Under Option 1 allocations would be made to 19 processors. The largest four processors would receive an average allocation of approximately 15.6 percent of the total allocation. Option 2 would include 23 processors in the allocation. The allocation under Option 2 would result in slightly less concentration with the leading four processors averaging approximately 15 percent of the total allocation. The

median allocation under both options is approximately 1.5 percent of the total allocation. The distribution of shares under either allocation would concentrate most of the shares with the leading 12 processors. Concentration of shares in processor allocations in the Bristol Bay red king crab fishery is very similar to the concentration of shares in the Bering Sea *C. opilio* fishery, with over 90 percent of the processing shares allocated to the leading 12 processors. The effects of the suboption to Option 2 (which would consider participation in the most recent season) cannot be determined since data from that season are unavailable.

Figure 3.4-20 Processor share allocations in the Bering Sea *C. opilio* fishery (under allocation with catcher/processores receiving catcher/processor shares)

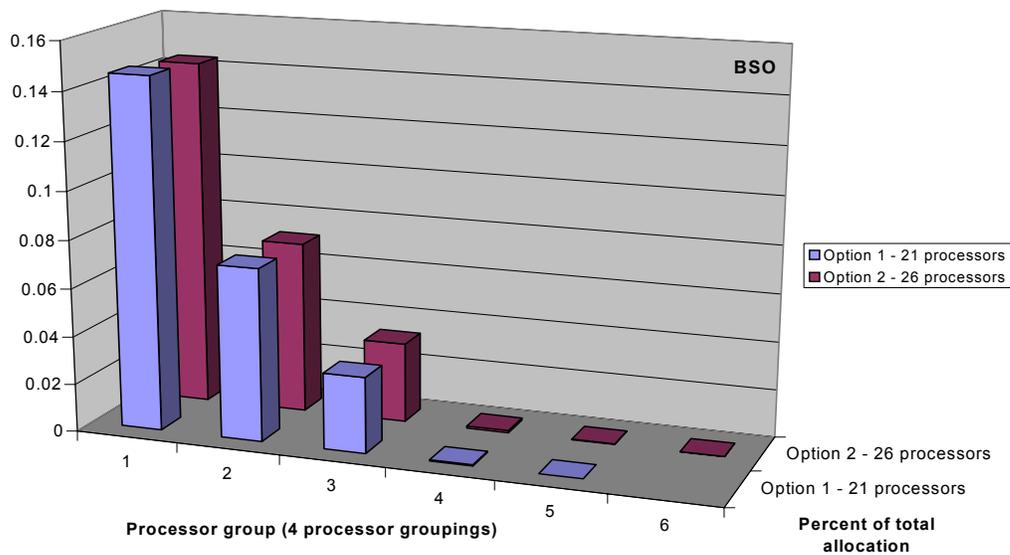


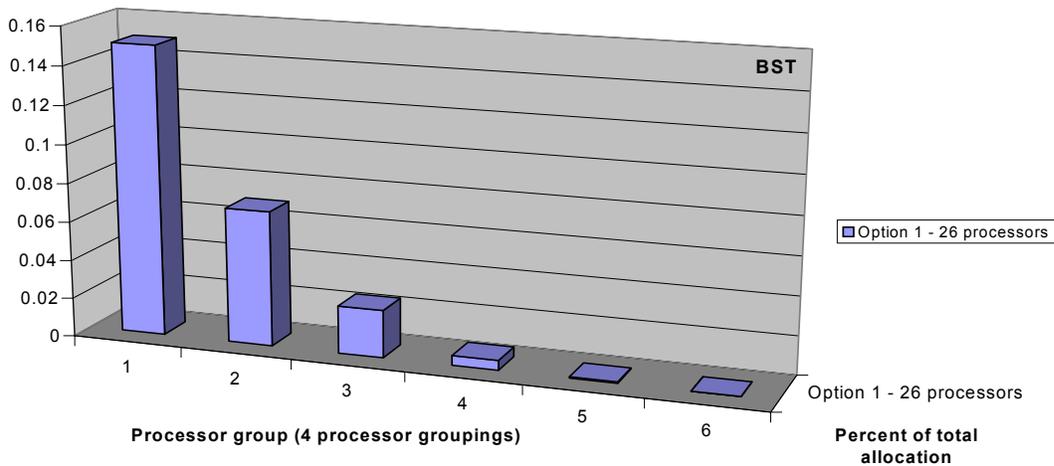
Table 3.4-19 Mean, median, and average allocation to the four processors that would receive the largest distribution under the qualifying year options in the Bristol Bay red king crab fishery (under allocation with catcher/processores receiving catcher/processor shares).

Fishery	Mean	Median	Average of four largest allocations
Bristol Bay Red King Crab			
Option 1 -1997 - 1999 (Three year average)	0.053	0.017	0.156
Option 2 - 1996 - 2000 (Best 4 seasons)	0.043	0.013	0.150

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Figure 3.4-21

Processor share allocations in the Bristol Bay red king crab fishery (under allocation with catcher/processores receiving catcher/processor shares)



The *C. bairdi* fishery

Table 3.4-20 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Bering Sea *C. bairdi* fishery. Figure 3.4-22 shows the distribution of processing allocations in the fishery. Only one option for allocating shares to processors is proposed for this fishery. Under that option 26 processors would receive an allocation. The largest four processors would receive an average allocation of approximately 15 percent of the total allocation. The median (midpoint) allocation would be approximately one-half of one percent of the total allocation. The distribution of shares would concentrate most of the shares with the leading 12 processors. Since the allocation in this fishery is based on the allocations in the Bering Sea *C. opilio* fishery and the Bristol Bay red king crab fishery, it is no surprise that the concentration of processor shares is very similar to the concentration of processor shares in those fisheries.

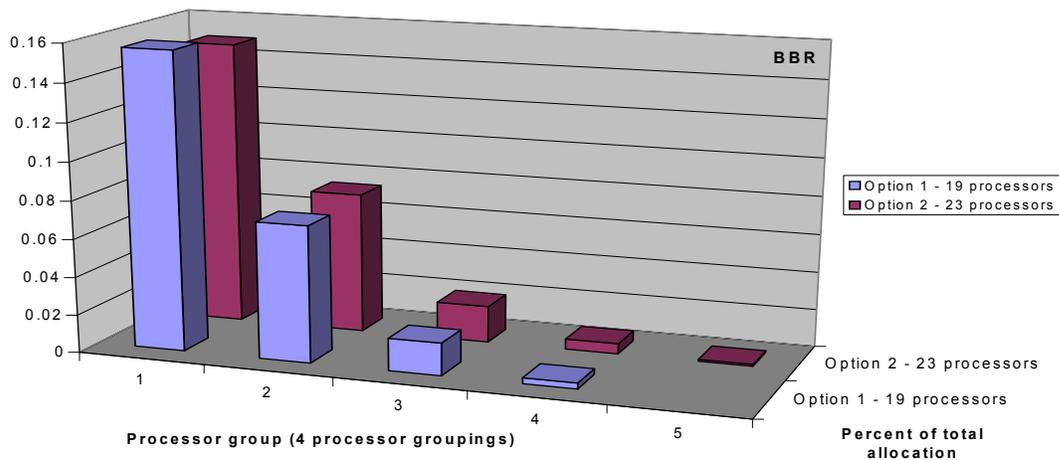
Table 3.4-20 Mean, median, and average allocation to the four processors that would receive the largest distribution in the Bering Sea *C. bairdi* fishery (under allocation with catcher/processores receiving catcher/processor shares)

Fishery	Mean	Median	Average of four largest allocations
Bering Sea Bairdi (EBS Tanner Crab) Option 1 - 1997 - 1999 (50/50 combination of BBRKC and opilio)	0.038	0.007	0.150

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Figure 3.4-22

Processor share allocations in the Bering Sea *C. bairdi* fishery (under allocation with catcher/processors receiving catcher/processor shares)



The Pribilof red king crab fishery.

Table 3.4-21 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Pribilof red king crab fishery. Figure 3.4-23 shows the distribution of processing allocations in the fishery. Only one option for allocating shares to processors is proposed for this fishery. Under that option, 14 processors would receive an allocation. The largest four processors would receive an average allocation of slightly more than 17 percent of the total allocation. Although the median allocation is higher in this fishery (slightly more than 4 percent), over 90 percent of the allocation is concentrated with the leading 8 processors. Since no catcher/processors are eligible for a processing allocation in this fishery, the allocation is not changed by the method of allocating processing privileges to catcher processors.

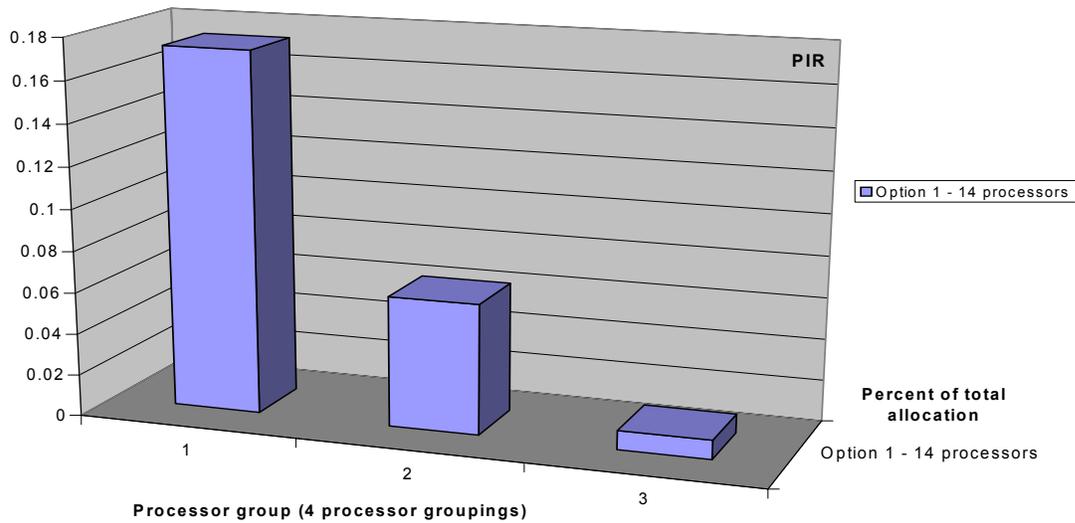
Table 3.4-21 Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Pribilof red king crab fishery (under allocation with catcher/processors receiving catcher/processor shares)

Fishery	Mean	Median	Average of four largest allocations
Pribilof Red King Crab Option 1 -1996 - 1998 (Three year average)	0.071	0.042	0.173

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Figure 3.4-23

Processor share allocations in the Pribilof red king crab fishery (under allocation with catcher/processors receiving catcher/processor shares)



The Pribilof blue king crab fishery.

Table 3.4-22 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Pribilof blue king crab fishery. Figure 3.4-24 shows the distribution of processing allocations in the fishery. Under allocation option, 15 processors would receive an allocation. The largest four processors would receive an average allocation of slightly more than 17 percent of the total allocation. As in the other fisheries, the median allocation is quite small (less than 3 percent). This is a reflection of the concentration of processing shares under the allocation option, which would allocate over 90 percent of the shares to the 8 leading processors. Since no catcher/processors are eligible for a processing allocation in this fishery, the allocation is not changed by the method of allocating processing privileges to catcher processors.

Table 3.4-22

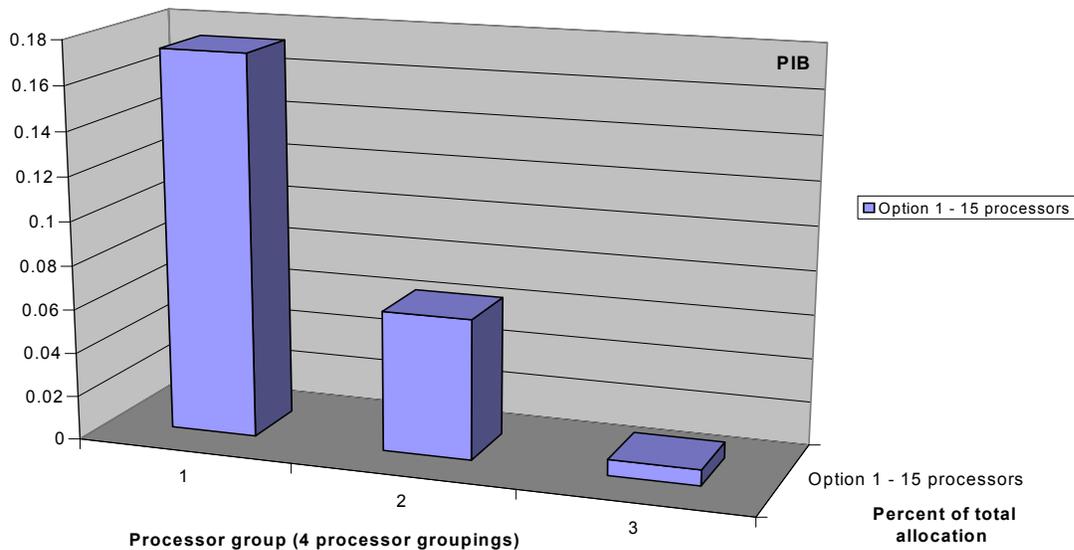
Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Pribilof blue king crab fishery (under allocation with catcher/processors receiving catcher/processor shares).

Fishery	Mean	Median	Average of four largest allocations
Pribilof Blue King Crab Option 1 -1996 - 1998 (Three year average)	0.067	0.028	0.174

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Figure 3.4-24

Processor share allocations in the Pribilof blue king crab fishery (under allocation with catcher/processors receiving catcher/processor shares)



The Pribilof red and blue king crab fishery.

Table 3.4-23 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Pribilof red and blue king crab fishery. Figure 3.4-25 shows the distribution of processing allocations in the fishery. Under the single option, 15 processors would receive an allocation. The largest four processors would receive an average allocation of slightly more than 17 percent of the total allocation. The median allocation is slightly less than 4 percent. Since no catcher/processors are eligible for a processing allocation in this fishery, the allocation is not changed by the method of allocating processing privileges to catcher processors.

Table 3.4-23

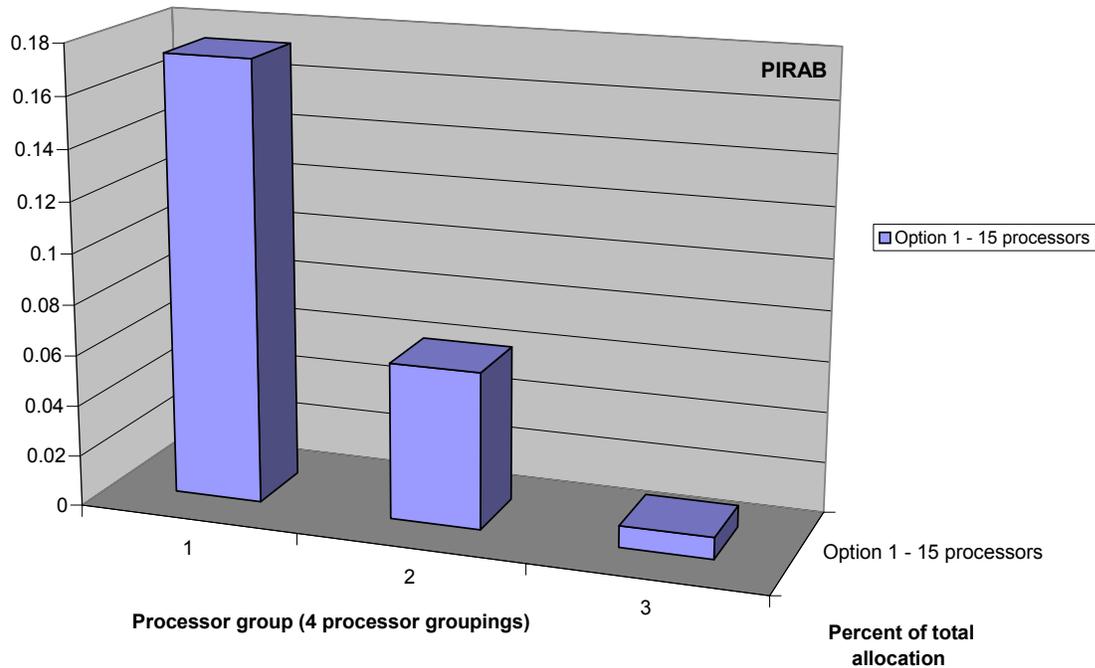
Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Pribilof red and blue king crab fishery (under allocation with catcher/processors receiving catcher/processor shares).

Fishery	Mean	Median	Average of four largest allocations
Pribilof Red and Blue King Crab Option 1 -1996 - 1998 (Three year average)	0.067	0.038	0.173

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Figure 3.4-25

Processor share allocations in the Pribilof red and blue king crab fishery (under allocation with catcher/processores receiving catcher/processor shares)



The St. Matthew blue king crab fishery.

Table 3.4-24 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the St. Matthew blue king crab fishery. Figure 3.4-26 shows the distribution of processing allocations in the fishery. Only one option for allocating shares to processors is proposed for this fishery. Under that option, 13 processors would receive an allocation. The largest four processors would receive an average allocation of slightly more than 19 percent of the total allocation. The median allocation in the fishery would be slightly more than 4 percent of the total allocation. The concentration of processing shares is evident, in that 98 percent of the allocation would be made to the 8 leading processors.

Table 3.4-24

Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the St. Matthew blue king crab fishery (under allocation with catcher/processors receiving catcher/processor shares).

Fishery	Mean	Median	Average of four largest allocations
St. Matthew Blue King Crab Option 1 - 1996 - 1998 (Three year average)	0.077	0.043	0.193

Source: NPFMC Crab Rationalization Database 2001 - Version 1

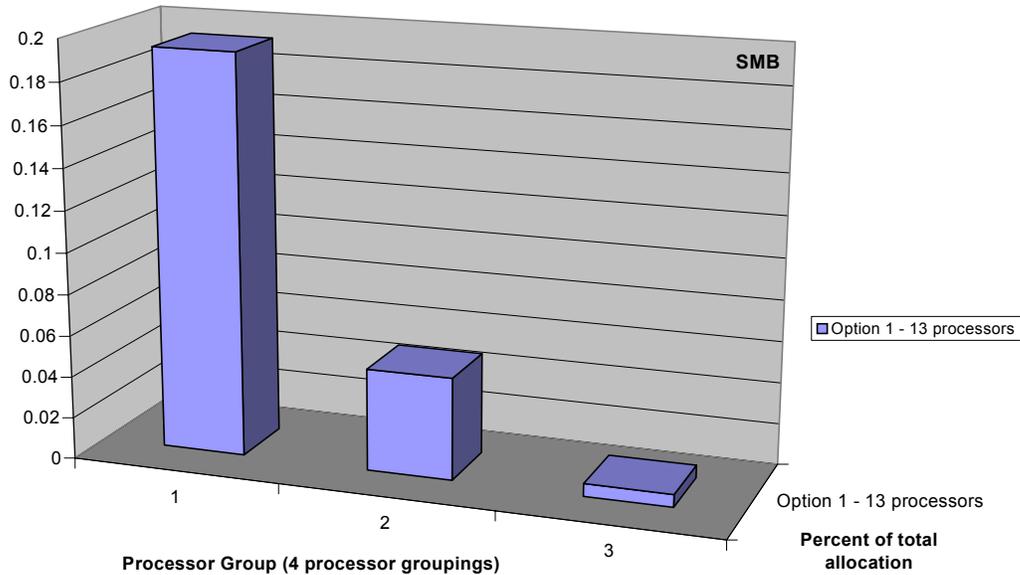


Figure 3.4-26 Processor share allocations in the St. Matthew blue king crab fishery (under allocation with catcher/processors receiving catcher/processor shares)

The EAI (Dutch Harbor) golden king crab fisheries.

Table 3.4-25 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the Eastern Aleutian Islands (Dutch Harbor) golden king crab fishery. Figure 3.4-27 shows the distribution of processing allocations in the fishery. Under Option 1 allocations would be made to 6 processors. The average allocation to the four largest processors cannot be shown under this option because of limits on confidentiality. The median (or midpoint) of the allocation distribution would be approximately 11 percent under Option 1. Option 2 would include 9 processors in the allocation. The allocation under Option 2 would result in the leading four processors averaging approximately 22.5 percent of the total allocation. The median allocation under this option is approximately 3 percent. The effects of the suboption to Option 2 (which would consider participation in the most recent season) cannot be determined since data from that season are unavailable. Option 3 would include 8 processors in the allocation. The allocation under this option to the four largest processors averaging approximately 23.3 percent of the total allocation. The median allocation under this option is 6 percent.

Table 3.4-25

Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the EAI (Dutch Harbor) golden king crab fishery (under allocation with catcher/processors receiving catcher/processor shares).

Fishery	Mean	Median	Average of four largest allocations
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab			
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	0.167	0.109	*
Option 2 - 1996/1997 - 2000/2001 (Best 4 seasons)	0.111	0.032	0.229
Option 3 - 1996/1997 - 1999/2000 (Four year average)	0.125	0.060	0.233

* Withheld due to confidentiality requirements

Source: NPFMC Crab Rationalization Database 2001 - Version 1

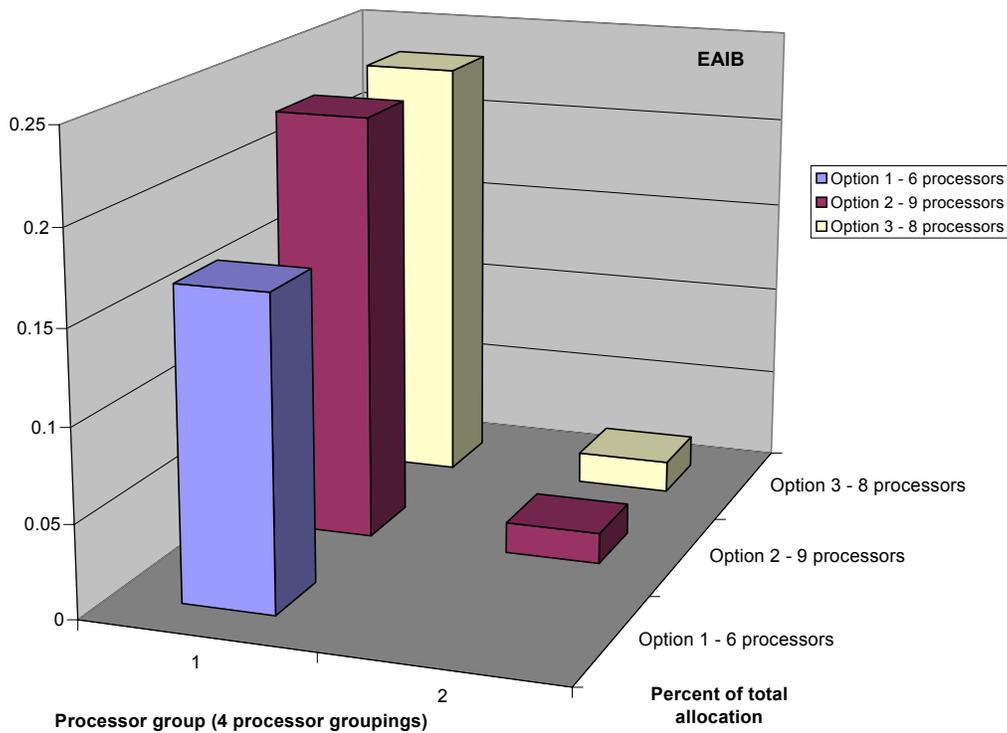


Figure 3.4-27

Processor share allocations in the EAI (Dutch Harbor) golden king crab fishery (under allocation with catcher/processors receiving catcher/processor shares)

The WAI (Adak) golden king crab fisheries.

Figure 3.4-28 shows the distribution of processing allocations in the WAI (Adak) golden king crab fishery. Table 3.4-26 shows the mean (average allocation), median (midpoint of the allocation distribution), and the average allocation to the four processors that would receive the largest distribution under the single qualifying year option in that fishery. Under Option 1 allocations would be made to 9 processors. The largest four processors would receive an average allocation of approximately 24.5 percent of the total allocation, almost 98 percent of the allocation collectively. The median allocation under Option 1 would be less than 1 percent. Option 2 would include 11 processors in the allocation. The average allocation to the four leading processors under Option 2 would be approximately 23 percent, concentrating approximately 92 percent of the allocation with those processors. Under this option, the median allocation would be less than 1 percent. The effects of the suboption to Option 2 (which would consider participation in the most recent season) cannot be determined since data from that season are unavailable. Under Option 3 allocations would be made to 10 processors. The largest four processors would receive an average allocation of approximately 24.4 percent of the total allocation, almost 98 percent of the allocation collectively. The median allocation under Option 3 would be less than 1 percent.

Table 3.4-26 Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the WAI (Adak) golden king crab fishery (under allocation with catcher/processors receiving catcher/processor shares).

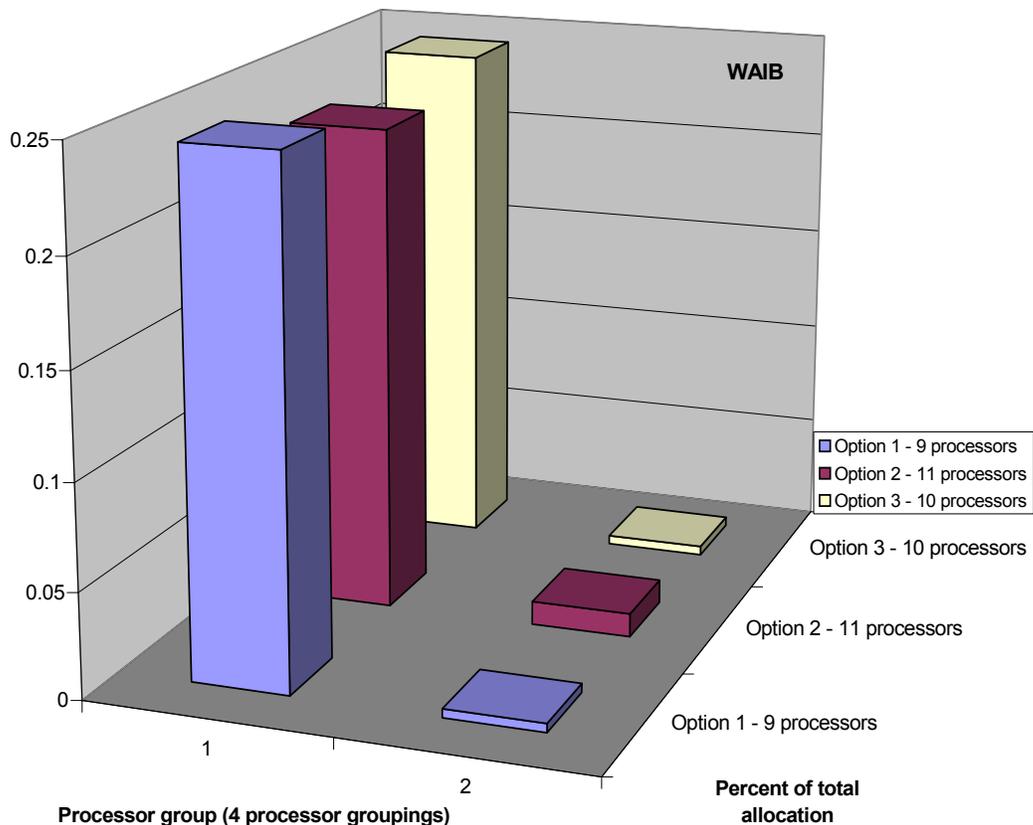


Figure 3.4-28 Processor share allocations in the WAI (Adak) golden king crab fishery (under allocation with catcher/processers receiving catcher/processor shares)

Fishery	Mean	Median	Average of four largest allocations
Western Aleutian Islands (Adak) Golden King Crab			
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	0.111	0.008	0.245
Option 2 - 1996/1997 - 2000/2001 (Best 4 seasons)	0.091	0.008	0.230

Source: NPFMC Crab Rationalization Database 2001 - Version 1

Table 3.4-27 Mean, median, and average allocation to the four processors that would receive the largest distribution under the single qualifying year option in the WAI (Adak) red king crab fishery (under allocation with catcher/processers receiving catcher/processor shares)

Fishery	Mean	Median	Average of four largest allocations
Western Aleutian Islands (Adak) Red King Crab			
Option 1 - 1992/1993 - 1995/1996 (Four season average)	0.091	0.049	0.193

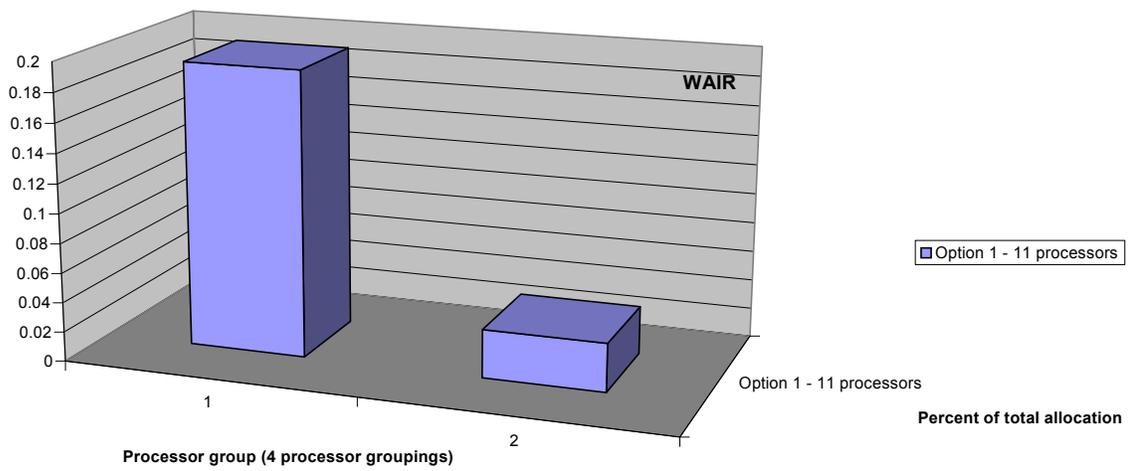
Source: NPFMC Crab Rationalization Database 2001 - Version 1

The WAI (Adak) red king crab fishery

The Council motion specified three different options for the distribution of processing shares in the WAI(Adak) red king crab fishery. Under the first option, processing shares would be allocated based on historical processing between 1992/1993 season to the 1995/1996 season, the last four seasons the fishery was open. Table 3.4-27 shows the mean allocation, the median allocation, and the average of the four largest allocations for processors under this option. Under this option, 12 processors would receive allocations in this fishery. The leading four processors would receive slightly less than 80 percent of th entire allocation. The second option would allocate processing shares based on the allocation in the Western Aleutian Islands golden king crab fishery. The allocations for that fishery are described above. The third allocation option would allocate between 0 and 50 percent of all processing shares in this fishery to the community of Adak. This option would be combined with one of the other two options.

Figure 3.4-29

Processor share allocations in the WAI (Adak) red king crab fishery (under allocation with catcher/processores receiving catcher/processor shares)



Processing quota ownership and use caps.

This section presents the quantitative analysis of ownership and use caps, using the framework that allocates catcher/processors shares that include both a harvest privilege and a corresponding processing privilege. The quantitative analysis of these options includes tables for each fishery, showing the number of processors over 20, 30, 40, and 50 percent caps based on the initial allocation of processing shares. In addition, the average allocation to the leading four processors under each option is set out to provide the Council with some knowledge concerning the maximum allocation in each fishery. In evaluating the options, however, it should be considered that given the few recipients of processing allocations, the maximum allocation could be substantially larger than the average allocation to the four leading processors. Table 3.4-28 shows the average allocation to the four leading processors and the number of processors that would receive allocations in excess of the proposed caps in each of the fisheries.

The Bering Sea *C. opilio* fishery

No processors would exceed the a 50, 40, or 30 percent cap under either of the allocation options in the Bering Sea *C. opilio* fishery. The number of processors exceeding the proposed 20 percent cap cannot be shown for either of the options because confidentiality restrictions require that data be aggregated to at least four processors.

The Bristol Bay red king crab fishery.

No processors would exceed the a 50, 40, or 30 percent cap under either of the allocation options in the Bristol Bay red king crab fishery. The number of processors exceeding the proposed 20 percent cap cannot be shown for either option because confidentiality restrictions require that data be aggregated to at least four processors.

The *C. bairdi* fishery.

No processors would exceed the a 50, 40, or 30 percent cap in the Bering Sea *C. bairdi* fishery. The number of processors exceeding the proposed 20 percent cap cannot be shown because confidentiality restrictions require that data be aggregated to at least four processors.

The Pribilof red king crab fishery.

No processors would exceed the a 50, 40, or 30 percent cap in the Pribilof red king crab fishery. The number of processors exceeding the proposed 20 percent cap cannot be shown because confidentiality restrictions require that data be aggregated to at least four processors.

The Pribilof blue king crab fishery.

No processors would exceed the a 50, 40, or 30 percent cap in the Pribilof blue king crab fishery. The number of processors exceeding the proposed 20 percent cap cannot be shown because confidentiality restrictions require that data be aggregated to at least four processors.

The Pribilof red and blue king crab fishery.

No processors would exceed the a 50, 40, or 30 percent cap in the Pribilof red and blue king crab fishery. The number of processors exceeding the proposed 20 percent cap cannot be shown because confidentiality restrictions require that data be aggregated to at least four processors.

Table 3.4-28

Average allocation to the four leading processors and the number of processors that would receive allocations in excess of the proposed caps in each of the fisheries (with catcher/processors receiving catcher/processor shares).

<i>Fishery/Option</i>	<i>Allocation with catcher/processors receiving catcher/processor shares</i>		<i>Allocation with catcher/processors receiving processing shares</i>		<i>AFA Sideboards</i>
	<i>Non AFA</i>		<i>Non AFA</i>		
	<i>Processors</i>	<i>AFA Processors</i>	<i>Processors</i>	<i>AFA Processors</i>	
Bering Sea Opilio					
Option 1 - 1997 - 1999 (Three year average)	0.286	0.714			0.653
Option 2 - 1996 - 2000 (Best of 4 seasons)	0.297	0.703			
Bristol Bay Red King Crab					
Option 1 - 1997 - 1999 (Three year average)	0.209	0.791			0.781
Option 2 - 1996 - 2000 (Best of 4 seasons)	0.233	0.767			
Bering Sea Bairdi (EBS Tanner Crab)					
Option 1 - 1997 - 1999 (50/50 combination of BBRKC and opilio)	0.248	0.752			0.688
Pribilof Red King Crab					
Option 1 - 1996 - 1998 (Three year average)	0.317	0.683			0.781
Pribilof Blue King Crab					
Option 1 - 1996 - 1998 (Three year average)	0.293	0.707			0.781
Pribilof Red and Blue King Crab					
Option 1 - 1996 - 1998 (Three year average)	0.303	0.697			0.641
St. Matthew Blue King Crab					
Option 1 - 1996 - 1998 (Three year average)	0.386	0.614			0.641
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab					
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	0.451	0.549			
Option 2 - 1996 - 1998 (Best of 4 season)	0.467	0.533			0.496
Option 3 - 1996/1997 - 1999/2000 (Four year average)	0.481	0.519			
Western Aleutian Islands (Adak) Golden King Crab					
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	0.350	0.650			
Option 2 - 1996 - 1998 (Best of 4 season)	0.450	0.550			0.496
Option 3 - 1996/1997 - 1999/2000 (Four year average)	0.332	0.668			
Western Aleutian Islands (Adak) Red King Crab					
Option 1 - 1992/3 - 1995/1996 (Four season average)	0.389	0.611			

* Withheld due to confidentiality requirements.

Source: NPFMC Crab Database 2001 - Version 1

The St. Matthew blue king crab fishery.

No processors would exceed the a 50 or 40 percent cap in the St. Matthew blue king crab fishery. The number of processors exceeding the proposed 30 and 20 percent caps cannot be shown because confidentiality restrictions require that data be aggregated to at least four processors.

The EAI (Dutch Harbor) golden king crab fisheries.

No processors would exceed the a 50 percent cap under either of the allocation options in the EAI (Dutch Harbor) golden king crab fishery. The number of processors exceeding the proposed 40, 30, and 20 percent caps cannot be shown for either option because confidentiality restrictions require that data be aggregated to at least four processors.

The WAI (Adak) golden king crab fisheries.

No processors would exceed the a 50 percent cap under Option 2 and 3 in the WAI (Adak) golden king crab fishery. The number of processors exceeding the proposed 50 percent cap cannot be shown for Option 1 because confidentiality restrictions require that data be aggregated to at least four processors. Similarly, the number of processors exceeding the 40, 30, and 20 percent caps cannot be shown for either of the options because of confidentiality restrictions.

The WAI (Adak) red king crab fishery

No processors would exceed a 50, 40, or 30 percent cap under the option proposed for allocating processor shares in the WAI (Adak) red king crab fishery. The number of processors that would exceed the 20 percent cap cannot be shown because of confidentiality restrictions.

Vertical integration

This section presents the quantitative analysis of limits on vertical integration, under the framework that allocates catcher/processors shares, which include both a harvesting privilege and corresponding processing privilege. The analysis of controls on vertical integration relies on the harvest share allocations calculated in Section 3.3 above. Processor representatives provided the analysts with a list of vessels owned by the major processors. The list was collected from processors who were asked to provide the names of all vessels which the processor or any affiliate or subsidiary owned an interest of 10 percent greater. The allocations to vessels were consolidated based on this list of vessels to determine the number of processors that would exceed each of the caps specified in the Council motion. A copy of that vessel list is attached hereto as Appendix 2-4.

Table 3.4-29 shows the number of processors that would receive an allocation and the number of persons that would exceed the proposed caps on vertical integration for each of the processor qualifying year options in each of the fisheries under consideration for rationalization after consolidating allocations based on the processor owned vessel list.

The Bering Sea *C. Opilio* fishery

The table shows that no processors would exceed either an 8 percent cap under any of the allocation options in the Bering Sea *C. opilio* fishery. No processors would exceed a 5 percent cap under Options 3A, 3B, and

4A. The number of processors that would exceed the 5 under Options 1A and 2A cannot be shown because confidentiality restrictions on disclosure require aggregation of information concerning at least 4 processors. In addition, the number of processors exceeding a 1 percent cap under any of the options cannot be shown because confidentiality restrictions. Six processors are affiliated with 26 vessels that would receive allocations under Options 1A, 2A, 3A, and 3B. Six processors are affiliated with 25 vessels that would receive an allocation under Option 4A. The total allocation to vessels affiliated with processors would be between 12 and slightly more than 13 percent under all of the options.

The Bristol Bay red king crab fishery.

The table shows no processors exceeding the 8 percent cap in the Bristol Bay red king crab fishery. The number of processors exceeding the 5 percent cap cannot be shown because of confidentiality restrictions on disclosure. Four processors would exceed a one percent cap under all of the options. Six processors are affiliated with 33 vessels that would receive allocations under Options 1A, 1B, 2A, and 2B, while 6 processors are affiliated with 31 vessels that would receive allocations under Option 3A. The allocation to processor affiliated vessels ranges from 12.6 percent to 13.3 percent under the proposed options.

Table 3.4-29

Harvest (and catcher/processor share) allocations to processors and analysis of caps on vertical integration (with catcher/processors receiving catcher/processor shares)

<i>Fishery/Option</i>	<i>Number of vessels affiliated with processors</i>	<i>Number of processors affiliated with vessels</i>	<i>Number of processors over the 8% cap</i>	<i>Number of processors over the 5% cap</i>	<i>Number of processors over the 1% cap</i>	<i>Total allocation to processor affiliated vessels</i>
Bering Sea Opilio						
Option 1A-1994 - 1999 (Best 5 seasons)	26	6	0	*	*	0.130
Option 2A - 1992 - 1999 (Best 7 seasons)	26	6	0	*	*	0.132
Option 3A-1995 - 1999 (All seasons)	26	6	0	0	*	0.127
Option 3B - 1995 - 1999 (Best 4 seasons)	26	6	0	0	*	0.128
Option 4A-1996 - 2000 (Best 4 seasons)	25	6	0	0	*	0.123
Bristol Bay Red King Crab						
Option 1A-1993 - 1999 (All seasons)	33	6	0	*	4	0.132
Option 1B - 1992 - 1999 (Best 4 seasons)	33	6	0	*	4	0.133
Option 2A-1993 - 1999 (All seasons)	33	6	0	*	4	0.130
Option 2B - 1992 - 1999 (Best 5 seasons)	33	6	0	*	4	0.131
Option 3A-1996 - 2000 (Best 4 seasons)	31	6	0	*	4	0.126
Bering Sea Bairdi (EBS Tanner Crab)						
Option 1A-1992 - 1996 (All seasons)	33	6	0	0	*	0.117
Option 1B - 1992 - 1996 (Best 4 seasons)	33	6	0	*	4	0.120
Option 2A-1991-1992 - 1996 (Best 5 seasons)	33	6	0	*	*	0.125
Option 2B-1991-1992 - 1996 (Best 4 seasons)	33	6	0	*	*	0.127
Pribilof Red King Crab						
Option 1A-1993 - 1998 (Best 4 seasons)	10	4	0	*	*	0.083
Option 2A-1994 - 1998 (All seasons)	9	4	0	*	*	0.081
Option 2B - 1994 - 1998 (Best 5 seasons)	9	4	0	*	*	0.081
Pribilof Blue King Crab						
Option 1A-1993 - 1998 (Best 4 seasons)	6	3	*	*	*	*
Pribilof Red and Blue King Crab						
Option 1A-1993 - 1998 (Best 4 seasons)	10	4	*	*	*	0.112
Option 2A-1994 - 1998 (All seasons)	9	4	*	*	*	0.119
Option 2B - 1994 - 1998 (Best 5 seasons)	9	4	*	*	*	0.117
St. Matthew Blue King Crab						
Option 1A-1993 - 1998 (Best 4 seasons)	11	4	0	0	*	0.082
Option 2A - 1994 - 1998 (All seasons)	10	4	0	0	*	0.084
Option 2B - 1994 - 1998 (Best 4 seasons)	10	4	0	0	*	0.086

Table 3.4-29 (Cont.) Harvest (and catcher/processor share) allocations to processors and analysis of caps on vertical integration (with catcher/processors receiving catcher/processor shares)

<i>Fishery/Option</i>	<i>Number of vessels affiliated with processors</i>	<i>Number of processors affiliated with vessels</i>	<i>Number of processors over the 8% cap</i>	<i>Number of processors over the 5% cap</i>	<i>Number of processors over the 1% cap</i>	<i>Total allocation to processor affiliated vessels</i>
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab						
Option 1A -1992-1993 to 1998-1999 (All seasons)	2	2	0	0	*	*
Option 1B -1992-1993 to 1998-1999 (Drop one season)	2	2	0	0	*	*
Option 2A -1995-1996 to 1998-1999 (All seasons)	1	1	0	0	0	*
Option 2B -1995-1996 to 1998-1999 (Drop one season)	1	1	0	0	0	*
Option 3A -1996-1997 to 1998-1999 (All seasons)	1	1	0	0	0	*
Option 3B -1996-1997 to 1998-1999 (Drop one season)	1	1	0	0	0	*
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	1	1	0	0	*	*
Option 4B -1996-1997 to 2000-2001 (All seasons)	1	1	0	0	*	*
Western Aleutian Islands (Adak) Golden King Crab						
Option 1A -1992-1993 to 1998-1999 (All seasons)	3	2	0	0	*	*
Option 1B -1992-1993 to 1998-1999 (Drop one season)	3	2	0	0	*	*
Option 2A -1995-1996 to 1998-1999 (All seasons)	1	1	0	0	0	*
Option 2B -1995-1996 to 1998-1999 (Drop one season)	1	1	0	0	0	*
Option 3A -1996-1997 to 1998-1999 (All seasons)	1	1	0	0	0	*
Option 3B -1996-1997 to 1998-1999 (Drop one season)	1	1	0	0	0	*
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	1	1	0	0	0	*
Option 4B -1996-1997 to 2000-2001 (All seasons)	1	1	0	0	0	*
GHL Split EAI (Dutch Harbor)/WAI (Adak) Golden King Crab						
Option 1A -1992-1993 to 1998-1999 (All seasons)	3	2	0	0	*	*
Option 1B -1992-1993 to 1998-1999 (Drop one season)	3	2	0	0	*	*
Option 2A -1995-1996 to 1998-1999 (All seasons)	1	1	0	0	0	*
Option 2B -1995-1996 to 1998-1999 (Drop one season)	1	1	0	0	0	*
Option 3A -1996-1997 to 1998-1999 (All seasons)	1	1	0	0	0	*
Option 3B -1996-1997 to 1998-1999 (Drop one season)	1	1	0	0	0	*
Option 4A -1996-1997 to 2000-2001 (Best 4 seasons)	1	1	0	0	*	*
Option 4B -1996-1997 to 2000-2001 (All seasons)	2	1	0	0	*	*
Western Aleutian Islands (Adak) Red King Crab						
Option 1A -1992 - 1996 (All seasons)	1	1	0	0	*	*
Option 1B -1992 - 1996 (Best 2 seasons)	1	1	0	0	*	*
Option 2A -1992/1993 - 1995/1996 (All seasons)	1	1	0	0	*	*

The Bering Sea *C. bairdi* fishery.

The table shows no processors exceeding the 8 percent cap in the Bering Sea *C. bairdi* fishery. No processors would exceed a 5 percent cap under Option 1A. The number of processors exceeding the 5 percent cap under Options 1B and 2A cannot be shown because of restrictions on confidentiality. Four processors would exceed the 1 percent cap under allocation Option 1B. Four processors would exceed the 1 percent cap under Option 1B. The number exceeding the cap under Options 1A and 2A cannot be shown because of restrictions on confidentiality. Six processors are affiliated with 33 vessels that would receive allocations under all of the options. The total allocation to processor affiliated vessels ranges from 11.7 percent to 12.5 percent under the proposed options.

The Pribilof red king crab fishery.

The table shows no processors exceeding the 8 percent cap in the Pribilof red king crab fishery. The number of processors exceeding the 5 and 1 percent caps cannot be shown because of confidentiality restrictions on disclosure. Four processors are affiliated with 10 vessels that would receive an allocation under Option 1A, while 4 processors are affiliated with 9 vessels that would receive an allocation under Options 2A and 2B. Processor allocations are slightly more than 8 percent under all of the options.

The Pribilof blue king crab fishery.

The number of processors exceeding the 8, 5, and 1 percent caps cannot be shown because of confidentiality restrictions on disclosure in the Pribilof blue king crab fishery. Three processors are affiliated with six vessels that would receive allocations in this fishery.

The Pribilof red and blue king crab fishery.

The number of processors exceeding the 8, 5, and 1 percent caps cannot be shown because of confidentiality restrictions on disclosure in the Pribilof red and blue king crab fishery. Four processors are affiliated with 10 vessels that would receive allocations in this fishery under Option 1A, while 4 processors are affiliated with 9 vessels that would receive an allocation under Options 2A and 2B. Processor allocation are slightly more than 8 percent under all of the options.

The St. Matthew blue king crab fishery.

The table shows no processors would exceed the 8 or 5 percent caps in the St. Matthew blue king crab fishery. The number of processors exceeding the 1 percent caps cannot be shown because of confidentiality restrictions on disclosure. Four processors are affiliated with either 10 or 11 vessels that would receive allocations depending on the qualifying year option selected. Processor affiliated vessels would receive total allocations of approximately 8.5 percent under all of the options.

The Aleutian Island golden king crab fisheries.

The table presents information concerning the processor allocation under the three different methods of allocating Q.S. in the Aleutian Island golden king crab fisheries. Two sections show the allocations in the Eastern Aleutian Islands subdistrict and the Western Aleutian Islands subdistrict, where the allocation in each district is based on catch from that district. The third section shows the analysis if a single allocation is made based on total harvests from both subdistricts combined.

In the Eastern (Dutch Harbor) subdistrict two processors are affiliated with two vessels that would receive allocations under Options 1A and 1B. Under all of the other options, one processor is affiliated with one vessel that would receive an allocation. No data can be revealed concerning the number of processors over the 1 percent cap because too few processors are participating in the fishery.

In the Western (Adak) subdistrict two processors are affiliated three vessels that would receive allocations based under Options 1A and 1B. Under all of the other options one processor is affiliated with one vessel that would receive an allocation. No data can be revealed concerning the number of processors over the caps because too few processors are participating in the fishery.

If the allocation is based on the combined harvests in the two fisheries, two processors are affiliated with three vessels that would receive allocations under Options 1A and 1B. Under Option 4B, one processor is affiliated with 2 vessels. Under all of the other options one processor is affiliated with one vessel that would receive an allocation. Because few processor affiliated vessels would receive an allocation in this fishery, no further information can be provided concerning vertical integration.

The WAI (Adak) red king crab fishery

In the WAI (Adak) red king crab fishery, one processor is affiliated with one vessel that would receive an allocation under either of the alternatives. Because only one processor affiliated vessel would receive an allocation in this fishery, no further information can be provided concerning vertical integration.

3.5 Cooperative program alternatives

As an alternative to the status quo and IFQ programs the Council is considering two cooperative alternatives, which are fundamentally different in structure. The State of Alaska Voluntary Cooperative proposal would set up a voluntary cooperative system which would allocate history to both processors and harvesters. Harvesters would then be allowed to join any cooperative that meets the requirements outlined in the program. Vessels not associated with a cooperative would still be issued their allocation of quota. All catcher vessels would be allowed to deliver to the processor of their choice regardless of the cooperative they joined (or even if they did not joined a cooperative), so long as the processor holds adequate processing rights to cover those deliveries. The Plurality Assignment Fishery Cooperative structure would allow each catcher vessel to join a single cooperative associated with the processor where it delivered the plurality of its crab harvests during the qualifying period. Vessels that do not associate with a cooperative will have their catch history assigned to the open access fishery. Several options characterize different levels of linkages between harvesters in a cooperative and the associated processors making further specific characterization of this cooperative program difficult.

The Council developed three cooperative structures for consideration at the June 2001 meeting. After reviewing some of the initial findings of those alternatives, they were dropped from further consideration and replaced with the two alternatives currently under consideration. The three alternatives that were rejected are discussed briefly in the next section. Following that discussion, the two new alternatives currently under consideration are analyzed.

3.5.1 Cooperative structures that were considered but excluded from the final analysis

AFA, Dooley-Hall, and an amalgam of the previous two styles of fishery cooperatives were considered by the Council. Each of these alternatives were discarded after a preliminary analysis was conducted on their viability. They will be described briefly in the next section before the two alternatives the Council is considering are presented.

Under the AFA cooperative structure each participating catcher vessel owner would be eligible to join a single cooperative associated with the processor to which their vessel delivered the majority of its harvests in the qualifying period, on a species-by-species basis. Harvest allocations would be made to each cooperative based on the catch histories of its member vessels. Each cooperative would be required to deliver at least 90 percent of its harvest allocation to its associated processor. A vessel that elects not to join the cooperative for

which it is eligible would be required to spend at least one year in an open access fishery (in most cases).³⁴ The allocations that would have been made to cooperatives on behalf of vessels participating in the open access fishery would be fished competitively in the open access fishery. After a year in the open access fishery, a vessel would be eligible to join the cooperative associated with the processor to which it delivered a majority of its catch during the year in the open access fishery. Catcher/processors with qualifying catch are eligible to join a single catcher/processor cooperative. The catcher/processor cooperative receives an allocation based on the catch history of its members, which may be processed by members of that cooperative.

Under the Dooley Hall structure, a vessel owner would be permitted to join a cooperative with other vessels of its choosing. A vessel may choose to join a cooperative with other catcher vessels that have similar delivery patterns (i.e. delivered to the same processor) or vessels with whom they wish to associate. In any case, catcher vessels would be free to elect where to deliver their harvests without restriction. Vessels that choose not to join a cooperative would be permitted to fish in the open access fishery in the same manner as under the AFA program. Vessels, however, would not be required to spend a year in the open access fishery to change cooperative membership. The catcher/processor sector would have the same rights under the Dooley Hall structure as under the AFA structure.

The State of Alaska presented a proposal that would have been an amalgam of options and elements – some AFA style cooperative elements, some Dooley Hall style cooperative elements, and some unique to the proposal. The proposal was intended to provide the Council with several options for development of a cooperative program.

Under all three of the proposed and rejected cooperative structures, a harvest vessel must meet the same eligibility requirements that are proposed for participation in the IFQ alternatives, and the processors must meet the eligibility requirements to participate in the program as defined for participation in the IFQ alternative. A processor that met those requirements would be eligible to associate with a cooperative. The processing level that they would be guaranteed, as well as their growth potential, depends on other alternatives which define the cooperative's structure.

Under the AFA-style cooperative program, a catcher vessel's eligibility to join a cooperative would be based on where the vessel delivered the majority of its catch during the qualification period. A processor under the AFA is defined at the plant level. For example, a catcher vessel that delivered a majority of its Bristol Bay red king crab to Trident's plant in Akutan during the qualifying period would be eligible to join the cooperative associated with that plant for Bristol Bay red king crab. It would not be eligible to join any other cooperatives associated with other Trident plants for Bristol Bay red king crab. Vessels that participate in multiple fisheries would be eligible to enter a cooperative for each fishery. For example, if the same vessel delivered a majority of its Bering Sea *C. opilio* harvest to the Unisea plant in Dutch Harbor, during the qualification period, that vessel would be allowed to join the cooperative associated with that plant for the Bering Sea *C. opilio* fishery.

³⁴There have been cases where members of a cooperative agreed to let a vessel deliver the majority of their catch in a year to a different processor, while the remainder of the fleet ensured that 90 percent of cooperative's allocation was delivered to the associated processor. This allowed the vessel to switch cooperatives without going through open access.

Under the Dooley-Hall cooperative option, a catcher vessel would be eligible to join a cooperative in each fishery in which it had qualifying catch. Since cooperatives would not be related to a processor and history of deliveries to processors is not relevant, each vessel would be eligible to join any cooperative (additional criteria may be specified by the Council defining which cooperatives they could join) in the fishery.

Under the State's proposal, cooperative membership would be based on delivery of harvests (similar to the AFA-style cooperatives). The State proposal, however, included two alternatives. Option 1 was the same as the AFA-style cooperative option³⁵. Option 2 would have allowed each catcher vessel to join several cooperatives, one for each processor it delivered harvests to during the qualifying period of a fishery. For example, if a catcher vessel delivered BS *C. opilio* to multiple processors during the qualifying years, it would have needed to join several cooperatives (to access all of its catch history) and deliver the same percentage of its catch to each processor as it had during the qualifying period. Alternatively, the vessel could have been allowed to trade harvest rights assigned to a particular cooperative with another catcher vessel to reduce the number of cooperatives they would be required to join.

The option states that processors would have been able to sell and purchase processing histories to "best suite the initial cooperative formation". The purpose of this provision is to coordinate activity in the cooperatives. However, the idea of processor shares in a cooperative is different from what has been done in the past in the North Pacific. That concept is more akin to a two-pie IFQ program than a "traditional" cooperative program where harvest vessels are given exclusive harvest rights but must deliver a percentage of their harvest to a specific processor. Under those programs processors have not traditionally been given the rights to sell histories. This program would have essentially granted processors a processing allocation. Once this occurred, it would require that harvesters and processors match histories when a catcher vessel makes a delivery. Catcher vessel's ability to transfer from one cooperative to another could be made more difficult under this structure. It could also restrict where catcher vessels participating in the open access fishery may deliver.

A few issues were considered when evaluating these options that would create different impacts than were seen in the pollock fishery. First, delivery patterns in the pollock and crab fishery differ. Crab vessels are more likely to deliver to multiple processors than pollock vessels which typically had a market with a single processing company during a year or for several years. This tendency of crab vessels to deliver to multiple processors complicates application of either a provision that qualifies a vessel to join only the cooperative associated with the processor to which it delivered the majority of its crab (on a species-by-species basis) or a provision that would make the vessel eligible to join cooperatives associated with all of the processors to which it made deliveries.

If the majority of deliveries rule were applied, some of the processors that took deliveries during the qualifying period would not have any vessels that qualify to deliver to them. For example, if qualification was based on the 1994-99 BS *C. opilio* fishery there would be 27 unique processing plants (excluding catcher processors) that took a majority of at least one vessel's deliveries over that time period. Another 24 processors took deliveries of BS *C. opilio* but have no vessels that delivered a majority of their catch to them. Therefore a total of 51 processors took delivery of BS *C. opilio* crab during the qualification period. The 24 processors would not be eligible to be associated with a cooperative (at the time of initial allocation) if the majority of deliveries during the qualification period determines which cooperative a catcher vessel can join.

³⁵Since each crab target fishery is treated separately for determining cooperative membership, a vessel would join a different cooperative for each crab fishery it was eligible (and be associated with a different processor in each fishery).

Requiring at least 4 vessels to join a cooperative would eliminate another 8 processing plants from being associated with a cooperative (leaving only 19 of the original 51). Applying the requirement that at least 4 vessels join a cooperative would also require 14 vessels to spend their first year in open access. If a minimum of 10 vessels were required to join a cooperative, only 12 processing plants could be associated with cooperatives during the first year and 63 vessels would be required to spend their first year in open access. A summary of the results of this alternative is provided in Table 3.5-1

The allocation of all of a vessel’s catch history to a cooperative associated to a single processor would also distort the distribution of catch history among processors. The option is most problematic for processors that did not take the majority of deliveries from vessels. These processors are unlikely be associated with a cooperative since no vessel would have delivered a majority of its harvest to the processor. In Table 3.5-1 we can see that plants that had less than 6 vessels making the majority of their deliveries to them accounted for about 12.5 percent of the BS *C. opilio* processed from 1994-99. These processors would be allowed to accept deliveries from open access vessels (and perhaps have a cooperative formed around them in the future), but it is unlikely that they would continue to process 12.5 percent of the BS *C. opilio*.

Table 3.5-1 A summary of potential Bering Sea *C. opilio* cooperatives based on the 1994-99 fisheries when cooperative membership is based on where a vessel delivered the majority of their catch

Number of CVs Eligible to Join Co-op	Number of Co-ops / Plants	Total Number of Catcher Vessels	Lbs. to Co-op (in Millions)	Percent of Lbs. to Co-ops	Percent of Lbs. Actually Processed by Plants
10+	12	173	550.3	80.02	67.65
6 to 9	6	44	102.0	14.83	19.83
4 to 5	1	5	35.4	5.15	7.8
2 to 3	3	9			
1	5	5			
0	24	0	0.0	0	4.71
Total	51	236	687.7	100	100

Source: ADF&G fish ticket data, 1994-99

Note: Cooperatives are assumed to be associated with plants and not companies in this table.

The problem also extends to some larger participants that have received a minority of the catch history of several vessels. Processors in this position could lose a substantial portion of their processing history, if the Council adopts an all-or-nothing rule that would allocate all of a vessel’s catch history to the processor that received a majority of the vessel’s deliveries.

Adoption of a rule that permits vessels to join multiple cooperatives, however, creates other complications. For example, the Bristol Bay red king crab fishery is a single trip fishery. If a vessel owner made deliveries to two processors during the qualifying period and joined two Bristol Bay red king crab cooperatives, the

vessel owner would need to offload a single crab trip at two processors each year. Given that some processors are located at some distance from each other, this provision could impose a significant financial burden on the vessel.³⁶ Looking at the 1993-99 data, a total of 255 “qualified” catcher vessels had landings Bristol Bay red king crab landings. Only 45 of those vessels landed all of their Bristol Bay red king crab at the same plant over those five fishing seasons, 96 vessels landed at two processors, 77 landed at three processors, 27 landed at four processors, and 10 landed at 5 different plants. Looking at the data another way, only 105 vessels made at least 75 percent of their landings at one plant, 163 vessels landed at least 50 percent at one plant, and 227 landed at least 25 percent at one plant. These delivery patterns indicate that vessels being required to offload at several plants may be a problem in the Bristol Bay red king crab fishery.

Given the complications discussed above, the Council elected to revise the cooperative alternatives being considered in the analysis. The new alternatives include the Plurality Assignment Fishery Cooperative proposal and a revised cooperative structure from the State of Alaska. Those two cooperative structures and their impacts will be discussed in the remainder of this section of the analysis.

3.5.2 Voluntary cooperative alternative

In December 2001, representatives of the State of Alaska submitted a voluntary cooperative proposal to the Council. Under the voluntary cooperative, both harvesters and processors would be allocated quota based on their history in the relevant crab fisheries. Harvesters would then be permitted to form voluntary cooperatives associated with processors that hold processing shares. The stated purpose of the voluntary cooperative alternative is to allow both harvesters and processors to share in the benefits of a rationalized fishery through formal cooperation.

This cooperative alternative could incorporate any or all of the options that pertain to the harvester only or two-pie IFQ alternatives, including provisions that determine allocations, provisions that affect transferability of shares, and ownership and use caps.

Cooperative structure

Section 6.1 paragraph 1) defines the basis for allocation of shares in the cooperative program:

6.1 1) Individual harvesting and processing histories are issued to both catcher and processors. (Harvesters under Section 1.3.2 a) which meet program qualifications. Processors under Section 2.1, 2.3, and 2.4 (Options 1-4) which meet qualifications of the program).

Harvesters would be allocated quota based on their participation during the qualifying years specified under alternatives specified in Section 1.3.2.a of the Council’s December 2001 motion. Processors would be allocated quota based on the alternatives specified under Sections 2.1 (the species to be included), Sections 2.3 (the years to be included in allocation), and Sections 2.4 - Options 1 through 4 (70-100 percent of the

³⁶ Provisions for leasing shares between processors could reduce this burden, however, a large number of vessels in multiple cooperatives would lead to a very complex (and potentially costly) negotiation to remove the burden. Leasing options are discussed more fully below.

GHL would be issued to processors as IPQ and the remainder could be delivered to any processor eligible to take deliveries). These alternatives are considered under the IFQ program section of this analysis and the impacts are expected to be the same here.

Section 6.1 paragraph 2 provides the basis for cooperative formation under this cooperative model:

- | | | |
|-----|------------|--|
| 6.1 | 2. | Cooperatives may be formed through contractual agreements among fishermen who wish to join into a cooperative with one or more processors holding processor history for one or more species of crab. Fleet consolidation within this cooperative may occur either by internal history leasing and vessel retirement or by history trading within the original cooperative or to a different cooperative. |
| | 3. | There must be at least 2 or more unique vessels/owners to form a coop with a processor. Vessels are not restricted to deliver to a particular plant or processing company. |
| | Suboption: | There must be at least 4 or more unique vessels engaged in one or more crab fisheries to form a coop with a processor. Vessels are not restricted to deliver to a particular plant or processing company. |

Voluntary cooperatives may be formed among any fishers who wish to join a cooperative. Under paragraph 2, at least two vessels would be required to form a cooperative. The suboption would require at least four vessels to form a cooperative.³⁷ Cooperatives with four or members may be desirable since larger cooperatives could realize more benefits of consolidation. Permitting two vessels to form a cooperative, however, may facilitate more cooperative activity that could lead to more, larger cooperatives in the long run.

Each cooperative may be associated with one or more processors that hold the processing rights for any species of crab. Because the cooperative is voluntary, a person would not be required to join a cooperative before they would be allocated quota. Individual persons would be allocated their own history regardless of cooperative membership. There could be benefits, as well as drawbacks to persons joining a cooperative.

Under this alternative the fleet would determine whether too much capacity exists in the fishery and how excess capacity should be removed. Fleet consolidation could occur a few different levels. First, within each cooperative members would decide the distribution of shares. Second, among cooperatives the distribution of shares would be decided by the collective decisions of the various cooperatives. In addition, if the Council elects to permit share transfers among persons that are not members of cooperatives, consolidation could occur independent of the cooperatives.

Consolidation within a cooperative may occur through the leasing of history between members of the same cooperative (which would allow for a vessel to be retired as was done by the AFA catcher/processors in the BSAI pollock fishery). These internal transactions could be accomplished without prior regulatory approval or notice, if catch accounting is accomplished at the cooperative level rather than the vessel level. This freedom of quota movement has a few benefits.

³⁷ Since allocations are made to persons (not to vessels) this provision should be read as requiring a minimum number of harvest share holders.

Management agencies could realize a benefit if they are able to substantially reduce the number of quotas which they must monitor. If cooperatives are allocated quota, the management agencies need only track the catch at the cooperative level to determine when allocations are harvested. The catch of individual vessels within the cooperative would not need to be accounted against a single vessel quota. For example in an IFQ fishery, each qualified vessel owner (and perhaps processor) would be allocated quota for each of the crab species in which he or she had qualifying landings. If each allocation in each fishery has a single, unique owner³⁸ there could be over 800 allocations of harvest Q.S. Under a cooperative program, it is possible that the number of quotas could be combined into cooperative holdings greatly reducing the number of allocations that must be monitored. The proposed program requires a minimum of two (or four) vessels to form a cooperative. It is possible that some cooperatives could have several more members. Since the program is voluntary, it is also possible that not all vessels will join a cooperative. Given these uncertainties, the number of quotas that must be managed cannot be estimated. Cooperatives, however, could greatly reduce the number of allocations that must be administered and monitored.

The aggregate allocation of shares to a cooperative also has benefits for participants. Overage/underage provisions are typically considered when implementing share based programs. In both IFQ and cooperative fisheries, stiff fines and penalties are imposed on entities that exceed their allocations. When several quota share holders can combine their allocations in a cooperative, it creates an opportunity for the cooperative to mop up remaining quota from all members by allowing one vessel to make a final trip when it would not be economically feasible for several vessels to do so individually. Members of the pollock cooperatives have proven that group quotas can be managed to ensure that the vast majority of the TAC can be harvested. The percentage of the total quota harvested in that fishery (over 99 percent) was higher than the total quota harvested in either the halibut (95 percent) or sablefish (90 percent) IFQ programs in 2001.³⁹ Part of the difference in harvests is thought to be attributable to the different structures of the cooperative and IFQ programs but a share is also thought to arise because of the cooperative nature of the allocation under the AFA. An example helps to illuminate the potential benefits arising from leaving less of an allocation unharvested. If the fleet in the Bristol Bay red king crab and BS *C. opilio* fisheries was able to increase the amount of the GHL harvested by 5 percent, based on 2000 revenues, the fleet could increase its gross revenues by \$4.55 million. Assuming there are 250 vessels in the fleet⁴⁰, that equates to an increase in gross revenues of over \$18,000 per vessel.

Fleet consolidation can also occur under this cooperative program through trading of shares among cooperatives (as permitted in the BSAI pollock fishery under Amendment 69). Permitting trading of allocations among cooperatives allows each cooperative to determine its own level of participation in the crab fisheries and will contribute to efficiency in these fisheries.

³⁸ The exact ownership of catch history is not known, but some owners are known to have multiple vessels and some vessels have multiple owners. Therefore, the number of quota holders could be above or below the 800 estimated in this example.

³⁹ It should be noted that there are more participants in the halibut and sablefish programs and the allocations are much smaller. Therefore, there are some individuals that are allocated quota in the halibut/sablefish programs that do not harvest any of their allocation. This does not occur in the pollock fishery, due to the size and value of the allocations. However, it is thought that a cooperative structure could lead to increased harvest rates even in those fisheries.

⁴⁰ This is strictly an assumption. There is no information that would allow us to project the actual number of vessel that will hold quota after the vessel buyback or after quota transfers take place.

Consolidation by trading of shares within or among cooperatives would always be voluntary. Voluntary removal of capacity is likely to result in a more efficient distribution of quota (and hence a more efficient distribution of fishing power) than the mandated removal of capacity through regulatory action. These potential efficiency gains have led experts studying IFQ programs to often recommend a broad initial allocation of quota (to widely distribute windfall profits) along with provisions for free transfer of quota. It is believed that permitting participants to decide their own level of participation will lead to a more efficient distribution of interests in the fishery.

Since cooperative membership is wholly voluntary, it is possible that some persons with shares may choose not to join a cooperative. The Council may choose to allow transfer of shares by these persons, permitting fleet consolidation beyond that attainable through share transactions within and among cooperatives. If persons that do not join a cooperative are given the same share rights as cooperative members, share holders will have less incentive to join cooperatives.

The cooperative option provides for an association between each cooperative and one or more processors. The association is assumed to be useful for coordinating harvesting and processing activities. Cooperatives, however, are not required to make any deliveries to that processor. Implicit in the allocation to processors is the concept that a cooperative's allocation (or the allocation to any person not joining a cooperative) could be delivered to any processor holding unused IPQs. The lack of a specificity concerning the nature of the link between a cooperative and processor brings into question the need for that association with a processor. The association, however, may facilitate the coordination of harvesting and processing shares in the fishery.

The Voluntary Cooperative alternative includes the following provision concerning processor participation in the crab fisheries:

- | | | |
|-----|----|--|
| 6.1 | 4) | New processors may enter the fishery by acquiring processor history from an initial issue. Cooperative formation with a new processor lacking processing history requires the new processor to offer both an adequate payment to the vessel and to the originating plant where the prior processing history resided. |
|-----|----|--|

Under this provision, the field of processors in the crab fisheries would be limited to those holding IPQs or PQS. New processors would only be allowed to enter the fishery, if they acquire processing rights from another processor. This provision on its face would prevent processors without shares from purchasing crab harvested with class B IFQs (shares that do not require delivery to processors holding IPQs). This could affect the distribution of market power between the harvest and processing sectors. The Council, however, could elect to permit the sale of crab harvested with class B shares to any processor (including those that do not hold IPQs). The Council should be clear on its intent with respect to this provision.

The method by which processors enter the fishery is also unclear. Assuming the entering processor has purchased PQS or IPQs from a processors, cooperative formation would require "adequate payment" to harvest vessels or the cooperative. The purpose of the required payment is not clear since the cooperative would not be required to make any deliveries to the processor. In addition, it is not clear that the new processor would be permitted to enter the fishery in the absence of a cooperative agreement. Alternatively, the Council could allow processors to enter the fishery by purchasing either crab caught with class B IFQs

or by purchasing processing shares (IPQs or PQS). Permitting broader entry could facilitate greater competition among processors.

Custom processing

The Voluntary Cooperative alternative also contains the following provision permitting custom processing:

6.1 5) Custom processing would continue to be allowed within this rationalization proposal.

Under this provision custom processing of crab would be permitted. This activity could be limited by restrictions on the use of IPQs, if those limitations are incorporated in the rationalization program. A more complete discussion of custom processing appears in Section 3.15.

Duration of cooperative agreements

The Voluntary Cooperative program contains the following three alternatives for defining the duration of cooperative agreements.

8) Duration of coop agreements.

Option 1.	2 years
Option 2.	4 years
Option 3.	6 years
Option 4.	A harvester quota share holder may exit the cooperative at any time after one season. One season shall mean the season established by the Alaska Board of Fisheries for the fishery associated with the quota shares held by the harvester.

Durations of 2, 4, or 6 years are being considered. In addition, Option 4 would permit a member to exit at the end of any season. Depending on the length of the proposed cooperative program, one of the alternatives could extend beyond the program's expiration. An option that would sunset the program after five years is included in the mix of alternatives. Other options only call for review of the program at specified time intervals, under those alternatives any of the options could be appropriate.

Longer cooperative agreements would allow persons to better understand the bylaws of the group. Bylaws that are deemed inappropriate by a sufficient number of the cooperative's members could be amended at any time. Therefore, it may be appropriate to have a relatively long cooperative agreement duration, that could be amended by the members when necessary. The voluntary nature of these cooperatives allow vessel owners to join (or leave) cooperatives at will (possibly only at the end of a season, if Option 4 is adopted). This freedom of entry and exit may also justify allowing for cooperative agreements of a longer duration. Cooperatives with a longer time horizon should help provide greater stability for the members when making

long term business plans. The option to exit a cooperative would still protect vessel owners that believe that the cooperative is providing fewer benefits than they could obtain elsewhere.

Additional provisions

The Voluntary Cooperative proposal could incorporate any of the several components of the proposed two-pie IFQ program. The Council might consider which of those program options would be appropriate to adopt, if this voluntary cooperative program is selected. Analysis of those options is contained in Section 3.4 above.

The Voluntary cooperative option also includes options concerning CDQ allocations, program duration, regionalization, observer requirements, skipper and crew options, and catch accounting. Those options could be applied to any rationalization program and therefore are each discussed in separate sections devoted exclusively to those issues.

3.5.3 Plurality assignment cooperative

An alternative to the Voluntary cooperative is the Plurality Assignment Fishery Cooperative. Under this program, all of a vessel's qualifying catch history would be assigned to a cooperative associated with the processor to which they delivered a plurality of their catch⁴¹ during the qualifying period. Assigning all of a vessel's history to a single cooperative solves any problem of requiring vessel owners to join multiple cooperatives to access their entire catch histories. This was thought to be important because catcher vessels have often delivered to several processors over the qualifying period, and under some of the alternatives no longer being considered, they would need to join several cooperatives to access their entire history. Joining several cooperatives could be both inefficient and costly if there are substantial costs associated with transferring the initial allocation so that it is distributed more optimally. The analysis attempts to address each of the provisions in the cooperative model. The number and breadth of options, however, make analysis difficult since the operation of the program as a whole depends on which options are selected.

Cooperative formation

Section 6.2 paragraph 1A of the Council motion contains the following provision concerning cooperative formation under the Plurality Assignment Cooperative alternative:

⁴¹Catch of all species covered under the program would be included when calculating where a vessel delivered a plurality of their catch.

6.2

1. Formation of Coop

- A. There would be one coop formed with each eligible crab processor. Coops would be formed with the processor at the company level, not the plant level. Two or more vessels are sufficient to form a coop. The coop would handle all species of crab.
- A-2. Crab processor eligibility would be determined using the qualifying period identified for allocation of initial IPQs (Eligible Processors, including C/P as revised in 1.7.2.3 option 5. Processors eligible to receive an initial allocation of processing quota shares (PQs) are defined as follows: U.S. Corporation or partnership (not individual facilities) that processed crab for any crab fishery included in the IFQ program during 1998 or 1999.)
- C. Each crab vessel is eligible to join only one coop. Which coop the vessel is eligible to join is determined based on which eligible processor that vessel delivered the highest pounds of crab to during the processor qualifying period used for 1.B above.
- D. Vessels that join a coop will have their catch history from the vessel qualifying period protected. A vessel that does not elect to join in the coop for which it is eligible remains under an open access fishery.
- E. Each vessel's catch history is determined using the formulas identified for calculation of initial quota shares selected under section 1.4 as modified above.
- F. A coop agreement would be filed annually with the Secretary of Commerce, after review by the Council, before a coop's catch history would be set aside for their exclusive use. The processor and each boat that is eligible and elects to join the coop must sign the agreement. Only the histories of those boats that sign will be protected.

The option provides for the formation of a single cooperative with each processor eligible to receive an allocation under rationalization program. Processor eligibility is defined in the same manner as eligibility to receive an allocation under the two-pie IFQ program, and is discussed in detail in that section. Each vessel is eligible to join a single cooperative associated with the processor to which it delivered the plurality of its crab harvests during the qualifying period. The impacts on processors and harvesters of a cooperative program where a catcher vessel takes its entire history into a single cooperative are discussed next.

The analysis determined where the plurality of catch was delivered for each catcher vessel that made deliveries in the processing qualifying period identified in Section 2.3, Option 1 of the Council motion. During those years a total of 30 processing companies (excluding catcher/processors) took deliveries of BSAI crab, according to ADF&G fishticket data aggregated to the company level. Only 15 of the 30 processors took the plurality of landings from a vessel during those qualifying years. An additional 3 processors took the plurality of deliveries from only one harvest vessel. Since the Plurality Assignment Fishery Cooperative requires that a minimum of two vessels to form a cooperative, only 12 cooperatives could be formed in the

first year of the program, each associated with a single processor.⁴² Therefore, 12 processors that took deliveries in the qualifying period would be eligible to associate with a cooperative and 18 would be ineligible to associate with a cooperative in the first year of the program. Three of the ineligible companies did not participate in 1998 or 1999, so they are considered ineligible regardless of the number of vessels delivering to them during the qualifying period. After the first year of the cooperative program each of these companies might be allowed to associate with a cooperative of vessels depending on the rules, if two or more harvest vessels make deliveries to the processor in a given year. The implications of not being able to associate with a cooperative depend on the selection of other options, which are discussed below.

The processors that would be allowed to associate with cooperatives the first year are listed in the first column in Table 3.5-2. The second column shows the processors that had plants listed on fishtickets but would not be eligible to associate with a cooperative during the first year of the proposed Plurality Assignment cooperative program. This list could, of course, change if a different set of qualifying years were selected for determining where vessels delivered a plurality of their catch. This list is provided as only one possible outcome.

Table 3.5-2 Crab processors taking deliveries during the qualifying years listed in Section 2.3, Option 1.

Plurality of landings from more than one vessel	Plurality of landings from one vessel or less
Alyeska Seafoods Inc.	Alaska Fresh Seafoods Inc.
Blue Wave Seafoods Inc.	Ballard Lamar
Circle Seafoods Inc.	Cannery Row Inc.
Norquest Seafoods Inc.	Cook Inlet Processing
Peter Pan Seafoods Inc.	Highland Light Seafoods
Royal Aleutian Seafoods Inc.	His Catch Value Added Products
Snopac Products Inc.	Jaquelyn R
Stellar Seafoods Inc.	King Fisher
Trident Seafoods Corp.	Malezi Kwasi DbA
Unisea Inc.	North Alaska Fisheries Inc.
Westward Seafoods Inc.	North Pacific Processors Inc.
Yard Arm Knot Inc.	Northland Fisheries Inc.
	Ocean Beauty Seafoods Inc.
	Osterman Fish
	Patricia Lee Inc.
	Prime Alaska Seafoods Inc.
	Quality Alaskan Seafoods
	Sanko Fisheries LLC

Source: ADF&G fishticket data

It is also interesting to note that communities such as Kodiak, who may have been taking the last load of the season from vessels homeported there, do not appear to fair well under this option. The only processors with

⁴²This assumes that the Council selects the qualifying years listed in Section 2.3, Option 1 to determine where a plurality of deliveries were made during the qualification period.

plants located in Kodiak that would qualify to associate with a cooperative the first year of the program also have facilities located closer to the BSAI crab fishing grounds. The percentage of their deliveries that would be processed in Kodiak under this management system is unknown. However, it will likely depend on whether the processor can generate more profits from deliveries to Kodiak relative to other locations where they have facilities.

The catch history allocated to each vessel would be determined by the qualifying years set out for catcher vessels in the IFQ program option. The use of these years and the use of the all or nothing nature of the assignments have the potential to create a disparity between the processor's processing history and the allocation to its associated cooperative. Because of the number of qualifying year options, an estimate of these disparities could not be reported concisely.

Since only vessels that join a cooperative would have their allocations protected, the three vessels that are the only vessel to delivery the plurality their catch to a processor could not join a cooperative in the first year of the program. These vessels would be required to participate in the open access fishery. The open access fishery is discussed in more detail later in this section.

Catcher/processers have been excluded from the above discussion because they tend to deliver a plurality of their catch to themselves. For many catcher/processers it is likely that no other vessel that delivered the Plurality of their catch to their plant. Assuming that a catcher/processor did not take a plurality of deliveries from any other vessel, that catcher/processor would be ineligible to form a cooperative since it would not have a minimum of two vessels eligible to join the cooperative associated with it. This situation might not apply to catcher/processers owned by companies that own shore based facilities since the plurality delivery rule is applied at a company level. This situation could be remedied by allowing all catcher/processers join a single catcher/processor cooperative. They would then be managed much like the BSAI pollock catcher/processor cooperative under the AFA.

The last provision concerning cooperative formation requires that a cooperative agreement signed by all members of the cooperative and the associated processor would need to be filed with the Secretary of Commerce prior to the allocation to the cooperative being made. The requirement of the processor's signature on this document would likely give the processor negotiating leverage for obtaining deliveries from members of the cooperative in the event the cooperative program does not require those deliveries. The amount of negotiating power this provision might provide to the processor is not known. If the program, requires all deliveries to be made to the processor then no additional market power would be added by this signature requirement.

Cooperative operation

Cooperative operations would be governed by the provisions of Section 6.2 paragraph 2A of the Council motion, which provides:

2. Operation of Coop

A. The coop is responsible for allocating fishing quotas for each species of crab to the coop members. Each vessel is entitled to one vote, and decisions will be made by majority vote unless otherwise agreed to by the coop members.

Under this option, the cooperative allocation would be distributed within the cooperative by the decisions of the cooperative. Unless otherwise agreed, decisions would be made by majority vote of the members, with one vote per vessel.

Harvest delivery options

The Plurality Assignment Cooperative proposal defines two options for determining how much crab must be delivered to a cooperative's processor by its members. Those options are contained in Section 6.2 paragraph 2B of the Council motion:

- B. The processor with which the coop is formed gets
 - i. first right of refusal for all crab harvested by coop members, with coop free to deliver crab to another eligible processor if no agreement is reached; or
 - ii. a guaranteed amount of coop crab to be delivered, with the amount ranging from 10% to 100%, the remainder of which can be delivered by the coop to either—
 - I. any eligible processor, or
 - II. any processor, eligible or not (i.e., new entrant allowed).
- E. Cooperatives may arrange to swap, purchase, or trade deliveries of crab by mutual agreement of the cooperatives concerned.

The first option would give the processor the first right of refusal on all crab harvested by vessels associated with the cooperative delivering to them. This option would allow catcher vessels to deliver to another processor if the cooperative and its processor could not agree to the terms of the delivery. The second option would require a cooperative to deliver a minimum specified percentage of their allocation to their associated processor. Currently, the Council is considering a range of 10 percent to 100 percent as the minimum amount that must be delivered. The cooperative would be allowed to deliver more than the specified minimum to their processor. The intended impact of this alternative is to spur competition among processors wishing to take crab deliveries from cooperative members. Processors would be forced to compete with each other to ensure that they would receive deliveries of crab harvested from their associated cooperative. If the processor associated with a cooperative was not competitive with other processors, cooperative members would be free to deliver their catch to the highest bidder. The market power between the cooperative and processor will depend in part on the percentage of required deliveries to the processor. The higher the percentage the greater power of the processor. The lower percentage the greater the bargaining power of the harvesters. The issue of market power between these sectors is discussed in detail in Section 3.16.

Two options exist for allowing processors to take deliveries from vessels operating under the proposed Plurality Assignment Cooperative Program. The options would allow either any eligible processor or, alternatively, any processor (regardless of eligibility) to buy crab from catcher vessels. Allowing new entry (by not requiring eligibility) would help to ensure that catcher vessels have a diverse suite of processors to select from when negotiating prices, which may help ensure competitive pricing. However, allowing new processors to enter the fishery may also increase the likelihood that processors initially associated with a cooperative would lose market share over time. This could hinder processors ability to make long range

plans, especially if several processors supplying niche markets or new product forms that could profitably produced under a rationalized structure entered the fishery. As noted, the problem of bargaining strength is taken up in a separate section.

Paragraph E would permit cooperatives to swap, purchase, or trade crab by mutual agreement of the cooperatives. Inclusion of this program is intended to allow free trading among cooperatives to obtain an efficient distribution of interests across cooperatives. The provision does not state whether the associated processor would be required to consent to any transfer. The decision of whether to include the processor in this transaction would impact the effect of this provision on the market power between the two sectors.

Custom processing

The Plurality Assignment fishery cooperative alternative includes the following two options which allow for custom processing of crab:

6.2
2. Operation of the Cooperative
C. If the processor buys the coop crab, it may process the crab itself or may arrange to have it processed by any other crab processor (i.e., the processor acts as broker for coop crab it does not wish to process).
D. In the alternative, the processor may elect to have the coop act as its own broker for crab the processor does not wish to buy, with the coop free to either sell the crab to another processor or allow individual vessels to make arrangements on their own.

Under the first provision, a crab processor could act as the broker of the crab assigned to it for processing. This outcome could result if the processor believed it would be more efficient to have another entity process its crab rather than processing that crab itself. Allowing custom processing of crab, would reduce the need for hardship claims by processors. If they are unable to process the crab themselves due to mechanical failure, or some other unexpected circumstance, the crab could be delivered to another company for processing. They would also have the latitude to have the crab delivered to another of their processing plants if they chose to do so.

Cooperatives would be free to act as their own broker if their processor did not wish to purchase the raw product. This would allow the cooperative to market the crab to whomever they would like. However, since processors are allowed to custom process crab under this alternative, it is likely that even if a processor did not wish to process the crab, they would try to arrange a custom processing deal to generate some revenue from the transaction. The extent to which these arrangements would occur after implementation are unknown.

Movement of vessels between cooperatives

The Section 6.2 paragraph 3 of the Council motion contains the following three options concerning the movement of vessels between cooperatives

3. Movement of Vessels Between Coops

A. Three alternatives would be analyzed.

- i. Vessels are free to transfer between coops once each year, with agreement of the coop to which they are moving. Vessel catch history goes to new coop.
- ii. Vessels may move to a new coop after spending one year in the open access fishery. Coop must agree to entry of new vessel. Vessel catch history is not protected in open access, but is restored upon entering new coop.
- iii. Vessels may only leave coop with agreement of the processor. Catch history only goes with vessel if processor agrees.

B. Vessels that did not join a coop in the first year coops are formed may join the coop of the processor to which they delivered the highest pounds of crab in the previous year after spending one year in the open access fishery.

The first option would allow a vessel to move between cooperatives with the consent of the cooperative to which it is moving. This provision would remove the processor associated with the cooperative from that decision, leaving the processor with little control over whether the allocation is delivered to it for processing.

The second option would create an open access fishery, which would allow each vessel participating in that fishery to compete for harvests. The allocation to the open access fishery is assumed to be composed of the allocations of all vessels that are not cooperative members. This would include not only vessels that chose not to join a cooperative (and at least during the first year of the program the three vessels that would not be eligible to join a cooperative because they were the only vessel to deliver a plurality of their catch to a processor). At the end of the year in the open access fishery, a vessel could join a cooperative associated with the processor to which it delivered a plurality of its catch in from the open access fishery. That vessel's allocation (based on its historical participation not the year in the open access fishery) would be made to the cooperative which the vessel joins. The use of the open access management of this fishery could be seen as contrary to ending the race to fish, one of the Council's stated purposes for rationalizing these fisheries. In addition, managers could have additional costs required to manage a portion of the fishery under open access.

The third option would permit vessels to leave a cooperative only with the consent of the associated processor. This option would provide the associated processor with significant control over membership to its cooperative.

The last provision would allow vessels to spend one year in the open access fishery at the outset of the program. After this year in the open access fishery, the vessel would be permitted to join the cooperative associated with the processor to which it delivered a plurality of its catch during the open access fishery. This

last provision provides all vessels with the ability to choose their cooperative regardless of any of the other provisions. Doing so would require the vessel to spend the first year of the program in the open access fishery. Depending on the other options selected the vessel would then either be closely tied to the cooperative or not tied at all to the cooperative.

Other provisions related to the Plurality Assignment Cooperative

Other provisions in the Plurality Assignment Cooperative alternative, including provisions related to skipper and crew shares and regionalization are discussed in sections related to those subjects, because those provisions apply under any rationalization program.

3.6 Regionalization and community protections

The Council motion contains various elements and options that would add a regional component to the rationalization program. Regionalization would be intended to protect communities from changes in the location of processing activities that could occur in a rationalized fishery. The regionalization component could be incorporated into a harvester only IFQ program, a two-pie IFQ program, or a cooperative program. Regionalization would require that specific shares of each fishery be processed in identified geographic regions. In addition, the Council motion also contains provisions intended to provide direct protection to communities. These provisions are intended to mitigate any negative impacts of the change in management on communities.

National Research Council report recommendations.

The NRC report “Sharing the Fish” cites harm to isolated communities as a possible rationale for the development of processor shares. If negative community impacts of an IFQ program are of concern, requiring regional delivery and processing of harvests is consistent with the spirit of that recommendation.

3.6.1 The regionalization program

The following provisions of the Council motion identify the geographic regions of the proposed regionalization program:

3.1 Two regions are proposed:

- (a) Northern Region - All areas on the Bering Sea north of 56° 20' N. Latitude. (This region includes the Pribilof islands and all other Bering Sea Islands lying to the north. The region also includes all communities on Bristol Bay including Port Heiden but excludes Port Moller and all communities lying westward of Port Moller.)
- (b) Southern Region - All areas on the Bering Sea south of 56° 20' N. Latitude and all areas on the Gulf of Alaska (This region includes all parts of the Alaska Peninsula westward of and including Port Moller. All of the Aleutian Islands are included in the South Region as are all ports and communities on the Gulf of Alaska.)

Suboption: Regional categories for deliveries of Aleutian Islands brown king and Adak red king crab split into a "Western" (west of 174 degrees West longitude) and "Eastern" (east of 174 degrees West) area with an option that up to 50% of W AI brown king crab must be processed in the W AI region.

The proposed regionalization alternative would divide the fishery into two areas: one including all areas on the Bering Sea north of 56° 20' N. latitude, the other including all areas on the Bering Sea south of 56° 20' N. latitude and all areas in the Aleutian Islands and on the Gulf of Alaska.

The suboption presents a second regional category proposed for WAI golden king crab and WAI (Adak) red king crab in the suboption. Under the suboption, the regionalization would be an east-west division, divided at 174° W. longitude. If adopted, the option would require 50 percent of the harvest from the WAI red or golden king crab fishery to be delivered to processors west of 174° W. longitude. This option could be administered by apportioning each eligible harvester and processor initial allocations equally between the east and west areas. If administered in this manner, half of each harvester's initial allocation would be required

to be delivered to the east, and half would required to be delivered to the west. In addition, half of each processor's initial crab allocation would be required to be delivered and processed in the east, with the other half required to be delivered and processed in the west. This option, however, does not state whether it would apply to processing shares allocated to catcher/processers. Applying regional designations to processing by catcher/processers would be difficult to monitor and may require additional observer coverage levels. For example, processing catch is not an instantaneous activity. It is conceivable that a catcher/processor, operating near the proposed boundary, could move across the line in the normal course of fishing, and still be processing catch taken on the opposite side of the demarcation line. It would be exceedingly difficult to assure that all catch from each side of the line was actually processed there. Furthermore, such a requirement would likely impose an operational and economic burden that would yield very little obvious benefit.

To accomplish the goals of the regionalization program, harvesting and processing shares would be categorized by region. The Council motion contains the following provisions for the categorization of shares:

- 1.3.4 Regional Categories - QS/IFQs for the CV sector may be assigned to regional categories if Regionalization is included in the program. Two regions would be defined as follows (see Regionalization Elements for a more detailed description of the regions):
 - i. North Region - All areas on the Bering Sea north of 56° 20' N. Latitude.
 - ii. South Region - All areas on the Bering Sea south of 56° 20' N. Latitude and all areas on the Gulf of Alaska

- 2.2.2 Regional categories - processing quota shares will be categorized into two regions if regionalization is adopted (see Regionalization Elements for description of regions):
 - (a) Northern Region - All areas on the Bering Sea north of 56° 20' N. Latitude
 - (b) Southern Region - All areas on the Bering Sea south of 56° 20' N. Latitude and all areas on the Gulf of Alaska

The regionalization program is intended to protect existing traditional regional processing activity. In a quota program, this would be accomplished by categorizing QS and PQS by region. IFQs and IPQs would carry the same regional designation as the underlying QS and PQS. Harvests made with a catcher vessel IFQ would be required to be delivered to a processor in its designated region. Similarly, crab processed under an IPQ would be required to be processed in its designated region. The following options in the Council motion would define the permitted use of IFQs and IPQs that are regionally categorized:

- 3.3 Delivery and processing restrictions - the following provisions apply to the delivery and processing of crab with IFQs or IPQs that are categorized by region:
 - a. Crab harvested with catcher vessel IFQs categorized for a region must be delivered for processing within the designated region
 - b. Crab purchased with IPQs categorized for a region must be processed within the designated region.

The Council motion contains the following options for determining which shares to categorize by region:

- 3.2.2 Options for the harvesting sector:
 - Option 1. all CV quota shares are categorized by region
 - Option 2. only Class A CV quota shares are categorized by region
- 3.2.3 Options for the processor sector:
 - Option 1. Processing quota shares and IPQs are categorized by region
 - Option 2. Regional restrictions apply to deliveries made on an open delivery basis

The first two options pertain to harvesting shares. Under the first option (3.2.2 option 1) all catcher vessel harvesting shares would be categorized by region. Under the second option (3.2.2 option 2), only the catcher vessel Class A quota shares would be categorized by region. Class A shares are those which can only be delivered to an inshore processor with unused IPQs.

The two 3.2.3 options pertain to processing shares. Under the first of these options (3.2.3 option 1), all PQS and IPQs would be regionally categorized. Any open delivery (class B) harvesting shares would not need to be regionally categorized under this option (corresponding with 3.2.2 option 2). Under the second option (3.2.3 option 2), all deliveries made on an open delivery basis would be subject to regional delivery requirements. If both options 1 and 2 are selected for processors, the restrictions would correspond with 3.2.2 option 1, which categorizes all harvester shares by region. Under this option, all deliveries would be subject to regional categorization. Whether the Council applies the regional designation to class A QS only, or to both class A and class B QS, could effect the relative market power of harvesters and processors. The implications of this choice are discussed in Section 3.16.

The Council motion also includes the following provisions that would preserve the regional categorization of harvesting and processing shares notwithstanding transfer:

- 3.2.4 Once assigned to a region, processing and/or harvesting quota shares cannot be reassigned to a different region.
- 2.6 Transferability of processing shares
 - a. Processing quota shares and IPQs categorized for one region cannot be transferred to a processor for use in a different region.

These provisions would ensure that the transfers do not erode the protection created by the regional categorization by providing that share transfers would not affect the regional delivery and processing requirements related to those shares.

The Council motion includes the following options for determining the regional categorization of QS and PQS based on historical landings in the crab fisheries:

3.2.1 Categorization will be based on all historical landings. Periods used to determine regional percentages are as follows (two options):

Option 1. 1995 - 1999

Option 2. 1997 - 1999

Option 3.

There shall be no regional designation when the percentage associated with the region is 0 - 8%.

There shall be no regional designation of the Bairdi fishery shares.

There shall be no regional designation of the Bristol Bay red king crab fishery shares.

Pribilof red king crab Class A shares shall all be designated for the Northern Region.

Pribilof blue king crab Class A shares shall all be designated for the Northern Region.

Although not explicitly stated, the options for establishing regionalization are assumed to be applied on a fishery-by-fishery basis. Under this assumption, the percentage of QS and PQS in the different regions in each fishery would be based on deliveries and processing activity from that fishery alone.

Option 3 in Section 3.2.1 is intended to limit the number of fisheries with small allocations to a region. These small allocations could complicate coordination of deliveries and processing activity, reducing efficiency and driving up costs to both harvesters and processors. A more complete discussion of those problems appears later in this section. The first provision of Option 3 would provide that no regional designation shall be made in fisheries in which the allocation to a region is less than a threshold percentage (between 0 and 8 percent). The second and third provisions would remove the Bering Sea *C. bairdi* and the Bristol Bay red king crab fisheries from the regionalization program. The fourth and fifth provisions would allocate all Class A shares in the two Pribilof king crab fisheries to the Northern region. These provisions could be used to balance interests in the different regions in the event that certain fisheries were removed from the regionalization program. By allocating these two fisheries to the North, processors that have participated in these fisheries that do not have facilities in the North would be forced to either transfer their shares or open a facility in the North to ensure that the shares would be used. This could substantially diminish the value of processing shares to processors without facilities in the North.

The current options for determining harvesting, processing, and regional shares in the fisheries in some instances rely on different qualification years. The use of different years for determining the distribution of shares could present an impediment to the coordination of fishing and processing activities in the fisheries. A few different aspects of the problem are discussed.

If options rely on different years for determining the processing and regional allocations, it will not be possible to make regional allocations to each processor, based on the processor's history. Table 3.6-1 shows the regional allocations that would occur under years proposed under Options 1 and 2 from the regionalization program and under Options 1 and 2 of Section 2.3 of the Council motion concerning processor allocations.¹

¹ Option 1 of Section 2.3 of the council motion provides for the allocation of processor shares based on the following years:

(a) 1997 - 1999 for Bristol Bay red king crab

(b) 1996 - 1998 for Pribilof red king crab

(c) 1996 - 1998 for Pribilof blue crab

(d) 1996 - 1998 for St. Mathew blue crab

(e) 1997 - 1999 for opilio crab

(f) Bairdi crab based on 50/50 combination of processing history for BBRKC and opilio

(g) 1996/97, 1997/98 and 1998/99 seasons for brown king crab

Regional distributions are categorized as north, south, catcher/processor, and unknown.² Catcher/processor distributions include all processing by catcher/processors, including both a catcher/processor's processing of its own harvests and a catcher/processor's processing of harvests delivered to it by other vessels. Because of the high mobility of catcher/processors, regional allocation of any processing activity by these vessels would be very difficult. In addition, since catcher/processors' activity is offshore and not necessarily tied to a port or community, it is difficult to characterize their activity as occurring in a region, or that a region is economically dependent on this activity, the principal objective underlying the Council's expression of interest in regionalization from the outset.

The only way a catcher/processor's processing activity could be assigned to a region would be by assuming the processing took place in the same statistical area the harvests occurred during that week. That method of assigning a regional category to catcher/processor activity would likely be fairly accurate, however, it does not necessarily have any relationship to the region that actually obtained economic benefits from that activity.

² Shares are designated unknown for which no processing location was available. This processing activity was based exclusively on floating processors.

Table 3.6-1 Regional distribution of shares under the qualifying years from options 1 and 2 for the regionalization and under the qualifying years from options 1 and 2 for processor allocations

Fishery	Region	Distribution of Shares				Number of Processors receiving landings			
		Under Regional Option 1 1995-1999 (based on all landings)	Under Regional Option 2 1997-1999 (based on all landings)	Under Processor Option 1 (based on qualified landings)**	Under Processor Option 2 (based on qualified landings)***	Regional Option 1 (1995-1999)	Regional Option 2 (1997-1999)	Under Processor Option 1****	Under Processor Option 2****
Western Aleutian Islands (Adak) golden king crab	Catcher/processor	0.409*	*	0.515*	.405*	3	2	3	3
	South	0.591	1.000*	0.485	0.595	8	5	7	9
	Unknown	*	*	*	*	1	1	1	1
Bristol Bay red king crab	Catcher/processor	0.075	0.081	0.081	0.071	11	10	10	10
	North	0.056*	0.059*	0.059*	0.054*	2	2	2	2
	South	0.869	0.860	0.860	0.875	17	16	16	18
	Unknown	*	*	*	*	5	4	4	5
Bering Sea C. opilio	Catcher/processor	0.085	0.072	0.069	0.077	18	13	11	11
	North	0.422	0.427	0.430	0.432	8	7	7	8
	South	0.419	0.432	0.436	0.429	23	19	18	21
	Unknown	0.073	0.070	0.065	0.062	9	5	4	4
Bering Sea C. bairdi	Catcher/processor	0.068		0.075		11		11	
	North	0.035*	Fishery closed in all years proposed for this option	0.227	NA	2	Fishery closed in all years proposed for this option	7	NA
	South	0.898		0.648		16		22	
	Unknown	*		0.050		2		7	
Eastern Aleutian Islands (Dutch Harbor) golden king crab	Catcher/processor	0.058	*	*	*	4	3	2	3
	South	0.942	1.000*	1.000*	1.000*	8	8	6	9
Pribilof blue king crab	Catcher/processor	*	0.000	0.000		1	0	0	
	North	0.586	0.710	0.630	NA	4	4	4	NA
	South	0.385	0.290*	0.370*		11	10	11	
	Unknown	0.029*	*	*		4	2	2	
Pribilof red king crab	North	0.586	0.645	0.627		4	4	4	
	South	0.339	0.355*	0.373*	NA	11	9	10	NA
	Unknown	0.075	*	*		4	3	3	
St. Matthew blue king crab	Catcher/processor	0.094*	*	0.069*		5	2	3	
	North	0.678	0.707	0.717	NA	4	4	4	NA
	South	0.228	0.294*	0.214		9	7	9	
	Unknown	*	*	*		2	1	1	
Western Aleutian Islands (Adak) red king crab	Catcher/processor	*				2			
	South	1.000	NA	NA	NA	10	NA	NA	NA
	Unknown	*				1			

* Concealed for confidentiality. Asterisk entries are combined in a single cell in the fishery.

** (a) 1997-1999 - Bristol Bay red king crab (b) 1996-1998 - Pribilof red king crab (c) 1996-1998 - Pribilof blue crab (d) 1996-1998 - St. Matthew blue crab (e) 1997-1999 - opilio (f) bairdi - 50/50 combination of BBRKC and opilio (g) 1996/97, 1997/98 and 1998/99 - golden king crab, 1992/93 - 1995/6 - WAI red king crab

*** The best 4 seasons 1996-2000 in the Bristol Bay red king crab, BS C. opilio, AI golden king crab

**** Includes only eligible processors.

In the event the Council elects to create a separate catcher/processor share that includes both a harvest privilege and corresponding processing privilege, the catcher/processor regional allocation can be ignored. The magnitudes of the North, South, and Unknown allocations, relative to each other, would remain unchanged. The catcher/processor allocation, however, would change. Catcher/processor allocations are discussed in Section 3.4.2.

The table also shows the number of processors, active during the qualifying years, included under each allocation option. For the qualifying year regionalization options, all processors are included, since the distribution under these options would be based on all landings. For the qualifying year options for processor allocations, only eligible processors are included, since the allocation to processors is based only on the activity of qualified processors.

In the Pribilof red and blue king crab fisheries, between 50 and approximately 70 percent of the allocation would be to the North, depending on the qualifying years used. Under Section 3.2.1, Option 3 these fisheries would be entirely allocated to the North region. Also, approximately 10 processors operated in the South during the qualifying period, while fewer than 5 operated in the North. Given this difference, it is likely that processors without facilities in the North would be allocated North shares, if the provisions related to these fisheries in Option 3 are adopted. This would require those processors to develop or buy facilities in the North, or sell their shares, to make use of them. In addition, substantial processing activity would be relocated from the South to the North under this provision.

Substantial differences in the regional distributions under the years included in the regional options and in the allocation under the processor option occur in the WAI (Adak) golden king crab and in the Bering Sea *C. bairdi* fisheries. In the *C. bairdi* fishery, the North-South regional allocation differs by over 30 percent of the total allocation. The difference in this fishery arises because the processor allocation would be based on activity in the Bering Sea *C. opilio* and Bristol Bay red king crab fisheries, and because the *C. bairdi* fishery has been closed in recent years. Smaller differences occur in the other fisheries. Although not large, the differences must be resolved to make an allocation, since each share must have a regional designation. The differences occur because the allocations are based on different years.

The difference could be reconciled in two ways:

- 1) By applying the regional distribution to each initial allocation of harvesting and processing shares, or
- 2) By using the same years for determining the processing shares and the regional distribution.

Under first method, each PQS holder's initial allocation would be divided between the different regions, based on the same percentages allocated to each region overall. For example, if the north regional share was 40 percent and the south regional share was 60 percent during the years used to determine the regional distribution, 40 percent of each "person's" initial allocation would be northern shares and 60 percent of each person's initial allocation would be southern shares. While this method of allocation would allow the Council to allocate processing shares based on one set of years and a regional distribution of shares based on another set of years, it could be logistically difficult for processors. Processors with facilities in only one region would be issued shares in a region in which they have no history of processing activity and no facilities. All processors would need to acquire access to processing plants in both regions, or would be force to trade or sell a portion of their PQS, to make use of it. The distribution could also cause problems for harvesters required to deliver their catch to a processor in a specific region with unused IPQs. Although liberal transfer rights would allow the distribution to be worked out over time, structural and institutional considerations could impose substantial barriers to efficient redistribution during this transition period. This pattern could persist and would have distributional consequences. Also, any reorganization would have transaction costs

(e.g., costs of establishing and maintaining a ‘market’ mechanism to bring willing buyers and sellers together and to communicate prices, possible associated brokerage fees). Lastly, if few processors participate in a region, processing shares could become very concentrated in that region, affecting the distribution of market power between harvesters and processors. The issue of the impact of regionalization on the distribution of market power between the sectors is addressed in Section 3.16. If the Council believes that a possible market power problem needs to be addressed, caps on processor ownership of PQS and use of IPQs could be applied in each region, limiting consolidation of shares within a region.

The second method of reconciling differences in the processing allocation and regional distribution of shares is to simply use the same years for determining both. This method would result in a regional allocation to each processor that is based solely on the historical regional distribution of that processor’s activity. Although this would resolve the problem of a processor receiving an allocation in a region in which it has no history, changing the years on which the regional or processing allocation is based would have distributional consequences. Section 3.2.5 of the Council motion contains the following option that would use the processor qualifying years to determine regional allocations that would result in no mismatch:

- | |
|--|
| <p>3.2.5 Options for addressing potential mismatch of harvesting and processing shares within the region.</p> <ol style="list-style-type: none">1. The base years for determining processing shares and the base period for determining the share assigned to each region shall be the same. |
|--|

A regional mismatch also could occur between harvesters and processors. The following example (see Table 3.6-2) is useful to show the consequences of the use of different years for determining the regional distribution of harvest allocations and processing allocations. To avoid complicating the discussion more than necessary, the regional allocation of processing shares is assumed to be resolved. Two vessels are assumed to have participated in the fishery in three years. Vessel A delivered harvests to facilities in both regions, while vessel B delivered its harvests only in the south. If the distribution of harvest shares are determined using all three years’ harvests and the regional distribution of processing shares is based only on years 2 and 3, a mismatch of the regional distribution of the harvest allocation and the processing allocations will arise. The north/south distribution of harvest shares would be 36 percent north and 64 percent south. The north/south distribution of processing shares (determined using only years 2 and 3) is 53 percent north and 47 percent south. This mismatch would make some of the harvest and processing shares unusable. Harvesters could deliver only 36 percent of the TAC to the north, even though processors would have shares entitling them to accept up to 53 percent of the TAC in the north. In the south, harvesters could deliver 64 percent of the TAC, but processors could only accept only 47 percent of TAC. In the example, 17 percent of the TAC would be undeliverable because of this mismatch.

The same methods described above could be used to reconcile the difference in the regional division of harvest shares and processing shares:

- 1) use the same years for determining the harvest shares, processing shares, and the regional distribution
- 2) apply the regional distribution to each initial allocation of harvesting and processing shares.

Table 3.6-2 Example of regional allocations of harvesting and processing shares

	Year 1		Year 2		Year 3		Total QS	
	North	South	North	South	North	South	North	South
Vessel A	0	50,000	50,000	50,000	50,000	0	100,000 (50 %)	100,000 (50%)
Vessel B	0	38,000	0	12,000	0	25,000	0 (0%)	75,000 (100%)
Total Regional Distribution (all vessels)							100,000 (36%)	175,000 (64%)
Year 2 and 3 Regional Distribution (all vessels)			50,000	62,000	50,000	25,000	100,000 (53%)	87,000 (47%)

Either of these options would result in the same regional distribution of harvest and processing shares. The first method is consistent with allowing harvesters and processors to continue with historic delivery and processing patterns, since the distribution would be based on past deliveries. The second method, however, might be preferred, if the Council determines that using different years for determining the harvest allocation and the regional distribution of harvesting shares is desirable. This distribution also creates logistical difficulties for harvesters. All harvesters would receive split allocations requiring some deliveries to the north and some deliveries to the south. Those QS holders with relatively small initial allocations (and persons in single trip fisheries) may be required to make deliveries of a part of a load to the north and a part of a load to the south. As in the case of processors, liberal transfer rights would theoretically allow harvesters to rectify these difficulties, however, they could persist for the same reasons noted above for processors, imposing potentially substantial transaction costs, and resulting in distributional consequences.

A method of reconciling this mismatch is proposed in section 3.2.5 of the Council motion:

Assuming that the processor-regional allocation mismatch is resolved by using the processor qualifying years for determining the regional allocation of processing activity, harvest shares would be preliminarily allocated using the qualifying years selected for harvesters. Any mismatch would then be rectified by adjusting the regional distribution of those harvesters that receive an allocation in both regions. Each of these harvesters would have a pro rated portion of their shares reallocated from the region with a surplus of harvest shares to the region with a shortfall of harvest shares. For example, consider a case in which the regional distribution of processing shares is 45 percent north and 55 percent south, but the regional distribution of harvest shares is 47 percent north and 53 percent south. Any harvesters that would receive an allocation in both regions

- 3.2.5 Options for addressing potential mismatch of harvesting and processing shares within the region.
2. If the cumulative harvester quota associated with each region differs from the total regional share, by species, the harvester share, by species, shall be adjusted, up or down, in the following manner:
 - a. The adjustment shall apply only to harvesters with share in both regions.
 - b. The adjustment shall be made on a pro rata basis to each harvester, so that the total share among those harvesters, by region, equals the total share assigned to each region.
 3. The adjustment shall only be on shares that carry a regional designation; Class B quota would be excluded from the adjustment.

would have a portion of their shares shifted from the north region to the south region. The amount of shares affected would vary depending on the holdings of the person. The redistribution would be made on a pro rata basis, with all shareholders having an equal proportion of their south shares changed to north shares. For example, a share holder with 100 north shares might have 20 changed to south shares, while a shareholder with 50 north shares might have 10 shifted to south shares. The suggested option has the advantages of not requiring anyone to deliver to a region where he or she has no delivery history and not adding to the number of persons holding QS in both regions.

This method of rectifying the distribution is likely to be effective in all fisheries except the Bering Sea *C. bairdi* fishery. Option 1 for determining processing allocations in that fishery would base the allocation on the processing in the Bristol Bay red king crab fishery and the Bering Sea *C. opilio* fishery. As shown by the allocations using the regional qualifying years, in the Bering Sea *C. bairdi* fishery, few deliveries have been made in the North. In the Bering Sea *C. opilio* fishery, however, substantial deliveries have been made in the North. Consequently, the regional allocation that relies on the *C. opilio* fishery would allocate a substantial part of the *C. bairdi* fishery to the North. Since few vessels have any history of deliveries to the North in this fishery, the number of vessels that could have their allocations shifted from the South to the North under this option is very small. Consequently, the proposed method for rectifying the mismatch would be inadequate if the regional allocation is based on Option 1 for making allocations to processors.

Table 3.6-3 below shows the number of vessels with landings in the North, South, and both regions, in each year, in each fishery. The table is useful to show the delivery patterns in the different fisheries and to gain some insight into the number of vessels that might be affected by regionalization and the provision intended to correct the mismatch between north and south shares in the harvesting and processing sectors. For example, in the Bristol Bay red king crab fishery no vessels ever made deliveries to both the North and the South in a single season. Some vessel, however, would be allocated both North and South shares, requiring those vessels to change delivery patterns, or to engage in trading to consolidate their shares in a single region. When reviewing these data, it is important to keep in mind that liberal transfer rules will enable persons to consolidate share holdings to a single area. Consolidation will have transaction cost (such as broker fees) and may take some time to establish a sustainable equilibrium.

The regional distribution of harvest and processing shares could also be problematic in some fisheries in which the distribution of processing shares to one region is relatively small. In the Bristol Bay red king crab and the Bering Sea *C. bairdi* fisheries, approximately 5 percent or less of the total allocation would be to the North region. Two problems arise from this small regional allocation. First, the allocation may not be large enough to support deliveries and processing in the region.³ If the allocation cannot be economically delivered and processed in the region, it is possible that both the harvesting and processing allocations would go unused. In any case, it is likely that the small allocation would severely limit the ability of holders of North

³To determine whether the allocation is large enough to support deliveries and processing in the region would require detailed cost and revenue information concerning both the harvesting and processing sectors and accurate estimates of the annual harvests, none of which are available.

Table 3.6-3 Number of qualified vessels making deliveries in each region for which delivery regions are known

Fishery	Season	Number of vessels delivering to			Total Number of Vessels	Average Deliveries per Vessel
		Both North and South	North Only	South Only		
Western Aleutian Islands (Adak) Golden King Crab	1990-1991			4	4	3.5
	1991-1992			4	4	3.5
	1992-1993			6	6	2.7
	1993-1994			15	15	2.9
	1994-1995			15	15	5.3
	1995-1996			10	10	3.7
	1996-1997			8	8	4.1
	1997-1998			5	5	5.8
	1999-2000			9	9	6.6
2000-2001			8	8	4.8	
Western Aleutian Islands (Adak) Red King Crab	1991-1992			5	5	1.2
	1992-1993			9	9	2.0
	1993-1994	1	1	8	10	1.2
	1994-1995			13	13	1.1
	1995-1996			3	3	1.3
Bristol Bay Red King Crab	1991		3	166	169	1.0
	1992		12	166	178	1.0
	1993		6	175	181	1.1
	1996			163	163	1.0
	1997		8	198	206	1.0
	1998		9	205	214	1.0
	1999		6	203	209	1.0
	2000			204	204	1.0
Bering Sea C. Opilio	1991	74	6	85	165	7.9
	1992	57	9	116	182	7.1
	1993	54	14	106	174	5.1
	1994	80	74	41	195	4.1
	1995	72	64	61	197	3.1
	1996	58	81	58	197	2.8
	1997	108	28	55	191	4.5
	1998	102	39	52	193	7.1
	1999	104	47	49	200	6.4
	2000	6	42	133	181	1.2
Bering Sea C. Bairdi	1990-1991	5	2	150	157	3.8
	1991-1992	23	7	176	206	6.2
	1992-1993	61	8	153	222	5.6
	1993-1994	8	6	213	227	2.3
	1994	13	6	145	164	1.8
	1995	3	7	165	175	1.2
	1996			173	173	1.8
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	1990-1991			2	2	6.5
	1991-1992			6	6	7.0
	1992-1993			6	6	6.0
	1993-1994			8	8	5.8
	1994-1995			13	13	6.5
	1995-1996			9	9	7.7
	1996-1997			9	9	4.9
	1997-1998			8	8	4.9
	1998-1999			9	9	3.9
	1999-2000			10	10	3.7
	2000-2001			10	10	3.3
Pribilof Blue King Crab	1995	3	38	34	75	1.1
	1996	6	18	21	45	1.4
	1997	10	16	7	33	2.0
	1998	8	15	17	40	1.4
Pribilof Red King Crab	1993	1	18	61	80	1.1
	1994	4	34	53	91	1.1
	1995	2	38	34	74	1.1
	1996	6	18	21	45	1.3
	1997	10	16	8	34	2.0
	1998	6	11	20	37	1.3
St. Matthew Blue King Crab	1991		8	4	12	1.0
	1992		38	18	56	1.0
	1993	9	40	13	62	1.4
	1994	9	50	16	75	1.5
	1995	5	44	23	72	1.2
	1996	12	61	18	91	1.5
	1997	16	51	23	90	1.4
	1998	21	62	15	98	1.8

shares in both sectors to realize economies of scale in their activities. A second consequence of the small North allocations in these fisheries is that competition between the sectors is likely to be very limited. Few participants (likely only one on the processing side) would create a very limited market. Harvesters may be able to use any holdings of class B shares and shares in other fisheries as leverage to improve their bargaining position. The limited market, however, likely will limit the bargaining power of holders of the few North harvesting shares in these fisheries.

A potential way to address the problem is to require a minimum amount of shares for a regional allocation in a fishery as proposed in Section 3.2.1, Option 3 of the Council motion. Using such an approach, a regional allocation would be made only if the region would receive in excess of a specified minimum quantity of the total allocation in a fishery – options range from 0 to 8 percent. Alternatively, specific fisheries could be removed from the regional program. Option 3 also proposed that shares in the Bering Sea *C. bairdi* and the Bristol Bay red king crab fisheries have no regional designation, effectively removing those fisheries from the regionalization program.

3.6.2 Alternative regionalization/community protection option

In June 2002, the Council selected a preferred alternative for rationalizing the BSAI crab fisheries, which regionally designates Class A harvest shares and the corresponding processing shares. Under the current Council action, designated shares could not be transferred from one region to another. The primary reason for categorizing harvest and processor quota shares is to protect the communities traditionally dependent on the crab fishery from relocation of activities in a rationalized fishery. To further address community concerns in the rationalized crab fishery, the following additional community protection alternative was identified for analysis as a trailing amendment:

Alternative 1 would create community designations for processing quota. Under this alternative, transfers of processing activity from a community would require permission of the designated community. Whether transfers of processing from one region to another would be permitted under this provision is unclear. Alternative 2 would require a processor to compensate the community that is negatively impacted when processing activity moves from one region to another. Compensation for temporarily relocating processing activity would be made by annual payments. Compensation for permanent relocation would be by a one time lump sum payment. Subsequent relocations of processing activity would not require additional payments.

Implementation of either of these options could provide varying benefits for communities and create varying degrees of hardships for both harvesters and processors by limiting consolidation. In assessing the appropriateness of these options, the expected benefits to communities arising from the options would need to be balanced against the potential hardships. The benefits to communities depend on the effectiveness of the provisions in protecting the historic dependence of communities on crab fisheries. The two options would provide this protection either by providing communities with the ability to prevent processing activity from relocating to another community or by providing the community with a compensatory payment when activity relocates.

One of the primary benefits to processors of rationalization could arise from the consolidation of processing activities. Processors that own several plants might remove plants from operation by consolidating activities into a single plant. Harvesters could also benefit, if consolidation limits requirements for landing small quantities of crab in several different locations. Substantial consolidation has already occurred in these fisheries, as shown by the historic patterns of participation in processing. The community protection options could either disburse processing activity, which would require processors to administratively consolidate activities under the rules of the rationalization program, or limit the ability of processors to further consolidate

activities. Although the cost and complexity of consolidation under these options cannot be determined, a few factors that could influence the process of consolidation can be discussed.

The cost and complexity of consolidation under the options would depend on several factors. The degree to which processing activity is disbursed under the initial allocation is a precursor to any analysis. The larger the difference in the community distribution of processing activity under the allocation and the desired geographic distribution of processing activity, the more complex and costly the consolidation of that activity. It is worth noting that the desired regional distribution in a rationalized fishery need not be the same as the current or historical regional distribution of processing activity and cannot be determined prior to rationalization. A second factor that will affect the cost of any consolidation is the willingness of communities to permit allocated processing activity to depart from their community. It cannot be predicted whether a community with a small processing allocation would permit a processor to move processing activity from the community or the amount of a payment that the community would require from a processor to move the allocation.

Alternative 1. Processing history may leave an eligible community of origin in which the history was established with permission of the eligible community. The processing QS may change communities with negotiated agreement between the processor and the originating (eligible) community; these agreements will be filed with the Secretary of commerce thirty days prior to the quota share leaving the eligible community.

"Eligible communities" shall be defined as any community in which aggregate (community) landings exceeded 0-8% of the species for which processor QS is awarded during the qualifying period.

"Community landings" for closed fisheries will be determined using a formula that mirrors "processor option one" as defined in the current analysis.

Alternative 2. Under this option, processor quota shares are subject to regional designations as set forth in Section 3.1, 3.2 and 3.3 of Draft Council Motion dated June 10, 2002. A processing quota share holder may switch processor quota from one region to another region (on an annual or permanent basis) by compensating the community that is impacted by that change. A processor must provide compensation only if it switches from one region to another region. A change in location of processing within a region does not require compensation to a community. Compensation for a permanent departure from a region is only required one time; a subsequent change to another region does not require further compensation by the processing share quota owner. A switch of the region of processing under this option would include the following elements:

1. This option does not displace the regional designation of Class A shares or the processing of quota delivered under Class A shares. It instead provides an option for the delivery and processing of quota from Class A shares using IPQ into a different region upon compensation (in a manner and form acceptable to the effected community) to switch to another region.
2. The community to be compensated would be determined by the community that received the raw fish tax associated with the IPQ being transferred. The options for determining the community include:
 - (a) The community to which the raw fish tax was paid in 1, 2, 3 or 4 years prior to the proposed transfer;
 - (b) The community to which the raw fish tax was paid in the period used to determine eligibility for the issuance of IPQ;
 - (c) The community to which a majority of the raw fish tax was paid in the period designated in a or b above.
3. The processor that pays the compensation to the community may designate the harvester that also is allowed to switch from the original region to another region. The harvester is free to accept or reject that designation.
4. The option applies only to IPQ and corresponding Class A shares. It does not apply to any processing of Class B shares nor to Class B shares themselves.
5. The entity entitled to negotiate on behalf of the community shall be designated by one of the following: The State of Alaska or the United States Department of Commerce.

A related issue is the ability of IPQ holders to move small amounts of shares near the end of a fishery. Under the AFA, cooperatives have been able to catch a very high percentage of their allocations, in part, because of the flexibility of moving small amounts of shares between vessels at the end of the season has allowed the cooperative to consolidate remaining allocations to economically harvest them on a single vessel. If crab processors are unable to engage in a similar consolidation of processing from different facilities or coordinate activities, there is a possibility for shares to go unprocessed (and crab to go unharvested). Given that processors will need to coordinate with several vessels to have an exact match of harvesting and processing shares, the difficulty in this case is more a matter of attaining a clean one-to-one match of processing and harvesting shares, rather than one of timing. For example, if a processor with 100,000 pounds of IPQs in a community would like to purchase crab from a harvester with 95,000 pounds of IFQs the requirement that the additional 5,000 pounds remain in the community could complicate the use of that 5,000 pounds of processing shares. The harvester delivering to that processor would likely need to find an additional 5,000 pounds of harvesting shares or the allocation could go unused because the delivery of such a small amount of crab to a facility is likely to be prohibitive. In this manner, the requirement of community consent or payments could complicate the use of these small amounts of shares that result from mismatches of harvest and processing share holdings.

In addition to the general concerns discussed above the following potential issues could arise under the alternatives:

Protection granted to community interests

Alternative 1 could be very effective in protecting the interests of the communities associated with processing activity. Under this option, a community would appear to have unconstrained authority for prohibiting processing activity from relocating to another community. A community could not prevent a processor from not processing an allocation related to a community, but could prohibit the processor's movement of operations. This unlimited authority raises the question of whether the community authority is excessive and could invite gamesmanship. A community with a small allocation of processing activity could take an unreasonable position in a negotiation, thus preventing the transfer of processing quota from the community.

In addition, positions that might be reasonable for one side may not be reasonable for the other. For example, a community with little economic activity may view the loss of a small amount of processing activity as substantial. A processor wishing to move this small amount processing activity would consider doing so for an efficiency gain of consolidating activity. Subsequently, the consequences of these negotiations extend to the harvesting sector. In a two-pie IFQ system, the specific harvester affected by these negotiations is uncertain and may change annually, limiting the ability of the participants in the harvesting sector to take a direct role in a process that could affect them.

Alternative 2 could prove ineffective in protecting community interests. Under this option, the community would be allowed to seek compensation from the processor wanting to relocate processing activity only between regions. The ineffectiveness arises because processing activity would be free to move within a region without permission or payment. This would permit significant geographic consolidation of activity within a region, providing no protection to the communities harmed by that consolidation. The level of protection provided by Alternative 2 depends on whether processors can achieve efficiencies through consolidation of processing within regions. If consolidation across regions is not necessary for processing efficiencies, this option would provide little protection to communities.

Identification of the community/entity protected

The assignment of rights to communities under the provisions is critical to the protection of interests. Alternative 1 protects the “community” in which processing history was generated. For this alternative to be effective, the community that is protected must be identified. Community identification could be particularly complicated in areas subject to multiple governing authorities. For example, a community may have its own government and also be a part of an incorporated borough. Would the consent of both governments be required for movement of the shares. If consent of both communities is required to move the shares, any issue related to communities requiring payments from processors is compounded. A potential issue could also arise for processing activity that is in the vicinity of a community but is not in the community itself. Administration of this alternative might be particularly complicated for some floating processors.

Alternative 2 overcomes some of the community identification issues arising under Alternative 1, but leaves others unresolved. The community protected would be determined using fish tax payments. Fish tax payments are a logical method for determining the protected community since they demonstrate community dependence on the processing activity as a source of revenues. Three different options are proposed for identifying communities to benefit from this option. Under option (a) the community that received raw fish taxes for a period of between 1 and 4 years prior to the proposed transfer would be the recipient of the payment. Attaching the protection to the community in which processing occurred immediately prior to the transfer invites strategic relocations of activity by processors to avoid making payments. For example, if processing is moved to a floating processor in an area where no community receives a fish tax prior to the transfer, quota could be moved outside a region without community compensation. Option (b) would resolve this difficulty by granting the protection to the community where tax payments were made during the qualification period. However, a separate inconsistency arises under this option since processing may be moved within a region without compensation. If the a processor first moves within a region then later decides to relocate activity across the regional boundary, the processor could be required to undergo negotiations with a community that it has had no contact with for several years.

Adequacy of protection of community interests

Alternative 2 provides for payments from processors to communities when processing activity is relocated. Although Alternative 1 does not provide for payments, the permission required for relocation of processing and discussions with proponents of the provision suggest that payment would be used to induce the community’s permission for relocating processing activity. Neither alternative provides guidance as to the size of any compensatory payment. The adequacy of substituting a financial payment for the economic activity of processing in the community should be considered. Discussions have suggested that the proposed payment might be approximated by the amount of taxes paid to the community as a result of the processing activity. A payment in the amount of the taxation received is likely to be only a small share of the actual benefit that the community receives from processing activity. Some communities realize substantial benefits from jobs and additional economic activity in the community. Consequently, a payment in the amount of the taxes could be inadequate.

Entity to act on behalf of a community

Another complication in applying a community protection alternative is that the entity authorized to act on behalf of the protected community must be identified. Alternative 1 provides no direction for identifying the entity authorized to act on behalf of the community. Alternative 2 provides that the State of Alaska or the U.S. Department of Commerce with authority to identify the appropriate entity. No guidance or direction is provided to these entities on the method or criteria for selection. Additional direction would provide

predictability and standards for this selection, which could be very political and controversial within communities and with industry participants.

Regional designation of shares after transfer

If one of the community protection alternatives is selected, the Council must determine whether the consent of a community for a processor to leave the community will also remove any regional designation (e.g., north, south, or west). Alternative 1 is ambiguous concerning whether the regional designation will be retained. Removing only the community tag from shares when consent is obtained from the community could be burdensome to processors. If a processor has facilities in both regions, it may wish to consolidate its activities. If regional tags are not removed, doing so could require both that the processor buy out the community designation from the community and trade shares with a processor in the region that it wishes to exit. The costs of these transactions could be substantial relative to the value of shares, particularly if only a few shares are owned. Alternative 2 addresses these issues by defining the circumstances when regional designations will be removed. Alternative 2 would retain the north/south regional designation for single season transfers, while permanent transfers would remove the regional designation. To retain the one-to-one relationship of harvest and processing shares, harvest shares would also need to have the regional tag removed. If the regional tag is removed, a new designation of harvest share would be created - a harvest share that is Class A without a regional tag. This raises two issues. First, the harvest shares from which the regional tag will be removed must be identified. The choice of which harvest shares to remove a regional tag from could be divisive. Since no direct link between community processor allocations and harvest allocations exist determining the harvest shares that would be reclassified would be necessary. Alternative 2 would address this issue by allowing the processor to select the harvest shares that would have the regional designation removed. The holder of those harvest shares would be free to accept or reject this offer. If the offer were rejected, the processor would be permitted to select different shares for redesignation, until the offer was accepted.

A second issue arises with the creation of a new class of shares (i.e, removal of regional designations from class A harvest shares). Since few of these shares are likely to exist, at least initially, it is likely that a very limited market of processors with corresponding undesignated processing shares would exist. For example, consider the case of a north community agreeing to release a processor from its obligation to process in its community. That processor moves its operations to the south and an equal amount of harvest shares are redesignated as “any region class A” shares. If those shares are used to make a delivery in the north to a processor holding north IPQs, a person holding north designated IFQs will be unable to deliver harvests to a processor holding north IPQs. To maintain the distribution of harvest and processing allocations after the removal of the regional tag from shares requires that the harvest allocation follow the processing allocation. Otherwise, the regional distribution of shares will result in some of the allocation being undeliverable.

Bargaining between communities and processors

Analysis of bargaining between communities and processors is difficult. The absence of guidance on the amount of the payment that is appropriate for movement of processing from a community creates an opportunity for either the community or the processor to engage in gamesmanship, taking unreasonable positions in any negotiation. In addition, positions that might be reasonable for one side may not be reasonable for the other. For example, a community with little economic activity may view the loss of a small amount of processing activity as substantial. A processor wishing to move this small amount processing activity would consider doing so for an efficiency gain of consolidating activity. The consequences of these negotiations extend to the harvesting sector. In a two-pie IFQ, the specific harvester affected by these negotiations is uncertain and could even change annually under Alternative 3, limiting the ability of the participants in this sector to take a direct role in a process that could affect them.

Implications for the harvest sector

Since no method of allocating harvest shares to communities is included in any of the options, it is assumed that harvest shares could be delivered to any processor in the designated region. Harvesters, however, could be greatly impacted by the distribution of processing activities created by the community protection options. Prediction of the distribution of activities is possible only based on historical landings.⁴ If the distribution of activities during the qualifying period determine the future distribution of activities, some consequences for the harvest sector can be discussed.

Table 3.6-4 below show the allocations to communities that would be made under the Alternative Regionalization/Community Protection Option. The allocations are estimated based on the two qualifying year options for the regionalization and the two qualifying year options for processors. Community allocations are aggregated in many cases to protect confidentiality. Aggregations were selected to make the data as revealing as possible. Three port designations require explanation. The designations “North” and “South” refer to processing activity that has been tracked to the North and South but could not be tracked to a specific community. The designation “Unknown” refers that processing activity that could not be tracked to a region or a community. All processing activity that could not be tracked to a community took place on floating processors. The tables show the potential community allocations and shed light on some of the distribution issues that arise from those allocations.

Several small community allocations would exist in some fisheries. For example, Anchorage, Adak, Wasilla, Ninilchik, Cordova, and Kodiak would receive allocations that combined total less than one-half of one percent of the Bering Sea *C. opilio* fishery under 3 of the 4 options evaluated. Two issues arise related to these allocations. First, if processor allocations do not correspond with regional community allocations several processors will receive allocations for very small shares in several communities in which they do not currently and never have processed fish. Second, whether or not vessel allocations have a community designation, the implementation could impose costs on a few vessels. If the small allocations are made to distant communities the cost of making those deliveries might be borne by a few vessels that were unfortunate enough to be unable to make delivery contracts with processors able to process harvests closer to the fishing grounds. Alternatively, a portion of the allocation may go unharvested and unprocessed, if processors or harvesters elect not to use their shares because of the cost of complying with the regional requirement. In any case, the processor could attempt to obtain community consent to move the allocation.

⁴ Alternative 2, allows movement within a region under all circumstances. Consequently, the initial distribution of shares might not be relevant, if processors move shares within a region. This permitted movement limits both the predictability of hardships to harvesters and processors and the predictability of benefits to communities. In addition, under Alternative 2, 2(a), community protections are provided to the community that receives fish taxes for a period of years before the relocation. Since movement is permitted within a region under this option, predicting not only the distribution of activities but also the communities that would benefit from the provision is not possible.

Table 3.6-4 Community allocations under the alternative regionalization/community protection option

Western Aleutian Islands (Adak) Golden king crab	Community Share				Number of Processors			
	Under Regional Option 1 1995-1999*	Under Regional Option 2 1997-1999*	Under Processor Option 1**	Under Processor Option 2**	Under Regional Option 1 1995-1999	Under Regional Option 2 1997-1999	Under Processor Option 1	Under Processor Option 2
Community or Communities								
Dutch Harbor, Akutan	0.567	0.480	0.485	0.408	7	4	7	7
Catcher/Processor, Unknown, Adak	0.433	0.520	0.515	0.592	5	4	4	6

Eastern Aleutian Islands (Dutch Harbor) Golden king crab	Community Share				Number of Processors			
	Under Regional Option 1 1995-1999*	Under Regional Option 2 1997-1999*	Under Processor Option 1**	Under Processor Option 2**	Under Regional Option 1 1995-1999	Under Regional Option 2 1997-1999	Under Processor Option 1	Under Processor Option 2
Community or Communities								
Dutch Harbor, Akutan	0.942	1.000	1.000	0.919	8	8	6	8
Catcher/Processor, South, Adak	0.066	***	***	0.093	4	3	2	4

Bering Sea C. Opilio	Community Share				Number of Processors			
	Under Regional Option 1 1995-1999*	Under Regional Option 2 1997-1999*	Under Processor Option 1**	Under Processor Option 2**	Under Regional Option 1 1995-1999	Under Regional Option 2 1997-1999	Under Processor Option 1	Under Processor Option 2
Community or Communities								
Kodiak, Anchorage, Wasilla, Cordova, Ninilchik, Adak	0.003	0.001	0.001	0.006	8	6	5	7
Catcher/Processor	0.085	0.072	0.069	0.088	18	13	11	11
Dutch Harbor, Akutan, King Cove, False Pass, South	0.411	0.428	0.432	0.414	19	15	16	16
St. Paul, St. George, St. Matthew	0.426	0.427	0.430	0.432	10	8	8	10
Unknown	0.073	0.070	0.065	0.055	9	5	4	4

Bristol Bay red king crab	Community Share				Number of Processors			
	Under Regional Option 1 1995-1999*	Under Regional Option 2 1997-1999*	Under Processor Option 1**	Under Processor Option 2**	Under Regional Option 1 1995-1999	Under Regional Option 2 1997-1999	Under Processor Option 1	Under Processor Option 2
Community or Communities								
Dutch Harbor, Akutan, King Cove, False Pass, Port Moller	0.831	0.824	0.824	0.831	15	15	15	15
Anchorage, Kodiak, Homer	0.038	0.036	0.036	0.051	5	4	4	6
Catcher/Processor	0.075	0.081	0.081	0.065	11	10	10	10
St. Paul, Unknown	0.056	0.059	0.059	0.053	7	6	6	7

Processor Option 1 - 1997-1999 Bristol Bay red king crab, 1996-1998 Pribilof red king, 1996-1998 Pribilof blue king, St. Matthew blue king crab, 1997-1999 C. opilio, C. bairdi based on 50/50 combinatin of processing history for Bristol Bay red king crab and C. opilio, 1996/7, 1997/8, 1998/9 Aleutian Islands golden king crab
Processor Option 2 - 1996-2000 (best 4 seasons) for C. opilio, Bristol Bay red king crab, and Aleutian Islands golden king crab

* Includes all processors

** Includes only eligible processors

*** Withheld for confidentiality. Amount is added with amount immediately above.

Table 3.6-4(Cont.) Community allocations under the alternative regionalization/community protection option

	Community Share				Number of Processors			
	Under Regional Option 1 1995-1999*	Under Regional Option 2 1997-1999*	Under Processor Option 1**	Under Processor Option 2**	Under Regional Option 1 1995-1999	Under Regional Option 2 1997-1999	Under Processor Option 1	Under Processor Option 2
	Bering Sea C. Bairdi							
Community or Communities								
Homer, King Cove, False Pass, Anchorage, Wasilla, Port Moller, Ninilchik Catcher/Processor	0.233 ***	NA	0.122	NA	3	NA	11	NA
Dutch Harbor, Akutan, South Kodiak	0.592	NA	0.075	NA	11	NA	11	NA
St.Paul, St. Matthew, St. George, Unknown	0.140	NA	0.506	NA	9	NA	13	NA
	0.035	NA	0.019	NA	5	NA	4	NA
			0.277	NA	4	NA	15	NA
Pribilof Blue King Crab								
Community or Communities								
Anchorage, Kodiak, King Cove, Homer	0.049	0.037	0.050	NA	5	4	5	NA
Dutch Harbor, Catcher/Processor, Akutan, Unknown	0.365	0.253	0.321	NA	11	8	8	NA
St. Paul	0.586	0.710	0.630	NA	4	4	4	NA
Pribilof Red King Crab								
Community or Communities								
Dutch Harbor, Akutan	0.254	0.205	0.204	NA	6	5	5	NA
Anchorage, Kodiak, Homer	0.026	***	0.038	NA	4	3	4	NA
King Cove, Unknown	0.134	0.150	0.131	NA	5	4	4	NA
St. Paul	0.586	0.645	0.627	NA	4	4	4	NA
St. Matthew Blue King Crab								
Community or Communities								
Dutch Harbor, Akutan	0.218	0.193	0.201	NA	7	6	7	NA
King Cove, Kodiak, Catcher/Processor, Unknown	0.104	0.100	0.082	NA	9	4	6	NA
St. Paul, North	0.678	0.707	0.717	NA	5	5	5	NA
Western Aleutian Islands (Adak) Red king crab								
Community or Communities								
Dutch Harbor, Akutan	NA	NA	0.348	NA	NA	NA	7	NA
Kodiak, King Cove, Adak, Catcher/Processor, Unknown	NA	NA	0.652	NA	NA	NA	6	NA

Processor Option 1 - 1997-1999 Bristol Bay red king crab, 1996-1998 Pribilof red king, 1996-1998 Pribilof blue king, St. Matthew blue king crab, 1997-1999 C. opilio, C. bairdi based on 50/50 combination of processing history for Bristol Bay red king crab and C. opilio, 1996/7, 1997/8, 1998/9 Aleutian Islands golden king crab, 1992/3 - 1995/6 for Western Aleutian Islands red king crab
Processor Option 2 - 1996-2000 (best 4 seasons) for C. opilio, Bristol Bay red king crab, and Aleutian Islands golden king crab

* Includes all processors

** Includes only eligible processors

*** Withheld for confidentiality. Amount is added with amount immediately above.

The provision also contains an eligibility requirement for a community to qualify for an allocation. Under the option, a community would be required to have had landings in excess a certain minimum to be eligible for an allocation. The possible threshold would be between 0 and 8 percent. The threshold for eligibility could help to eliminate some of the problems related to small allocations, but the effectiveness would depend on the level of the threshold. Table 3.6-5 shows 1, 5, and 8 percent of the GHL from the most recent season for each of the fisheries proposed for rationalization. The table provides some perspective on the level of the thresholds proposed for community eligibility. For example, a 5 percent threshold would imply that the minimum community allocation in the Bristol Bay red king crab fishery would be approximately 375,000 pounds. In assessing the appropriate threshold level, the Council should consider whether the threshold amount is sufficient to support a processor. If not, a higher threshold should be selected.

Table 3.6-5 Harvests and 1 percent, 3 percent, and 5 percent of harvests from most recent seasons in the BSAI crab fisheries (in pounds).

	Most recent season	Harvest	1 percent of harvest	5 percent of harvest	8 percent of harvest
WAI (Adak) golden king crab	2000-2001	2,902,518	29,025	145,126	232,201
WAI (Adak) red king crab	1995-1996	38,706	387	1,935	3,096
Bristol Bay red king crab	2000	7,468,240	74,682	373,412	597,459
Bering Sea C. opilio	2000	30,258,170	302,582	1,512,909	2,420,654
Bering Sea C. bairdi	1996	1,788,102	17,881	89,405	143,048
EAI (Dutch Harbor) golden king crab	2000-2001	3,086,890	30,869	154,345	246,951
Pribilof blue king crab	1998	494,424	4,944	24,721	39,554
Pribilof red king crab	1998	501,042	5,010	25,052	40,083
St. Matthew blue king crab	1998	2,949,574	29,496	147,479	235,966

Finally, the purpose of filing the transfer agreement with the Secretary of Commerce and the need for the 30 day advance notice is not clear. If the intention is to provide the share administrator notice of the change, the notice should be filed with that administrator (possibly NMFS RAM Division). The advantage of providing 30 days notice is also not clear.

3.6.2.1 Legal analysis of the community protection option

NOAA General Counsel has also expressed concerns about the legality of the Community Protection option. Those concerns are expressed in the following analysis, which NOAA GC provided to Council staff:

The Council is asked to consider alternatives designed to protect eligible communities from the impacts of movement of processor shares away from the community. The alternatives trigger either a procedure whereby the community gives “permission” for relocation of processor shares or a payment of money if the shares leave the communities’ region only. The purpose of the alternatives is to reduce economic damage to communities who have a dependency on the processor businesses and who would presumably experience a decrease in crab processing or closure of the processor and movement of some or all of its processor shares outside the community. Indirectly, the alternatives would appear to prevent or hinder movement of harvester shares since they are tied to processor shares. Another indirect effect would be prevention or deterrence of consolidation of shares.

There are several legal issues presented by these alternatives. Generally, the alternatives are insufficiently defined and, as the analysis points out, present many opportunities for arbitrary

enforcement or misuse. In order for these alternatives to improve their chances of survival if challenged in court, substantial review and clarification is needed.

The initial legal issue raised is the absence of authority in the Magnuson-Stevens Act (MSA) for these types of provisions. Currently, the MSA does not authorize Councils to institute measures through FMP's that empower a local political entity with authority to grant "permission" or extract a compensatory payment for removal of fishing business. To provide legislative history and express intent, Congress may ask for strong reasoning supporting the need for these unusual provisions. While the analysis attempts to clarify or sort-out how these alternatives may work, it shows that it is not clear exactly what economic impacts will be resolved and how they will be resolved by these measures. Because of these unanswered questions, the short and long-term, cumulative and unintended impacts cannot be measured. Without additional answers on how these alternatives will work and what impacts are in store, there is likely not a sufficient basis to support approval. Whether these alternatives have a relationship to conservation and management goals is a real concern.

The next concern is whether the alternatives will conflict with the National Standards found in the MSA. One issue is the potential commerce-impacting nature of communities holding power to decide when and whether a business may depart or close. In essence, a community authorized to decide whether a business may move or close makes it the de facto board of directors for it. Such a relationship between a business and community means that the business has lost its private character and becomes a privately owned but publicly-directed business. Any business decision leading to moving the business or closing or similar decisions that practically mean altering the size or capacity of the business, mean the community may veto and stop the implementation of the decision. If a "payment" is authorized in order for processor shares to leave, the concerns about how it is paid and the amount may seriously affect a processor's bottom-line. Ultimately, a community—unless further clarification is provided—could wield tremendous influence over a business and unintentionally drive it out of business. These potentially unusual and perhaps unbalanced relationships between a community and fishing interests may erode the goals of National Standard 5 and 8. National Standard 5 calls for efficiency in utilization of fisheries. These alternatives, in their present form, are a potential barrier to efficient business and financial decision-making. Potentially, they could make fisheries uneconomical. National Standard 8, which calls for measures that will provide for sustained participation of communities in fisheries and minimization of economic impacts, would not necessarily be served if processors and harvesters are tethered to them with unspecified mandatory payments or potentially limitless conditions preceding removal of shares. Potentially, businesses could be financially harmed by payments or the conditions to be met to receive permission to move shares. Processors and harvesters, if burdened with payments and unreasonable conditions to take shares from one community, may not be able to sustain activity in other communities where business is conducted or would be conducted were the shares move.

There are due process concerns with these alternatives. To start, there is insufficient information about key terms and there are several ways to construe them. At this point, "permission" is undefined in terms of what it is and what process for obtaining permission is to occur. If implemented under the loose terminology of "permission", the government and the community could arbitrarily impose any number of ways to define it. This same concern, as pointed out in the analysis, applies to the payment. We do not know how much the payment will be or how it is paid or whether interest is charged if installment payments are made.

There is no guidance for decision-making in these alternatives. Particularly, there are no guidelines on what a community can consider or cannot consider when it decides whether to grant “permission” or how much a payment should be and what harm it should address and how. The provision speaks to “agreements” for permission—does this mean there is a quid pro quo between the processor and the community as in a contract? An “agreement” is a contract. Does this mean that the agreement to leave will allow negotiation of a time-schedule for moving the business or part of the business and with a certain time-frame in mind? There are no guidelines regarding the extent of authority for a community to negotiate. Will communities have the legal power under their charters or state-granted authority to enter into certain contractual terms? While there is authority in the second alternative for the State or the agency to negotiate for the community, this question is unanswered for the first alternative. Some communities may not have authority under their State-granted enabling legislation to engage in these matters. Finally, without any parameters or guidelines, a processor cannot predict what it will need to show or demonstrate or present when seeking permission to leave with or move processor shares.

Likewise, it is left undefined just how many processor shares proposed to be removed from the community would trigger the provision. Would any amount of quota share (QS) require permission? Would a minimum (a floor) percentage of the QS held by the processor trigger the provision?

The entire decision-making process by the community would have to occur publicly—“in the sunshine”. Thus, the process would have to be open to all interested parties and its procedures set forth before decision-making begins. In order for a provision to have a greater chance of escaping invalidation by a court, the Council or NMFS would have to write specific, unambiguous and comprehensive guidelines to be followed by the communities when evaluating “permission” or amount and method of payment for the processor to leave with the shares. As a hedge or security to prevent procedural due process abuses by communities when determining whether to grant permission, it would be highly advisable to implement APA procedures. The APA is a statutory enactment of procedural due process guidelines set forth by the due process clause of the Fifth Amendment to the U.S. Constitution. The APA requires adequate notice of process, a hearing, an unbiased fact-finder and judge and an appellate forum. It also provides for review by the U.S. District Court. GC recommends that the Council consider implementation of APA procedures for the community “permission” or payment determination process as a safeguard against flawed or unfair decision-making. The APA would help ensure that the processors have an opportunity to challenge the process and decision. This is particularly important where there are ambiguities in the provision as it is written today and high potential for arbitrary decision-making.

Implementation of an APA process would also shore-up another flaw in the alternatives—they do not provide for a determination process. At this juncture, there are no guidelines for communities to follow in terms of how to arrive at a decision or enter into an agreement. To avoid potential abuse of process, the provision should specify not only the substantive guidelines on how to determine “permission” and payments, but the process in reaching that decision. Is it a city assembly that makes the determination? Is there authorization for a sub-division of the community to make the decision such as the Harbors board? To what extent can political or organizational sub-divisions of the “community” be involved in the process? How long is this process supposed to take? Months or years? It would seem that whether a processor can financially survive if it is going to move to another region is one dependent

on time and a predictable process or else the financial incentive may evaporate and the business founder.

Another unanswered question is how is the process to commence or be initiated. Does the processor commence the process by some type of notice to the community that they intend to remove QS and process elsewhere? The Council or NMFS should determine how the process for seeking permission to remove QS is to start. Once again, it may be helpful to consult with the APA to find an appropriate procedural method that could be adapted to community determinations of whether to grant permission for removal of QS. It may be appropriate to consider a process whereby processors will submit an application for permission for removal of quota shares. A secondary concern here is whether processors will be required to provide financial data to communities or the federal or state governments as a means to facilitate the decision-making process for permission to leave or the amount of the payment.

The first alternative states that the agreement between the processor and the community is to be filed with the Secretary of Commerce 30 days prior to the share leaving the community. This presents several issues. Generally, they involve addressing what it is the Secretary supposed to do after he or she has notice of the imminent departure of the shares. There are several potential answers.

As indicated in the January, 2002, analysis, the notice may be useful to the Secretary for purposes of registration of the movement of the shares from one region to another. To the extent this is its purpose, then RAM would find notice useful and would register the change in its records and follow any further administrative duties. Notice of the move would also assist regional review of the program in the event there is a sunset provision in the authorization or if there are other regional or national reviews of share movement, consolidation and potential violations of the program (such as excessive share concerns). The notice may also be read as a method for NMFS to disapprove or otherwise seek changes in the agreement. However, if this is a purpose of the notice, NMFS would find it difficult to change or ask for alteration of the agreement since the notice period is only 30 days. This is hardly sufficient time for the agency to react and provide a response before the shares “move”.

If the “notice” requirement remains with the provision, the Council should provide further parameters to it. These would include describing the nature and purpose of the notice and what is anticipated from the agency in terms of response or further determinations.

3.6.2.2 Right of first refusal and community purchases for CDQ groups and community organizations

The Council’s preferred alternative permits transfers of PQS within a region subject only to limits on ownership. An additional option originally proposed by the Council and modified by the Community Protection Committee would provide CDQ groups or community groups with a first right of refusal on any

processing shares sold. Additional options advanced by the Council would permit CDQ groups and communities to purchase shares. The Community Protection Committee reached a consensus supporting three different community purchase options. The first option would grant a right of first refusal to crab dependent communities on the sale of PQS for transfer out of the community. The second option would of grant a first right of refusal to crab dependent communities in the North Gulf of Alaska⁵ on the transfer of PQS from communities in the North Gulf that are not crab dependent. The third provision would waive the sea time requirements for the purchase of harvest shares for any crab dependent communities. This waiver would not grant preferences to communities for the purchase of shares but would simply allow communities to purchase the shares. The last provision would define the rules that would govern the oversight and management of shares

1. General Right of First Refusal

For communities with at least three percent of the initial PQS allocation in any BSAI crab fishery based on history in the community except for those communities that receive a direct allocation of any crab species (currently only Adak), allow CDQ groups or community groups representing qualified communities a first right of refusal to purchase processing shares that are based on history from the community which are being proposed to be sold for processing outside the boundaries of the community of original processing history in accordance with the provisions below.

Entity Granted the Right of First Refusal

The right of refusal shall be established by a contract entered into prior to the initial allocation of PQS which will contain all of the terms specified in paragraphs A through I below. The contract will be between the recipient of the initial allocation of the PQS and:

- 1) the CDQ group in CDQ communities
- 2) the entity identified by the community in non-CDQ communities.

The General Right of First Refusal

The provision that would create a general right of first refusal for communities on processing shares sold for transfer out of the community provides:

Under this proposed option, in communities with processor history that accounts for over 3 percent of the initial allocation of PQS in a fishery, a community based right of first refusal would exist. The three percent threshold is intended to limit the right to communities with historic dependence on the crab fisheries. Eight communities are estimated to have the historical dependence necessary to qualify for the right of first refusal under this provision. Specific communities cannot be identified because of confidentiality restrictions. In CDQ communities, the CDQ group would receive the right. In non-CDQ communities, the right would be

⁵ The North Gulf of Alaska is defined as all communities in the Gulf of Alaska north of 56°20'N latitude.

granted to an entity identified by the community.⁶ Eligible communities would be required to designate the group that would be granted the right of first refusal at least 90 days before the initial issuance of PQS. Requiring the designation of the community entity is necessary to prevent delays in making allocations and to provide processors with time to enter a contract that would establish the right.

The Committee included in this option a provision that would exclude any community that receives a direct allocation of crab. Adak is currently the only community to which a direct allocation would be made. The apparent rationale for this provision is that the direct allocation to Adak is sufficient to support the community's dependence on the crab fisheries and that further protection to the community's interests in the fisheries is unnecessary.

The analysis points out several issues with the right of first refusal. In general, the more effective a right of first refusal is in protecting a community's interests, the more that right will reduce efficiency in the fisheries. In recognition of this trade off, the Community Protection Committee has attempted to develop the option in a manner that strikes a reasonable balance of community and industry interests.

A right of first refusal generally provides an entity with the right to purchase an item from a seller for the same price and subject to the same terms and conditions as offered by the seller in an open market. The first right of refusal would operate by the seller notifying the holder of the right of the terms of the pending sale. The holder of the right exercises the right by notifying the seller of acceptance those terms within a specified time period. If the terms are not accepted within the predetermined time period, the open market sale may proceed.

In assessing whether to establish the right of first refusal, the Council should consider the consequences for communities that might exercise the right. In any case where the right might be exercised, it is likely that the community would need to work with processors, both the seller of the shares and an intended user of the shares who might purchase or lease the shares from the community. The consequences of involving the community in these transactions needs to be assessed.

To simplify administration the right of first refusal would be created by a contract between the community group and the processor receiving the initial allocation of PQS. The contract would be required to contain the following provisions:

Under paragraph A, the right of first refusal would apply to sales of PQS and (in certain circumstances) IPQ. The right would apply to IPQ only if the processor had sold more than 20 percent of the IPQ from the community in 3 of the preceding 5 years. The intention of the provision is to allow some flexibility leasing shares (i.e., sale of IPQs) but to disallow long term leasing of a substantial portion of a processor's holdings. The provision is intended to balance the interest of a community in maintaining activity in the community against the processor's interest in being able to realize efficiencies from share transfers.

⁶ The option as originally proposed contained a provision that would grant the right of first refusal to other processors in the community. This provision was rejected by the Council because according the right to competing local processors could have the unintended consequence of providing processors with a strategic tool unrelated to (and possibly even used contrary to) community interests. For example, if one processor is able to use the threat of the right to reduce the profitability of another local processor, the overall welfare of the community may be hurt. In addition, the exercise of the right by a competing processor could result in that processor gaining access to proprietary information, which could harm the processor selling the shares.

Contract Terms

- A. The right of first refusal will apply to sales of the following processing shares:
1. PQS and
 2. IPQs, if more than 20 percent of a PQS holder's community based IPQs (on a fishery by fishery basis) has been processed outside the community of origin by another company in 3 of the preceding 5 years.
- B. Any right of first refusal must be on the same terms and conditions of the underlying agreement and will include all processing shares and other goods included in that agreement.
- C. Intra-company transfers within a region are exempt from this provision. To be exempt from the first right of refusal, IPQs must be used by the same company. In the event that a company uses IPQs outside of the community of origin for a period of (two options):
1. 3 consecutive years
 2. 5 consecutive years
- the right of first refusal on those processing shares (the IPQs and the underlying PQS) shall lapse. With respect to those processing shares, the right of first refusal will not exist in any community thereafter.
- D. Any sale of PQS for continued use in the community of origin will be exempt from the right of first refusal. A sale will be considered to be for use in the community of origin if the purchaser contracts with the community to:
1. use at least 80 percent of the annual IPQ allocation in the community for 2 of the following 5 years (on a fishery by fishery basis), and
 2. grant the community a right of first refusal on the PQS subject to the same terms and conditions required of the processor receiving the initial allocation of the PQS.
- E. All terms of any right of first refusal and contract entered into related to the right of first refusal will be enforced through civil contract law.
- F. A community group or CDQ group can waive any right of first refusal.
- G. The right of first refusal will be exercised by the CDQ group or community group by providing the seller within 60 days of receipt of a copy of the contract for sale of the processing shares:
1. notice of the intent to exercise and
 2. earnest money in the amount of 10 percent of the contract amount or (two options)
 - a. \$250,000 or
 - b. \$500,000whichever is less.
- The CDQ group or community group must perform all of the terms of the contract of sale within the longer of:
1. 120 days of receipt of the contract or
 2. in the time specified in the contract.
- H. The right of first refusal applies only to the community within which the processing history was earned. If the community of origin chooses not to exercise the right of first refusal on the sale of PQS that is not exempt under paragraph D, that PQS will no longer be subject to a right of first refusal.
- I. Any due diligence review conducted related to the exercise of a right of first refusal will be undertaken by a third party bound by a confidentiality agreement that protects any proprietary information from being released or made public.

Paragraph B provides that the right of first refusal would apply to the transaction involving processing shares as a whole and would require the community group exercising that right to agree to all the terms of the agreement. This provision would be intended both to make the right of first refusal workable and to limit the disruption to a processor's transaction that might be caused by the exercise of the right of first refusal. The right would be made workable since the terms of the right will be clear once an offer is received to which the right would apply. Exercise of the right would require the community group to perform the contract in its entirety. The requirements of the contract should be clear to the community. The provision is thought to protect the selling processor's interests by requiring that the transaction that is acceptable to the processor be adopted.

Permitting a community to intercede in a transaction only by accepting all of the terms of the transaction could limit the effectiveness of the right. For example, a processor may sell all of its operations in a community, including its processing shares. A community may have little interest or ability to intercede in such a broad transaction. The ability of a community to perform could also be limited if a contract involves the exchange of specific goods and properties by the buyer and seller of the shares. The community might be unable to perform under a contract that requires the exchange of unique properties. The alternative to requiring the community to accept all terms of the contract would be to require separation of the processing shares from any other goods involved in the transaction. This alternative approach could complicate use of the right by the community group particularly if a processor has managed to sell a variety of assets, including the processing shares. The share value may not be easily severable from the value of the other goods and could be interdependent. For example, if a processor sells both processing equipment and shares, the value of the equipment could be based in part on the common ownership of the processing allocation. As a result, the establishment of a price for the shares that accurately reflect the market transaction could be very difficult.

Paragraph C would exempt intra-company transfers of IPQs from a community. These transfers are exempt only if the shares are used by the same company that owns the underlying PQS. The provision also provides that the right of first refusal will lapse if the shares are used outside the community for a period of 3 or 5 years. The rationale behind these provisions is that companies with shares in more than one community should be permitted to consolidate shares to realize efficiencies in their operations. Allowing the community designation to lapse is intended to recognize that the use of the shares outside a community lessens the dependency of the community on the activity represented by those shares. At some stage, this loss of dependence should be acknowledged by allowing the right of first refusal to lapse.

While this provision makes a balance between the need to allow efficiency through consolidation and the dependence of a community on the activity of a processor, the provision treats different processors differently. Processors with multiple facilities in a region could have the ability serially remove the community designations from their shares by processing those shares outside the community of origin. Although the consolidation of shares in this manner would be limited by the need of a processor to efficiently conduct its processing, the provision has a clear bias in favor of the larger processors. The exemption of intra-company transfers out of a community could also be used by companies that own floating processors to avoid the right of first refusal altogether. A company could choose to relocate a floating processor simply for the purpose of using the exemption to void the right of first refusal. Whether a company would use a floating processor in this manner cannot be predicted and is likely to depend on several factors, including its ability to operate efficiently in other locations.

Processors with shares in multiple communities are most likely to utilize the intra-company transfer exemption to transfer shares to a single location. Table 3.6-6 below shows the number of processors in each fishery with shares in multiple communities. Since shares cannot be transferred across regions, separate numbers are shown for each region in those fisheries that have processors in multiple regions. The table cannot fully capture the potential of processors to consolidate shares through intra-company transfers since

share transfers exempt from the right of first refusal could be followed by later consolidation permitted by the provision. The table does show that few companies would be able to consolidate shares as 6 companies hold shares in multiple communities in the fisheries that are regionalized based on historical landings.

Table 3.6-6 Processors with shares allocations in multiple communities by fishery.

Fishery	Region	Processors with allocations in		
		One community	Two communities	Three communities
Bristol Bay Red King Crab	North	2	-	-
	South	13	1	1
Bering Sea C. Opilio	North	6	1	-
	South	16	1	1
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	-	8	-	-
Pribilof Red and Blue King Crab	North	4	-	-
	South	11	-	-
St. Matthew Blue King Crab	North	3	1	-
	South	9	-	-

Source: NPFMC Crab Rationalization Database, Version 1, 2001

Paragraph D would provide for the exemption of a sale of PQS from the right of first refusal if the purchaser met certain conditions. The first requirement is that the purchaser must agree to use at least 80 percent of the resulting IPQ in the community during at least 2 of the first 5 years after the transaction. This provision is intended to prevent the purchaser from immediately consolidating its processing outside the community under the exemption for intra-company transfers. The second requirement is that the purchaser grant the community group a right of first refusal on the shares, subject to the same terms and conditions as the original right of first refusal. So, the exemption would only apply if the community retained its right of first refusal in the future.

Paragraph E provides that the right of first refusal would be enforce by civil contract law. The objective of this provision is to avoid overburdening the NOAA Fisheries with adjudicating cases involving the right of first refusal and to recognize the contractual nature of the right. NOAA Fisheries could enforce some of the provisions (for instance prohibiting a transaction in which the community was not provided with adequate notice). Other requirements, however, such as the requirement that the community earnest money requirement and the confidentiality requirements related to due diligence are more typically enforced through contract law. Alternatively, the Council could request NOAA Fisheries to explore methods to assist communities, to the extent reasonable, in administration and enforcement of the right of first refusal. In addition, communities could enforce the right through contract law. Under such an approach, NOAA Fisheries could consider the following two actions to assist communities in making the right effective. First, NOAA Fisheries could require that processors transferring processing shares could be required to attest to compliance with notice requirements of any right of first refusal. Although this will not, in and of itself, ensure that the seller has met the requirements of the right, the attestation would bring attention to the need to meet the requirements of the right prior to a transfer. In addition, the consequences of an intentional misrepresentation in the attestation may be sufficient to deter a seller from attempting to bypass its obligations under the right. Second, NOAA Fisheries could annually notify each crab dependent community of the location where IPQs from the community were used and of any transfers of shares that are linked to the community. This notification could assist the community in tracking transfers and use of shares, thereby assisting community efforts to enforce the right of first refusal.

Paragraph F makes explicit that a community group can waive the right of first refusal. Waiver of the right by a community would free parties to a transaction from the possibility that the community might exercise the right. From the standpoint of the community, the waiver is equivalent to not exercising the right and removing itself from the private transaction. In some instances, the CDQ or community group could make a reasonable decision that waiving the right is in the best interest of the community.

The Council should clarify whether the right of first refusal is assignable by a community. Allowing assignment of the right may not be appropriate unless the Council intends the right to be exercised by private parties, including other processors. The structure of right of first refusal provision would provide the right to a CDQ or community group that is required to act for the benefit of the community. Allowing assignment of the right could result in the right being held by a private entity facing incentives and having objectives that are very different from those of the community.

Paragraph G provides that the right must be exercised within 60 days of receipt of the contract to which the right of first refusal applies. The 60 day period is intended to provide the community group with adequate time to assess the offer and to provide time to coordinate payment of any earnest money required. The right is exercised by providing notice to the seller of the shares along with earnest money in the amount of the lesser of 10 percent of the contract amount or a specific amount of money, either \$250,000 or \$500,000. If the Council adopts this provision, the amount of money will need to be specified. The percentage and dollar amounts should be selected such that a community group would demonstrate its intention to follow through with the contract and provide a representation of the ability to perform. Although contracts could be for substantially larger amounts, the earnest money payment should demonstrate the groups intention to proceed with the contract.

Paragraph G also provides that the community group would be required to perform all terms of the contract in the time specified by the contract or in 120 days of receipt of notice of the contract, which ever is longer. This provision is intended to provide the community with at least 120 days to perform. This period of time is likely to be necessary for community to arrange payment of a high valued contract for which the community group might exercise its right.

Paragraph H provides that the right of first refusal would apply only to the community in which the processing took place that led to the allocation of processing shares. The sale of PQS in which the community chooses not to exercise its right (and which is not exempt from the right) would result in a permanent waiver of the right. These provisions are intended to limit the right to the community of origin and limit the ability of the community to a perpetual right even though the community has elected not to act to retain the shares in the community.

Paragraph I is intended to protect any confidential data that might be disclosed during due diligence related to the exercise of the right. This end would be accomplished by requiring the due diligence to be conducted by a third party bound by a confidentiality agreement preventing the disclosure of proprietary information.

The Committee recommendations do not exempt any fisheries from the right of first refusal. The Western Aleutian Islands (Adak) red king crab, the Western Aleutian Islands golden king crab, and the Bering Sea *C. bairdi* fisheries are all exempt from the cooling off period (which is the other provision in the program that establishes specific community links to processing shares). A similar exemption might be appropriate from the requirements of the right of first refusal. The Western Aleutian Islands (Adak) red king crab is exempt from the cooling off period requirements because the fishery was closed for several years limiting the community dependence on that fishery. The Western Aleutian Islands golden king crab fishery is exempt from the cooling off period requirements because that fishery is regionalized in a manner inconsistent with the cooling off period requirements. The Bering Sea *C. bairdi* fishery is exempt from the cooling off period

requirements because that fishery is likely to be conducted as a bycatch fishery to the Bristol Bay red king crab fishery and the Bering Sea *C. opilio* fishery in the future. Imposing the landing requirements of the cooling off period is thought to be unworkable. The right of first refusal establishes community links similar in some ways to those of the cooling off period. Exemption of these fisheries from the right of first refusal might be appropriate if the establishment of the community linkage of the right of first refusal is believed to be inappropriate for these fisheries.

The efforts of the Community Protection Committee have contributed to the effectiveness of the first right of refusal provision. Balancing the interest in protecting communities from the transfer of shares against the need for efficiencies in the fisheries raise several issues in whether the right will serve its intended purpose. These issues include:

- A few methods exist by which processors may subvert the right. The right applies only to sales that would transfer processing out of a community. Processors are permitted to relocate processing through intra-company transfers, which if undertaken for a period of years will result in the right lapsing. In addition, sales are exempt, if the purchaser agrees to process a portion of the shares in the community in two of the subsequent five years and extends the right to future sales. The purchaser can subsequently use the shares outside the community causing the right to lapse. The provisions that allow a processor to avoid the right of first refusal are thought by the Committee to reasonably balance the need to permit processors to develop efficiencies against the interests of communities in preserving historic processing.
- The protection that a community is provided by the right will depend on the community's circumstances. A community with one processor and few revenues may be provided little or no protection by a right of first refusal since it may have few resources with which to exercise its right. A community with substantial revenues and processors will be in a very different position, if a local processor attempts to sell shares out of the community. These communities likely have greater resources and might be able to work with local processors in exercising the right.
- Communities with multiple processors could be put into a precarious position with respect to the industry. Communities that exercise the right could partner with a processor the community and the pass shares on to the processor after the purchase. Exercising the right in this manner has the potential to interject the community into business transactions. Whether a processor could work with a community to use the right to engage in strategic behavior with respect to a competitor cannot be predicted.
- Processing shares could be devalued by the right of first refusal. The existence of the right of first refusal could dampen the market for processing shares, if communities are perceived to actively assert the right. In addition, the value of processing shares could differ substantially between communities of origin. For example, the shares of a processor in a community with a single processor that is short revenues to utilize the right could be valued very differently from the shares of a processor in a community with substantial revenues that is able to exercise the right on any sale. This disparity could be subject to criticism for its inequity.
- If the right of first refusal is exercised frequently, it could contribute to the concentration of shares among CDQ groups, community groups, and processors (particularly those in communities that have substantial share allocations at the outset). This could limit entry opportunities for new processors wishing to purchase PQS to enter into the crab fisheries. If PQS becomes more concentrated than it would in an open market, the market available for harvesters' crab deliveries would contract. The

extent of any consolidation cannot be predicted but would depend on the extent to which holders of the first right of refusal exercise that right.

- The value of harvest shares could be diminished by the geographic landing requirements. Harvesters are likely to be disparately impacted. If the right of first refusal maintains a wide geographical distribution of processing shares, the relationship between Class A harvest shares and processing shares dictates the same distribution for harvest shares. If processing revenues are dependent on location of processing, a portion of this difference is likely to be passed on to harvesters. The extent and distribution of this impact cannot be predicted.

In conclusion, the consequences of a first right of refusal provision are very difficult to predict. The uncertainty of how the right will be exercised and the consequences of community groups holding processing shares raise the question of whether the right may work to the detriment of some communities. The potential of detrimental consequences to communities cannot be predicted. The development of the first right of refusal could provide an avenue for CDQ and community group participation in the BSAI crab processing. If the first right of refusal is exercised by CDQ and community groups, it could disrupt private transactions for processing shares. To effectively transact in processing shares, it is possible that purchasers will partner with CDQ or community groups. This could benefit some participants that wish to enter the processing sector, since they would not have to negotiate prices, but could rely on the first right of refusal for share purchases. Other participants could be harmed by the provision, if their transactions are prevented by exercise of the first right of refusal by CDQ and community groups.

Right of First Refusal in the North Gulf of Alaska

The provision that would provide a right of first refusal to crab dependent communities in the North Gulf of Alaska provides:

2. GOA First Right of Refusal

For communities with at least three percent of the initial PQS allocation of any BSAI crab fishery based on history in the community that are in the area on the Gulf of Alaska north of 56°20'N latitude, groups representing qualified communities will have a first right of refusal to purchase processing quota shares which are being proposed to be transferred from unqualified communities in the identified Gulf of Alaska area.

The entity granted the right of first refusal and terms and method of establishing the right of first refusal will the same as specified in the general right of first refusal.

This provision would grant North Gulf of Alaska communities⁷ with at least 3 percent of the history of any crab fishery (crab dependent communities) a right of first refusal on any processing shares being sold for transfer from the communities not dependent on the crab fisheries in the North Gulf of Alaska area.

Unlike the previous right of first refusal provision, this provision is intended to provide crab dependent Gulf of Alaska communities with a right that will enable the consolidation of processing shares of non-dependent

⁷ North Gulf of Alaska communities re defined as those communities on the Gulf of Alaska north of 56°20'N latitude.

communities in that area. Many of the same issues arise under this provision as under the general first right of refusal provision.

- Communities with multiple processors could be used for strategic business purposes if its resident processors compete for processing the shares subject to the right.
- Exempting intra-company transfers could provide a means to avoid the right.
- The value of processing shares subject to the right could be diminished by the right.
- Harvest shares could be affected indirectly by the distortion in the distribution of processing activity as a result of the right.
- Complex contracts that involve more than the shares on which the right would exist could prevent a community from exercising the right.⁸

The interaction of the different factors causing these different effects complicate any predictions concerning the specific effects of this right of first refusal.

The number of North Gulf of Alaska communities that would qualify for this provision and the number of North Gulf of Alaska communities that would not qualify, but have crab qualified history cannot be released because of confidentiality restrictions.

Community Share Purchases

The Council also proposed the following option that would waive sea time requirements for communities that wished to purchase harvest shares:

Section 3.4 of the Council motion contains the following alternative concerning the purchase of harvest shares by communities:

3. Community purchase option

Allow for a community organization in those communities that have at least 3 percent of the initial PQS allocation of any BSAI crab fishery based on history in the community to be exempted from the restriction for the 150 days of sea time requirement under 1.6 Transferability and Restrictions on

A consensus of the Community Protection Committee supports this option.

The Council-preferred alternative permits any entity with a 20 percent owner with at least 150 days of sea time to purchase harvester shares. By itself, this provision would preclude community groups and non-profits from purchasing shares since the sea time requirement for an owner would not be satisfied. To address this shortcoming, the Council has proposed waiving the sea time requirement for community and CDQ groups

⁸ The inclusion of goods other than shares in a transaction could have a greater impact under the Gulf of Alaska right of first refusal since the community of origin is not the community that will have the right of first refusal. If a contract is for shares and some other equipment that is located in the community origin, a community might have less interest in exercising the right. In addition, share values of those with history in these non-dependent communities are likely to be decreased by the right.

based in communities with at least 1 percent of the initial distribution of processing shares in any BSAI crab fishery.⁹ Although this provision would allow the purchase of harvest shares by eligible communities, the protection to communities by this provision is likely to depend on its interaction with other provisions.

The provision allows the purchase of harvest shares by communities based on whether the community has historically participated in processing. Under the preferred alternative, 9 communities would qualify for the waiver of the sea time requirement based on processor allocations of over 3 percent of a fishery. The appropriateness of the processing history requirement might be questioned, since communities that participate in the harvest sector but not the processing sector would be unable to purchase harvest shares. Many communities have processing that shows dependence on the fisheries. This option would allow those communities to expand their interests into the harvest sector. If the Council is concerned that communities with a harvest dependence on the fisheries might be excluded, the provision could be modified to exempt communities with at least 3 percent of the harvest history in a BSAI crab fishery from the sea time requirement.

The provision is unlikely to protect communities with historic processing history from departure of processing from the community. If a substantial share of the fishery is required to be delivered to a processor holding IPQs, ownership of harvest shares might have little effect on whether harvests from those shares are landed in a community. In addition, the provision provides communities with no preferential in the market for harvest shares. Instead they receive the opportunity to participate in that market. Whether communities can effectively participate in the market cannot be predicted. The absence of preferential treatment, however, would not bias the market in favor of public sector, community participants over private sector participants.

Identification of community entities and rule governing oversight and management

The Community Protection Committee developed the following provision, which would define the entity that could purchase shares and exercise the right of first refusal of on behalf of a community:

4. Identification of community groups and oversight

For CDQ communities, CDQ groups would be the entity eligible to exercise any right of first refusal or purchase shares on behalf of the community. Ownership and management of harvest and processing shares by CDQ groups will be subject to rules similar to CDQ regulations.

For non-CDQ communities, the entity eligible to exercise the right of first refusal or purchase shares on behalf of a community will be identified by the qualified city or borough, except if a qualified city is in a borough, in which case the qualified city and borough must agree on the entity. If no entity is identified and approved by the date of presentation of an offer over which the entity would have a right of first refusal, no community entity will have the right. Ownership and management of harvest and processing shares by community entities in non-CDQ communities will be subject to rules similar to those of the halibut and sablefish community purchase program.

For CDQ communities, CDQ groups would be eligible to purchase shares and exercise the right of first refusal. The Committee has proposed removing the words “rules similar to” from the second sentence of the first paragraph to clarify that CDQ groups would be governed by CDQ rules. Ownership and management

⁹ No similar participation requirement exists for the purchase of processing shares, so an exemption is unnecessary for the purchase of processing shares.

of share holdings for CDQ groups would be subject to CDQ rules. In non-CDQ communities, the community would designate the entity that could purchase shares and exercise the right of first refusal. Under this provision, a qualified community would be a qualified borough or first or second class city. If a qualified city is in a borough, the city and borough would need to agree on the entity. If the borough and city cannot agree on an entity at the time an offer is presented under the right of first refusal, that right will be waived. Requiring agreement for the right to exist was proposed as a means to pressure the borough and city to agree on an entity and avoid the need for the State or NOAA Fisheries to mediate a dispute. The entity could be the community government. Although no particular structure is required for the groups, the oversight and management of share purchases and holdings by non-CDQ groups would be governed by the rules of the halibut and sablefish community purchase program. The Committee has proposed removing the words “rules similar to” from the last sentence of the second paragraph to clarify that community groups would be governed by halibut and sablefish community purchase program rules. Discussion of CDQ communities is separated from the discussion of other communities for clarity.

CDQ community purchases

Allowing CDQ groups to act on behalf of communities would simplify the development of corporate entities to act on behalf of those communities. In addition, the current CDQ management and oversight regulations should be adequate to ensure that the benefits of purchased harvest shares are responsibly held and managed. A more complete description of those requirements appears in Section 3.9.1. The only potential shortcoming of this option is that the interests represented by a CDQ group are likely broader than the communities on which eligibility is based (i.e., most CDQ groups represent communities that have processing history of at least 1 percent of a BSAI crab fishery). If the Council intends for the benefits to flow only to those communities with a minimum processing history, an additional management obligation could be placed on any CDQ group that purchases harvest shares under the provision. It should also be noted that CDQ groups could have a significant advantage over share purchasing entities in non-CDQ communities that might not have the institutional knowledge, reputation, or wherewithal to participate effectively in these markets.

The CDQ program was implemented in 1992 to provide fishermen who reside in western Alaska communities a fair and reasonable opportunity to participate in the Bering Sea/Aleutian groundfish fisheries, to expand their participation in salmon, herring, and other nearshore fisheries, and to help alleviate the growing social economic crisis within these communities. Six CDQ groups were developed under the program: Aleutian Pribilof Island Community Development Association (APICDA), Bristol Bay Economic Development Corporation (BBEDC), Central Bering Sea Fisherman’s Association (CBSFA), Coastal Villages Region Fund (CVRF), Norton Sound Economic Development Corporation (NSEDC), and Yukon Delta Fisheries Development Association (YDFDA). These six groups serve the interests of approximately 65 communities with a combined population of 27,000. The communities are located within 50 nautical miles of the Bering Sea Coast and on islands in the Bering Sea and are predominantly populated by Alaska Natives. All CDQ groups are non-profit organizations that serve as the managing organizations for implementation of the Community Development Plans. They have created for-profit corporations, non-profit organizations, and limited liability companies. The CDQ groups have become active participants in the BSAI groundfish and crab fisheries. In 2000, seventy-one percent of the CDQ groups’ revenue was attributed to royalties received for the right to harvest the allocations granted under the CDQ program. The second largest source of revenue for the CDQ groups, 16 percent of the total, was sale of harvests and processing of their allocations. The majority of the remaining revenues was from the CDQ groups’ equity earnings in businesses they have entered with harvesters and processors and from other fishing-related businesses and investments. The total net asset value of the combined CDQ groups as of the year 2000 was \$129 million.

Non-CDQ community purchases

For non-CDQ communities, each qualified community could identify the entity that would be permitted to purchase shares on its behalf. These holdings would be subject to rules similar to the halibut and sablefish community purchase program. That program requires that the entity be non-profit. In addition, the entity would need to submit: (1) a certificate of incorporation (2) verification of its qualification (3) documentation demonstrating accountability to the community and (4) an explanation of how the community entity intends to implement performance standards for management of its shares. Similar rules could be used to establish eligibility for a community group to purchase shares in the crab fisheries.

The requirements of the halibut and sablefish community QS program are less stringent than the oversight and management of the CDQ program. The community purchase rules require less detail than the CDQ community development plans.¹⁰ CDQ requirements could be cost prohibitive, especially for new non-profit community groups interested in purchasing interests in fisheries. Under the halibut and sablefish community purchase rules, the entity would be required to (1) submit an annual report and (2) meet performance standards. The annual report include (1) a summary of business, employment, and fishing activities under the program, (2) a discussion of any corporate changes that alter the representational structure of the entity, (3) specific steps taken to meet the performance standards, and (4) discussion of known impacts to resources in the area. The performance standards would require the group to (1) maximize benefit from use of community shares for community residents, (2) ensure that benefits are equitably distributed throughout the community (3) ensure that community shares would be fished. Communities purchasing shares would be subject to performance standards, with voluntary compliance monitored through the annual reporting mechanism and evaluated when the program is reviewed. Since these groups receive no direct allocation, these less stringent measures are likely more appropriate for non-CDQ community groups purchasing shares.

Given the success of some CDQ groups in partnering with private fishery participants it is likely that additional partnerships will develop as both CDQ groups and community groups develop their interests in the crab fisheries. Partnership opportunities under the community purchase and right of first refusal provisions could provide an effective inroad for harvest share owners to enter the processing sector. CDQ and community group partnership arrangements, however, could become prevalent in the processing sector, if this option is adopted and future purchasers of processing shares believe it is necessary to partner with CDQ or community groups to ensure that share purchases are completed. The CDQ groups development as effective participants in non-CDQ fisheries suggest that community groups are capable of developing into effective participants in BSAI crab harvesting and processing.

3.6.2.3 Maximum IPQ allocation

The community protection committee also developed options based on the Council motion of June 2002, which would establish a maximum annual IPQ allocation:

¹⁰ Community development plans must include descriptions of projects; community development information; business information; project schedules; employment, vocational, and educational programs; a description of existing infrastructure; a description of capital uses; and a description of short and long term benefits.

IPQ caps

The amount of IPQ in any year shall not exceed the percentage of the TAC for crab species as follows:

For *opilio*:

Option 1: IPQ percentage times a TAC of 175 million pounds.

Option 2: IPQ percentage times a TAC of 200 million pounds.

For Bristol Bay red king:

Option 1: IPQ percentage times a TAC of 20 million pounds.

Option 2: IPQ percentage times a TAC of 25 million pounds.

Option 3: IPQ percentage times a TAC of 30 million pounds.

IFQ issued in excess of the IPQ limit shall be subject to regional landing requirements.

The option would limit the allocation of IPQs in seasons during which the TAC exceeds a set level. For the *C. opilio* fishery the first option would limit IPQs to 157.5 million pounds, 90 percent of 175 million pounds (the percentage of the TAC for which IPQs are issued times 175 million pounds).¹¹ Under the second option, IPQs would be limited to 180 million pounds, 90 percent of 200 million pounds. In the Bristol Bay red king crab fishery the first option would limit IPQs to 18 million pounds, 90 percent of 20 million pounds. The second option would limit IPQs to 22.5 million pounds, while the third option would limit IPQs to 27 million pounds. Under the provision, any IFQs issued in excess of the IPQ limit (which would normally be subject to IPQ delivery requirements) would be subject to regional landing requirements applicable to A share landings.¹²

In the preferred rationalization program, harvest quota are issued as either Class A or Class B IFQs. Class A IFQs are allocated for 90 percent of the TAC, corresponding to the 90 allocation of processor shares. Class A IFQs are also subject to regional landing requirements. Harvests with Class B IFQs may be delivered to any processor in any location. Although the option does not specify any change in harvest share allocation, the Class A IFQ allocation would also need to be changed when the cap is exceeded, to retain the one-to-one correspondence between IPQs and Class A IFQs. Otherwise, a portion of the Class A IFQ allocation would not be deliverable, since harvests with Class A IFQs must be delivered to a processor holding unused IPQs. Since regional delivery requirements are retained, harvest shares issued in excess of the cap up to 90 percent of the fishery would take on a new form with deliveries unrestricted by IPQs but subject to regional delivery requirements. Class B shares with no regional designation would be allocated for the other 10 percent of the TAC. Under this system, Class A IFQs would continue to be subject to regional landings requirements.

Since IFQs issued in excess of the IPQ cap would not be subject to the IPQ delivery requirement harvesters would have greater flexibility in selling the crab harvested with those shares. Increasing the share of the fishery that is not subject to IPQ delivery requirements will increase the bargaining strength of harvesters. Since IPQ holders will continue to have exclusive processing privileges for the share of the fishery allocated

¹¹ The Council motion of June 2002 also contained an option that would have limited IPQs to 90 percent of 150 million pounds (or 135 million pounds).

¹² This provision is not intended to result in regional designations on B shares but only retain the regional designations on A shares that are released from the IPQ landing requirement when the cap is exceeded.

as IPQs, the position of processors with respect to those deliveries is secure. The position of the processors will only be affected through the competition for deliveries in excess of the IPQ limit. Retaining the regional classifications will segment the market for landings reducing competition for landings to some degree.

One possible rationale for the IPQ limit is to stimulate entry to the crab processing industry. Since all crab in excess of the limit would not be subject to IPQ delivery requirements, additional crab deliveries will be available for entering processors willing to compete for those deliveries. The provision in and of itself, however, is unlikely to stimulate any sound, long term investments since crab stocks are known to fluctuate and do not regularly exceed the proposed TAC thresholds. The provision, however, could provide an added incentive for entry or for existing processors to remain in the fishery. These processors would have the opportunity to purchase crab harvested with Class B shares or crab in excess of the IPQ limit in high TAC years. Benefits could spill over to communities that support these processors.

Although the primary beneficiary of this provision is likely to be harvesters, the provision has received support from community representatives. A community that is home port to harvesters might benefit from added income to its residents realized through higher ex-vessel prices on landings unrestricted by IPQ landing requirements. A community could also benefit if local harvesters use the added latitude to increase landings in their home port, contributing to both local economic activity and local revenues. The geographic distribution of landings would also favor communities able to attract additional landings by paying a higher ex vessel price.

Table 3.6-7 shows the pounds landed in Bering Sea *C. opilio* and Bristol Bay red king crab fisheries from 1990 to 2002. During this period, *C. opilio* landings have exceeded 175 million pounds five times and 200 million pounds four times. In two years, harvests exceeded 300 million pounds (almost twice the 175 million pound threshold).¹³ In the most recent years, harvests have declined significantly, with the total catch not exceeding 30 million pounds in the last 3 years. Although future TAC levels are unpredictable, past harvests suggest that the TAC could reach the 175 million pounds occasionally and may exceed the 200 million threshold.

In the late 1970s and early 1980s, harvests in the Bristol Bay red king crab fishery exceed all of the thresholds by substantial amounts, with harvests peaking in excess of 120 million pounds in 1980. Since 1981, however, harvests have exceeded only the lowest of the proposed thresholds (20 million pounds). That threshold was exceeded only once, in 1990, by only 300,000 pounds (or less than 2 percent of total harvests).

In assessing the cap, the Council should consider not only the potential for a the cap to be exceeded but also both the amount of protection processors receive from the IPQs issued for landings below the cap and the additional bargaining strength of harvesters for shares issued in excess of the cap when the cap is exceeded (keeping in mind that the level of the cap will determine the amount of shares that will not be subject to IPQ landing requirements). All of these factors must be balanced in determining the appropriateness of a cap.

¹³ As with the 175 million pound threshold, the 150 million pound threshold proposed in the June 2002 Council motion was exceeded five times since 1990.

Table 3.6-7 Total Landings for Bristol Bay red king crab, Bering Sea *C. bairdi*, and Bering Sea *C. opilio* fisheries from 1990 to 2002.

Season	Bristol Bay red king crab	Bering Sea <i>C. opilio</i>
1990	20.36	16.18
1991	16.85	325.18
1992	7.98	312.84
1993	14.34	229.17
1994	closed	148.00
1995	closed	74.01
1996	8.32	64.36
1997	8.72	117.18
1998	14.12	240.43
1999	10.95	182.68
2000	7.47	30.26
2001	7.79	22.93
2002	8.86	24.79

Source: NPFMC Crab Rationalization Database Version 1, 2001
Alaska Department of Fish and Game

3.6.2.4 Cooling off period

One of the objectives of rationalization is to reduce overcapacity in both the harvesting and processing sectors. The reduction in capital will require that some facilities be removed from operation. Some people are concerned that this consolidation could result in the transfer of activity away from some communities with adverse effects on those communities. At its December meeting, the Council adopted the following “cooling off period” that would limit the transfer of shares from communities for a period of time after implementation:

(3.4) Cooling off period

A cooling off period of 2 years shall be established during which processing quota earned in a community may not be used outside that community. The community protection committee shall consider implementation details.

Alone, this provision is unlikely to fully protect communities from the reorganization of processing activity under rationalization. The provision, however, will mitigate any drastic redistribution of activities that could occur in the first years of the program, if consolidation is not spatially constrained. Rapid consolidation could be dampened by the provision by allowing the market for shares time to develop. Participants are likely to adapt expectations concerning those markets, if trading can be observed for a period of time prior to more open trading. The restriction on transfers, however, is likely to have consequences for participants in both the harvesting and processing sectors.

To aid in implementing the cooling off period, the community protection committee developed the following provision to further define that period:

Cool Down Period

During the Cool Down Period shall the following elements will apply:

1. The method to determine the shares associated with a community will be the same method used for allocating processing quota as established by the Council.
2. Community shall be defined as the boundaries of the Borough or, if no Borough exists, the first class or second class city, as defined by applicable state statute. A community must have at least 3 percent of the initial PQS allocation in any fishery based on history in the community to require continued use of the IPQs in the community during the cool down period.
3. 10% of the IPQs may leave a community on annual basis, or up to 500,000 pounds, whichever is less. The amount that can leave will be implemented on a pro rata basis to all PQS holders in a community.
4. Exempt the Bairdi, Adak red crab and Western Aleutian Islands brown crab fishery from the cool down provision.
5. There should be an exemption from the requirement to process in the community if an act of God prevents crab processing in the community. This provision will not exempt a processor from any regional processing requirements

The first provision developed by the committee would provide a method for defining the community of origin, for which processing activity could not be transferred during the cooling off period. Since the direct limitation is on the movement of processing activity, determining the community that will benefit from the protection based on processing history is equitable and administratively straightforward.

Under the second provision, “community” is defined as a borough, except if no borough exists, in which case the community will be defined as a first or second class city. This definition differs from that of the Magnuson-Stevens Act, which defines community as a city or village. The broader definition provided here might be preferred, if retaining processing activity within a borough is believed to provide adequate protection of local interests. Borough representatives assert that borough governments can accommodate the competing interests of cities affected by these moves. In areas that are not in organized boroughs, the movement of activity would be limited within the city of origin.

The second provision would also limit the protection to communities with at least 3 percent of the processing history in one of the fisheries included in the rationalization program. This threshold is intended to limit the protection to communities with historic dependence on the crab fisheries. Extending the protection to communities with smaller allocations could prevent the geographic consolidation of relatively small allocations making the use of the processing allocation economically infeasible.

The third provision would permit each IPQ holder to transfer up to 10 percent an initial allocation from the community of origin. The movement of shares would be limited to 500,000 pounds, of which each processor in a community would be limited to a pro rata share based on total holdings in the community.¹⁴ Permitting transfers of small amounts of shares might be important to the coordination of harvesting and processing

¹⁴ It is assumed that an IPQ holder’s holdings would be identified using a 10 percent common ownership standard, similar to the standard used for determining processing shareholding caps.

activity in a system of harvest and processing shares. Although not inconsequential to a community, this movement of small quantities of shares should limit the disruption to communities of the movement of activities in the first two years of the program. If the Council elects to adopt this provision, it should specify whether the provision applies on a fishery-by-fishery basis, or generally to a processor's IPQ holdings. On a fishery-by-fishery basis, a processor would be limited to relocating 10 percent of its holdings in a fishery or its pro rata share of 500,000 pounds of a species, in the event that 10 percent of all IPQs in a community for a species exceeds 500,000 pounds. If applied generally, a processor could relocate 10 percent of its holdings of all species combined, or its pro rata share of 500,000 pounds, if 10 percent of all IPQs in a community exceeds 500,000 pounds. In this later case, the amount the processor could relocate would be based on its holdings of all species but the processor could relocate all of the allotted amount of a single species.

The fourth provision would exempt the WAI (Adak) golden king crab, the WAI (Adak) red king crab, and the Bering Sea *C. bairdi* fisheries from the restriction on transfers. The WAI (Adak) red king crab and the BS *C. bairdi* have been closed in recent years. The lack of recent history in those fisheries could justify their exemption from the provision, since recent community dependence could not exist. The preferred alternative also contains a requirement that 50 percent of the WAI (Adak) golden king crab fishery be landed west of 179° W longitude. Since this regionalization is not based on historical landings, exempting this fishery from any restriction on transferring processing activity from the community where the history was based may be necessary. Table 3.6-4 shows that approximately 92 percent of processing during the qualifying years was in Dutch Harbor. Since Dutch Harbor is east of 179° W longitude, at least 42 percent of all allocated processing shares will be designated for processing outside of the community of origin. The disconnect between the regional designation and historical dependence could justify the exclusion of this fishery from the transfer restriction.

The last provision is intended to provide a processor with the ability to use its IPQs in the event an act of God prevents use of those IPQs in the designated community. The provision would not affect regional processing requirements. The provision would not allow a processor to use its IPQs outside of a community if other processing facilities were available in the community. The provision is likely to require NOAA Fisheries to develop a system for adjudicating any claims that an act of God requires use of IPQs outside of the community. An efficient system of adjudication would be required, since open seasons and market conditions could impact the use of IPQs.

3.6.2.5 Regionalization of the Bairdi fishery

The committee also developed the following recommendation concerning regionalization of the *C. bairdi* fishery:

Regionalization of the Bairdi fishery

The committee requests that the Council consider regionalization of the bairdi fishery prior to that fishery becoming a directed fishery.

The committee recognizes that when the *C. bairdi* fishery opens, that fishery is likely to be prosecuted as a bycatch fishery of the Bristol Bay red king crab fishery and the *C. opilio* fishery. Under those circumstances, regionalization of the fishery could be problematic and overburdensome to harvesters and processors. The committee, however, requested that the Council consider appropriate regionalization of the fishery, in the

event the fishery is likely to reopen as a directed fishery. If the *C. bairdi* fishery is prosecuted as target fishery regionalization might be appropriate to ensure an equitable geographic distribute the benefits of the fishery.

3.7 Analysis of binding arbitration

Members of the BSAI crab fleet requested that the Council consider binding arbitration as a mechanism to resolve ex-vessel price disputes between harvesters and processors. In the current crab fisheries, harvesters often negotiate prices collectively at the beginning of each season. Harvesters have used two strategies for leverage during these price negotiations. In some seasons, harvesters have delayed the beginning of fishing after the opening of the season to pressure processors to pay a higher price for harvests. At other times harvesters have promised additional deliveries to the processor that offered an acceptable price to induce higher offers. The ability of harvesters to use these collective inducements could be limited in a fishery with an extended season and processor share allocations. In addition, neither harvesters nor processors believe that delaying fishing is in the best interest of either sector. Binding arbitration is intended to provide a method of determining a fair price for sales of crab in the rationalized fishery, subject to the limited harvesting and processing markets that will be available under a system that allocates both harvest and processing privileges.

The task of the Council is to identify an arbitration program. The specificity with which the Council must identify the program is dependent in large part on the extent of Council and NOAA Fisheries management and oversight. At a minimum, the Council must identify the standard to be applied by the arbitrator in making decisions, the general structure of the program, and the general principles that will guide oversight and management. The extent to which other details are specified by the Council decision is in the discretion of the Council. In any case, the development of the arbitration program is likely to require substantial work by industry after the Council's decision at this meeting. Administrative details and specific timelines for procedures will need to be developed. These activities could continue in committee with periodic reports to the Council.

The working group on binding arbitration met several times, developing five general arbitration structures. These alternatives range from a system that provides single preseason arbitration involving all harvesters and processors to a system that provides each harvester with the right to pursue binding arbitration with a single processor at any time before or during the season. During meetings, the committee developed a preference for two of the arbitration alternatives: the "fleet wide model," which results in a single baseline price that can be applied to all deliveries, and a "last best offer model," under which arbitration is conducted preseason on a processor-by-processor basis. These two alternatives were developed in greater detail than the other alternatives.

A brief discussion of arbitration and the different types of arbitration under consideration is presented first. The idea of using binding arbitration for resolving ex vessel pricing disputes is taken from the Newfoundland snow crab fishery. Because that system is the basis for consideration, a brief review of that system is presented.

The analysis of alternatives begins with a discussion of the problem statement developed by the committee. Since the arbitration is part of the larger rationalization program, the role of the arbitration system in that rationalization program is discussed. Fundamental to the arbitration program is the standard applied by the arbitrator in making a decision. Since this standard will have a large influence on arbitration outcomes and could be superimposed on any of the underlying arbitration systems, the options for the arbitration standard developed by the committee are examined first in the analysis. After the arbitration standard, all of the different structures developed by the committee are analyzed. The analysis concentrates on the two alternatives advanced by the committee because of the committee's preference for those structures and the greater detail of those two alternatives. The analysis concludes by examining the several individual elements

that are or could be incorporated into the different structures and that could influence the workings and outcomes of the arbitration proceedings.

3.7.1 Arbitration and the types of arbitration under consideration

Arbitration is the resolution of a dispute by a person selected under law or by the parties to the dispute. Arbitration is often used to resolve disputes that benefit from a quick resolution, including public employee labor disputes, sports contracts, federal contracting disputes, and disputes in the brokerage industry (Young, 1991 at p. 8 and Brams, 1998 at p. 71). In different arbitration systems, different rules govern the arbitrator's method of reaching a decision. In "conventional arbitration" the arbitrator decides the specific arbitration outcome. In a "final offer" or "last best offer" arbitration, each of the two participants submits a final offer.¹⁵ The arbitrator is restricted to selecting one of the two final offers of the parties. One of the models advanced by the committee is a conventional arbitration model; the other is a final offer model.

3.7.2 The Newfoundland binding arbitration system

A government appointed commission developed the Newfoundland system of binding arbitration in 1997 after a series of harvester strikes delayed fishing in the crab fishery over the course of several years. The commission was appointed after a protracted strike kept the fishery closed for a period of months (Task Force on Fish/Crab Price Settlement Mechanisms, 1998).

The Newfoundland crab fishery is relatively young and developed substantially as North Atlantic groundfish stocks declined in the early and mid 1990s. Growth in crab, however, did not keep pace with declines in groundfish. Pricing disputes arose from several factors, including mistrust between the sectors, a lack of transparency in pricing, weakening markets, product price declines, price differences with other crab fisheries, and the stances of both parties in collective bargaining (Task Force on Fish/Crab Price Settlement Mechanisms, 1998).

In the Newfoundland crab fishery the harvesting and processing sectors each act collectively, achieving an industry wide price for the fishery. Fishers have elected to act collectively across the entire fishery. Broad collective action on the part of fishers has forced processors to work collectively in the arbitration process, as well (Sackton, 2002). The arbitration process begins with a pre-season market report produced by an independent analyst selected mutually by the parties. The arbitrator, also selected by the parties in advance, has been a person outside of the industry. A negotiating period follows the market report during which the parties attempt to reach an agreement on price. The arbitrator does not participate in these negotiations. If an agreement is not reached 14 days prior to the season opening, each party submits a final offer to the arbitrator, who chooses from those two offers (Fishing Industry Collective Bargaining Act, 2001). In practice, the parties have relied on a pricing formula, under which prices are adjusted every two weeks based on the first wholesale price of three products, which are the primary products of the fishery. The formula also considers the exchange rate, the market share of each of the products, and the product recovery rate for each of the products. The starting point for the formula is a \$1.00 per pound allocation from the first wholesale price to processors, which was agreed by the parties. After that allocation, all additional first wholesale revenues are split 80 percent to harvesters and 20 percent to processors. The first wholesale prices are determined by ongoing independent market analyses based on private surveys of buyers and sellers. The job of the market analyst is to independently develop these private sources of information (Sackton, 2002).

In the first few years of the program, participants in Newfoundland's fisheries were reportedly satisfied with the resolution of disputes and transparency in pricing that have developed through the arbitration program.

¹⁵ Several other variations of these arbitration procedures have been developed. For examples see Dickinson, 2001 and Brams, 1990.

Transparency is provided through the preseason market analysis, as well as the biweekly adjustments under the price formula (Panel on Corporate Concentration, 2001). No strikes have occurred in the crab fishery since the system was implemented in 1998. The pricing formula seems to be critical to the success of the program. Processors believe that the system protects them in a falling market, while harvesters enjoy having additional market information (received through the market analysis and the arbitration process) and participation in mid-season price increases (Sackton, 2002). Strong markets for outputs of the fisheries in the first few years of the program likely contributed to the general satisfaction of participants. Recent developments in the fisheries, however, have strained the arbitration system.

Processors participating in the Newfoundland fisheries have been represented in arbitration by the Fisheries Association of Newfoundland and Labrador (FANL). Although FANL has represented processors in the arbitration process, the organization is not currently accredited as the bargaining agent and therefore cannot enforce arbitration findings on processors. Processors can voluntarily pay a price higher than the arbitrated price (FANL, 2002). The Newfoundland fishery is managed with an individual quota system with limited processor entry. Despite the limits on processor entry, rules have permitted new processors to enter the fishery since the implementation of the program. These new entrants, together with stock declines, have stimulated price competition among processors, so that the prices the 2002 season exceeded the formula price (McGovern, 2002). Although fishers have benefitted from this price competition, FANL asserts that its inability to initiate arbitration or enforce the arbitrated price has contributed to instability in the processing industry and communities (FANL, 2002). FANL applied for accreditation as the bargaining agent for all processors in May of 2002. Hearings required for the accreditation process began in November of 2002 and which would not be completed by the December 31, 2002 deadline for FANL's withdrawal from the arbitration process for 2003. As a consequence, FANL contemplated withdrawal from the system of arbitration, which the government countered by introducing legislation to extend the system to 2003 and mandate processor participation (Government of Newfoundland and Labrador, December 2002). In early January 2003, FANL elected to withdraw its application for accreditation and remove its collective bargaining mandate from its bylaws (FANL, 2003A). In late February 2003, FANL re-engaged in the arbitration process after the government scheduled a legislative review of the arbitration process (FANL, 2003B). The outcome of that process is uncertain.

A recent experience in the Newfoundland's shrimp fisheries also has led some people to question the strength of its arbitration system. In the shrimp fisheries a stalemate between the harvesting and processing sectors closed the fishery for approximately two months in the summer of 2001 (Government of Newfoundland and Labrador, September 2001). Government intervention in the dispute reopened the fishery and led to the appointment of a government panel to address issues in the fishery. Pricing disputes in that fishery have arisen from a variety of factors including market declines, seasonality of the fishery, product quality, and access to international markets (Inshore Shrimp Panel, 2002). The inability of price arbitration to stimulate solutions to these problems is not surprising and should not be seen as a shortcoming of the arbitration. Although some of the recent debate has focused on the arbitration system, one must remember that the arbitration program was introduced to address economic problems in the fisheries that predate the arbitration program. In the end, the management program in its entirety, including the arbitration program and laws governing collective bargaining, together with market conditions determine the economic outcomes of the fishery.

The appropriateness of a collective arbitration system (similar to the Newfoundland system) for the BSAI crab fisheries is subject to debate. The use of a collective system could be antithetical to advocates of a free market who believe individual differences drive innovations. A system like that used in Newfoundland, however, may have appeal to free market advocates in that it provides a baseline ex vessel price for all deliveries that can be exceeded by agreement of the parties. Yet, the incentives for a processor to pay in excess of the baseline price in the two-pie system will differ from the incentives for paying a higher price in a system of limited processor entry.

3.7.3 Principles behind binding arbitration

The working group on binding arbitration has proposed the following problem statement to guide the development of the binding arbitration system:

Issuing harvesting and processing quota raised concerns regarding changes in bargaining power between the harvesting and processing sectors in ex-vessel price formation. Binding arbitration is a mechanism intended to address that issue, and to help achieve the goals articulated in the North Pacific Council's Crab Rationalization Problem Statement.

The fundamental issue to be addressed by a system of binding arbitration is the change in bargaining power between the harvest and processing sectors in a rationalized fishery. The Council intends to develop a rationalization program that "maintains healthy harvesting and processing sectors." In addition, "the system should seek to achieve equity between the harvesting and processing sectors, including healthy, stable and competitive markets." The system of binding arbitration should protect all participants in the crab fisheries. Harvesters and processors alike should trust the system of binding arbitration. The system should also provide both parties with effective means of enforcing an arbitrator's decision.

3.7.4 Rationalization and arbitration

A discussion of the role that arbitration might serve in the rationalization program is useful to frame the analysis and identify potential issues concerning the binding arbitration alternatives. The analysis also considers each alternative structure independently, discussing the merits and shortcomings of each. To some degree the choice of system depends on the character of the industry and whether and how the rationalization program, as a whole, is intended to affect the character of the industry. In evaluating the different alternatives, several different impacts should be considered.

An important part of the rationalization program is the matching of Class A IFQs with IPQs to facilitate deliveries. Depending on the arbitration system selected, IFQ/IPQ share matching (specific shareholders in the different sectors agreeing to specific deliveries in the upcoming season) could occur prior to the arbitrator determining the price or after the arbitrator determines the price. The timing of share matching could affect the development of delivery relationships between IFQ holders and IPQ holders and potentially change the bargaining strength of the different sectors. For example, determining arbitrated price prior to the establishment of delivery relationships might be preferred, if the specifics of the delivery relationship should not affect the arbitrated price. In addition, creating that relationship prior to the arbitration would require parties to commit to a relationship before the terms of the relationship are known. On the other hand, if the delivery timing and terms of delivery are of more importance to one side than the other, establishing the delivery terms after determination of the price will reduce the bargaining strength of the party that is more sensitive to delivery terms. If specific delivery timing and delivery relationships are less important in the fishery, an arbitration system that determines all terms (including price and delivery terms) might be favored over a more general system in which the arbitrated price is not dependent on delivery timing.

In a similar vein, the different arbitration structures could affect the development of efficiencies in the fishery. Efficiencies could be achieved by the coordination of activities between the sectors. Several harvesters and processors participate in fisheries other than the BSAI crab fisheries. Timing of crab activities is important not only to maximizing returns from the crab fisheries but also receiving maximum returns from these other activities. Within the crab fishery, timing of activities is important to receiving the maximum meat fill as well as to scheduling for both harvesters and processors. Scheduling of activities can improve revenues and reduce

costs to both sectors, so an arbitration process that facilitates scheduling could be beneficial to both sectors. Although scheduling efficiencies could be achieved under any of the options, the different arbitration programs could affect the way these efficiencies are achieved and the distribution of benefits from those efficiencies.

Arbitration could also affect the development of efficiencies and improvements within each sector. Most importantly, the arbitration system should preserve the incentives so that each sector gains benefits from improvements in its own control. While in some cases sharing of these benefits with the other sector might be appropriate, improvements will not occur unless the sector with control also will realize a reasonable gain from an improvement. In short, the division of revenues must not transfer all of the improvements of one sector to the other sector.

The arbitration program should also consider the degree of homogeneity in the BSAI crab industry and whether the rationalization program is intended to increase or decrease the differences in the participants. An arbitration program that treats all participants the same could contribute to the homogeneity of the industry. For example, if the industry produces few products for a few known markets using common production technologies, a system of arbitration that treats all participants the same might be suitable. If different participants serve different markets with different products produced with different technologies, an arbitration system that treats all participants the same might be unable to serve the interests of all participants. The different arbitration structures vary in the degree of collective action permitted or compelled and the degree to which the arbitration findings are intended to apply to universally to all participants or to varying circumstances of independent participants. Because of these differences, the choice of arbitration programs could influence the degree to which the industry operates as a collective producer of outputs or as a number of independent producers.

Throughout the discussions of the preferred rationalization program and the arbitration program, the issue of the "last man standing" or the last IFQ holder to contract for delivery of crab has received considerable attention. The concern is that this IFQ holder, whose season could depend on the contract, would have little or no negotiating leverage in dealing with a large IPQ holder, who has already contracted for the majority of its shares. The different arbitration alternatives would treat the "last man standing" differently. Although the protection differs, and in some cases could be minimal, in evaluating the alternatives one should also consider whether the "last man standing" had the opportunity to avoid being put in the circumstance of having minimal protection. The arbitration program should be designed to protect IFQ holder interests, including the interests of the "last man standing". The program, however, might be adequate even though it does not protect the interests of those that do not act to obtain its protections.

An additional set of issues relate to the task of the arbitrator under the different alternatives. All of the structures call for the arbitrator to collect substantial amounts of data. Because IPQs represent a share of the market of landings, arbitration should create an incentive for processors to pay reasonable ex vessel prices. To create this incentive, an arbitrator must have a thorough understanding of the industry. Data must be assimilated in a short period of time to determine appropriate price formulas. If processors are similar to one another this may be a straightforward, manageable task. The data from the different processors would likely be somewhat redundant and could easily be managed by the arbitrator. The arbitrator must take into consideration different product forms and markets, production schedules and plant capacities and locations, and exchange rates. All of this information must then be developed into a single formula to establish a product price for all deliveries in a season. The complexity of this task under the different arbitration structures should be considered in assessing the different structures.

3.7.5 The arbitration standard

A primary determinant of whether arbitration serves its intended purpose is the standard applied by the arbitrator. The committee developed the following four options for the standard of arbitration:

Options 1 and 2 are two specific standards for establishing the price. Under the first option the arbitrated price should establish "an equitable division of rents". The second option would establish a "competitive price". The question arises as to whether either of these ends can be achieved, particularly without opening the financial books of all participants in the fishery to the arbitrator. Even assuming the arbitrator has access to all financial records of participants in the fishery, several different factors may make the determination of an equitable division of rents or a competitive price elusive since both of these are somewhat abstract concepts. A more precise and well grounded standard may be appropriate for guiding the arbitrator. Options 3 and 4 provide several factors that may be considered by the arbitrator in reaching a decision, including current ex vessel prices for A share, B share, and C share crab, product prices, productivity and efficiencies in the different sectors, innovations and developments, and the financial health and stability of participants. The list of pertinent factors would not constrain the arbitrator from consideration of other relevant factors but would provide a starting point and foundation, which could be extended by other pertinent information. Option 3 gives no standard providing only the factors that may be considered. Under Option 4 the primary role of the arbitrator would be to establish a price that preserves the historical division of revenues in the fishery in consideration of those factors. Although the division of revenues may have fluctuated year to year, this standard provides guidance to the arbitrator concerning the standard that should be applied.

In the first instance, the arbitrator (or an arbitration panel) will need to invest substantial time and effort into development of the historic division of revenues standard. Doing so will require the arbitrator to determine both historic ex vessel prices and first wholesale prices. Historically, substantial portion of the fleet in the larger crab fisheries have used a marketing association to establish a fleet wide ex vessel price for all landings in a fishery. Although the marketing association's negotiations have guided pricing for much of the fleet, some participants have made deliveries for different prices or received post-season settlements based on individual agreements with processors. Accurately calculating the historic division of revenues will require an accounting of these deviations from the marketing association's settled price. In the smaller fisheries, particularly the Aleutian Islands golden king crab fisheries, prices are more often negotiated on an individual basis and varied over the longer seasons. This lack of uniformity in prices will complicate the determination of the historic division of revenues for these fisheries.

Standard for Arbitration (All options apply to all alternatives)

- Option 1 The arbitration decision will attempt to make an equitable division of rents in the fishery (using the historic division of revenues as a surrogate for the division of rents for existing product forms).
- Option 2 The arbitration decision will attempt to set a competitive or fair market price for crab delivered.
- Option 3 The arbitrator shall consider relevant factors in making an arbitration decision, including but not limited to:
- a. Historical ex vessel prices and division of revenues
 - b. Current ex vessel prices (including prices for Class A, Class B, and Class C shares recognizing the different nature of the different share classes)
 - c. Consumer and wholesale product prices for the processing sector and the participants in the arbitration (recognizing the impact of sales to affiliates on wholesale pricing)
 - d. Innovations and developments of the different sectors and the participants in the arbitration (including new product forms)
 - e. Efficiency and productivity of the different sectors (recognizing the limitations on efficiency and productivity arising out of the management program structure)
 - f. Quality (including quality standards of markets served by the fishery and recognizing the influence of harvest strategies on the quality of landings)
 - g. The interest of maintaining financially healthy and stable harvesting and processing sectors
 - h. Safety
 - i. Timing and location of deliveries
 - j. Reasonable underages to avoid penalties for overharvesting quota and reasonable deadloss
- Option 4 The primary role of the arbitrator shall be to establish a price that preserves the historical division of revenues in the fisheries while considering relevant factors, including the following:
- a. Current ex vessel prices (including prices for Class A, Class B, and Class C shares recognizing the different nature of the different share classes)
 - b. Consumer and wholesale product prices for the processing sector and the participants in the arbitration (recognizing the impact of sales to affiliates on wholesale pricing)
 - c. Innovations and developments of the different sectors and the participants in the arbitration (including new product forms)
 - d. Efficiency and productivity of the different sectors (recognizing the limitations on efficiency and productivity arising out of the management program structure)
 - e. Quality (including quality standards of markets served by the fishery and recognizing the influence of harvest strategies on the quality of landings)
 - f. The interest of maintaining financially healthy and stable harvesting and processing sectors
 - g. Safety
 - h. Timing and location of deliveries
 - i. Reasonable underages to avoid penalties for overharvesting quota and reasonable deadloss

Determining the historic first wholesale prices will also be complicated by the lack of uniformity of processors and the different products those processors sell into different markets. In addition, establishing historic first wholesale prices could also be complicated by vertical integration of the processing sector. Sales to affiliated companies may not be arm's length transactions and may not be made at competitive prices. Implementing standard based on division of revenues will require the arbitrator to establish that first wholesale prices are competitive prices or to develop a system for determining a proxy for the first wholesale price when transactions are not at a competitive price. The magnitude of this problem is not likely to be fully understood until the arbitrator begins the process of calculating the division of revenues. In any case, having a substantial portion of the sales to non-affiliated entities by arm's length transactions will contribute greatly to verification of prices for sales to affiliates under any arbitration standard. To address the problem of sales to affiliates, both structures advanced by the committee contemplate verification of prices for these sales through a process of "back calculating" first wholesale prices. This process will have to be developed by the arbitrator on a case-by-case basis since sales and accounting practices are likely to differ across IPQ holders.

Determining the historic division of revenues is also likely to be complicated by several other factors. The division of revenues is likely to be sensitive to the production levels of specific products, with harvesters receiving a greater share of revenues from some products than others. Market changes are also likely to have influence the share of revenues. For example, harvesters may have received a different share of the revenues in years of high prices than low prices. In addition, the revenue share received by harvesters is also likely to be sensitive to changes in total harvest. Location of landings are also likely to influence the division of revenues. Prices for landings in different communities have historically varied. The arbitrator will need to accommodate these variations in applying the arbitration standard.

Data issues may also complicate determining the division of revenues for some fisheries. Data from the Commercial Operator Annual Reports (COAR), the best publicly collected source of price information, distinguish species but not fishery. So, a processor's Bristol Bay red king crab production will be combined with its production of Pribilof red king crab and Norton Sound red king crab. In many cases prices from different fisheries will be separable, but separating prices will require some attention to detail and familiarity with the fisheries and markets.¹⁶ While COAR data provides first wholesale prices FOB Alaska, aggregation of product forms in COAR reporting could complicate development of the underlying revenue division.

An added problem will arise in the verification of revenues for crab landed in the fishery in the future. In developing the split of revenues, the prices for crab landed with Class A, Class B, and Class C shares are to be considered by the arbitrator. The arbitrator, however, is directed to consider the different nature of the different shares. A system of recording the different prices for crab landed with different shares must be developed to aid the arbitrator in this process. In addition, the weight given to current share price by the arbitrator under this standard could be controversial.

In conclusion, the development of a historic division of revenues standard for the arbitrator is likely to simplify the arbitrator's task significantly in comparison to a division of rents or competitive price standard. The division of revenues standard is also likely to provide more guidance to the arbitrator than a standard that simply advises the arbitrator to consider a list of factors. The historic division of revenues standard, however, is not without complication and will require substantial effort on the part of the arbitrator, particularly in the first instance.

¹⁶ If public data is to be used by the arbitrator, the Council will need to arrange for provision of this data to the arbitrator. Data could be released only in aggregated form to avoid any confidentiality issues.

3.7.6 The alternative arbitration structures

This section describes the five different arbitration structures developed by the committee. The section begins with summary descriptions of all five alternatives, each of which contain several different options. Under all of the arbitration options, parties are free to contract for deliveries at any time under terms agreeable to the parties.

Structure I

Under Structure I, IFQ holders would be permitted to initiate a single arbitration proceeding with each IPQ holder. IFQ holders would be required to commit the delivery of shares to the IPQ holder to initiate or join proceedings with that IPQ holder. The IPQ holder would submit a single offer and the participating IFQ holders would collectively submit a single offer to the arbitrator in a last best offer (or final offer) format. An option would allow IFQ holders that did not participate in the arbitration to receive the benefits of arbitration by agreeing to deliver to the IPQ holder, accepting all terms of the arbitration decision (assuming that the IPQ holder held adequate shares to accept the delivery).

Structure II - The last best offer model (advanced by the committee)

Under Structure II, harvesters would be permitted to initiate a single arbitration proceeding with each IPQ holder in the preseason. Proceedings may be initiated by an IFQ holder (or a group of IFQ holders) prior to the season after committing to deliver shares to the IPQ holder. For a brief period of time prior to the commencement of hearings, other IFQ holders could join the proceeding by unilaterally committing deliveries to the IPQ holder. The arbitration would be in a last best (or final) offer format, which is favored by some participants and is used in the Newfoundland arbitration system. The IPQ holder would submit a single offer. Each IFQ holder could submit an offer or join a group to submit a collective offer. For each IFQ holder or group, the arbitrator would select between the IFQ holder's (or group's) offer and the IPQ holder's offer. IFQ holders that did not participate in the arbitration could receive the benefits of arbitration by agreeing to deliver to the IPQ holder, accepting all terms of the arbitration decision (assuming that the IPQ holder held adequate shares to accept the delivery). A complete copy of this structure appears as Appendix 3-4A.

In addition to the options specified above, two options are proposed to address the balance of negotiating power between the sectors. Under the first of these options (the "highest price option"), at the conclusion of the last arbitration proceeding for each fishery, the arbitrator in that proceeding would select the 'highest' arbitrated price from all arbitration proceedings. If arbitration outcomes are available for both price formulas and straight prices the arbitrator may select one of each type. This 'highest price' outcome would then be applied to all arbitration proceedings. Under the second option (the "guiding price option"), in the pre-season (prior to the share matching and any individual arbitration proceedings) the arbitrator would develop a non-binding price formula. This formula together with the market report are intended to be used by participants to develop a starting point for price negotiations.

Structure III

Structure III is the same as Structure II, except that a second arbitration proceeding with each IPQ holder could be initiated by any IFQ holder after a fixed period of time. The second proceeding would be intended to accommodate changes that occurred during the season. Initiation of the second proceeding could also be conditioned on market changes and requirements that a threshold number of share be subject to the arbitration.

Alternative Arbitration Structures

- I. A structure of one arbitration per processing firm, with harvesters using one mandated collective bargaining association that would submit one last and final offer on behalf of all IFQ holders. Sub-options for this structure include
 - a. Can either be pre-season or at any time the processor is first forced to arbitration.
 - b. Instead of mandating a collective bargaining association, the structure could require one last best offer from all IFQ holders (without mandating belonging to the association).
 - c. IFQ holders not participating can either have the protection of the arbitration (last man standing is protected) or not (last man standing does not receive the benefit of the arbitration).
- II. A structure of one arbitration event per processing firm, but with multiple arbitrations allowed. Under this system, arbitration would occur at one time, using one arbitrator, per processor, but any individual IFQ holder or group of IFQ holders could force arbitration of their individual last/best offer. Sub-options for this structure include:
 - a. Can be collective bargaining by harvesters or individual or both. If individuals can arbitrate, there would be a notice and joinder opportunity for all harvesters to join into arbitration.
 - b. Can either be pre-season (only) or at any time the processor is first forced to arbitration.
 - c. If an IFQ holder is not part of the arbitration, it can still get the benefit of the minimum price established. The sub-options are the lowest, mean or highest arbitrated price.
- III. A structure of multiple arbitration events per processing firm only at firm times.
 - a. The sub-options for when arbitration is allowed include temporal (such as every two months, or one event one month before the end of the season) or market related (if the market changes up or down over 5%, for example).
 - b. It is assumed that any IFQ holder may join in the arbitration.
 - c. It is assumed that any IFQ holder has the benefit of the last arbitration. The sub-options are the same as I.c.
- IV. A structure of multiple arbitration events per processing firm. Under this structure, arbitration could occur at the election of any quota holder at any time. Sub-options for this structure include:
 - a. Can be collective bargaining by harvesters or individual or both.
 - b. There may be standards that must be met in order to require arbitration, such as a minimum amount of IFQ to cause arbitration.
- V. A structure establishing a "fleet wide" single arbitration event.
 - a. The system would not use "last best offer" but rather the arbitrator could pick any final price the arbitrator wanted.
 - b. It would require that the arbitrator develop a formula pricing system
 - c. It would require revenue by processor be given to the arbitrator to use in developing the formula. It could require costs by processor be given to the arbitrator to use in developing the formula.
 - d. The formula could either adjust weekly with changes in market prices or establish a base or minimum price paid at the time of delivery and adjustment after product sales are completed

Structure IV

Structure IV is the same as Structure II, except that any IFQ holder could initiate an independent proceeding at any time. Under this structure, numerous arbitration proceedings could be initiated with each IPQ holder during a season. By allowing an unlimited number of proceedings, any change in circumstances could be accommodated and no IFQ holder would be left out of the arbitration system.

Structure V - The fleet wide model (advanced by the committee)

Under Structure V, the arbitrator would develop a fleet wide baseline price formula that could be applied to any deliveries in the fishery. The arbitration proceedings would be a series of consultations with IFQ and IPQ holders. IFQ holders could collectively participate in these consultations. IPQ holders would have independent consultations only to avoid antitrust violations. After the baseline price formula is determined, contracts would be formed by IFQ holders putting shares to IPQ holders, specifying the terms of delivery (including delivery date and location), which would be at the arbitrated price. The processor may form a contract by accepting these terms or negotiate other terms with the harvester. The put would commit the processor's shares until the terms of a contract are agreed, the harvester has withdrawn the put, the harvester has committed to arbitrating the put or until the passage of a set period of time (7 business days for cooperative members or 5 business days for nonmembers of a cooperative). Participants from both sectors believe that the brief period of time that shares are committed would not pose an operational problem to processors. If the harvester elects to arbitrate the put, the price would not be subject to arbitration since the fleet wide base price would have been established. Other terms, such as delivery dates and location, would be decided by the arbitrator. In the event the IPQ holder does not agree to the terms of the put, the IFQ holder may arbitrate the terms of delivery. The option to put shares to processors would occur during a window of time determined by the arbitrator. A complete copy of this structure appears as Appendix 3-4B.

Table 3.7-1 shows some of the primary features of the two structures advanced by the committee.

Table 3.7-1 Primary features of the two arbitration structures advanced by the committee

Program Feature	Fleet Wide Model	Last Best Offer Model
structure of proceedings	one proceeding to determine price, second proceeding to determine other terms	one proceeding to determine price and all other terms
scope of price arbitration	one proceeding for the entire fishery	one proceeding per IPQ holder
scope of delivery terms arbitration	separate proceedings initiated by IFQ holder, potentially aggregated for each processor by arbitrator	included in the price arbitration
IFQ holder participation	voluntary collective participation (up to entire fishery fleet)	voluntary collective participation (up to IPQ holder's fleet)
IPQ holder participation	all participate by individual consultations	individual
type of arbitration	conventional	final (or last best) offer
price basis	fleet wide	individual IFQ holder or voluntary IFQ collective
timing of share matching	after price determination	prior to price determination

Table 3.7-1(Cont.) Primary features of the two arbitration structures advanced by the committee

Program Feature	Fleet Wide Model	Last Best Offer Model
timing of contract formation by arbitration	after price determination and at time of put arbitration	at time of price determination
timing of determining of delivery terms	after price determination and at time of put arbitration	at time of price determination
transfer of findings to non-participating IFQ holders	can opt in by accepting all terms of an arbitrated put	can opt in by accepting all terms of an arbitration finding

3.7.7 Comparison and analysis of arbitration structures

This section analyzes the different arbitration structures. The analysis concentrates on differences between the structures. The two structures advanced by the committee are discussed first and given added attention.

In addition to the analysis presented here, the Council will be provided with an analysis using experimental economic methods, which examines the various structures. That analysis is intended to reveal whether inherent differences in the structures create any differences in bargaining strength of the participants. The experimental analysis is attached as Appendix 3-4C.

Analysis of Structure V - The Fleet Wide Model.

Under Structure V the arbitrator would be tasked with developing a single price formula applicable to all participants in the fishery. The arbitrator would rely on a series of meetings with the different harvesters and processors in which market and price information would be gathered. The workability of the alternative depends on the ability of the arbitrator to establish a universal price formula based on a series of contacts with harvesters and individual processors. Since this system would not be a final offer system, the arbitrator would be called on to develop a formula. If the industry is fairly homogeneous, the arbitrator might quickly gain some perspective of a single, fair price formula by these contacts. The series of contacts would give the arbitrator a perspective of the production technologies and product markets necessary to determine an appropriate price. If participants differ substantially, developing a single price formula from this series of contacts with harvesters and processors could be a very complex and difficult task. All participants are likely to offer suggestions of the appropriate formula. Yet, since the process does not involve direct negotiations among all parties and processors are not permitted to discuss an appropriate formula with each other, it is possible that a wide variety of different formulas could be suggested with the arbitrator given considerable authority to establish the pricing formula. To exercise this authority judiciously, an arbitrator would likely need considerable expertise in the crab fisheries and the marketing of their products. Even then, an arbitrator would be challenged by the task of developing a single, reasonable formula if presented with a variety of very different formulas by participants.

The breadth of information considered by the arbitrator under the fleet wide option could have a positive effect on the outcome of the arbitration. Committee members agree that the arbitration finding should create incentives for processors to maximize revenues. To do so under any program will require that the arbitrator have comprehensive knowledge of the products and markets served by the fishery. The one-to-one relationship between Class A IFQs and IPQs could leave some harvesters with few choices of where to deliver their harvests. If fleet wide information is not used to establish a price for deliveries to low revenue processors, the revenue shares of the low revenue processor fleets could be lower than those of high revenue processor fleets through no fault of the harvesters. In the fleet wide model, the arbitrated price will be an industry wide average of revenues from all products of all processors. An arbitrated price under these criteria

should create an incentive for low revenue processors to increase revenues. Creating this incentive universally in a series of processor-by-processor arbitration proceedings would depend breadth of information that the arbitrator has access to and considers in deliberations. That issue is discussed further in the analyses of the processor-by-processor arbitration structures (primarily the “last best offer” structure).

Although this system establishes a single price for crab deliveries in the preseason arbitration, deliveries could be at a different price if negotiated by the parties. In general, whether the parties settle at a price other than the fleet wide arbitrated price is likely to hinge on the competition among processors for B share deliveries and the sensitivity of the parties to delivery terms other than price. Settlement for another price could occur if use A share price to compete for B share deliveries or if parties preferred different delivery dates and one party was willing to compensate the other for accommodating a preference. Although some participants have suggested accommodating a delivery preference could result in processors paying prices in excess of the arbitrated price, it is possible that a harvester with a strong preference for a certain delivery date could accept a price below the arbitrated price to entice a processor to accommodate that preference. The circumstances of the two parties are likely to determine which party is in a better bargaining position with respect to determining the delivery date. The party that is more sensitive to delivery timing because of competing opportunities or production cost sensitivities will have less leverage and will be more likely provide price accommodations. In this circumstance, the establishment of a fleet wide price may not resolve the price dispute but instead serve as a precursor to a later price negotiation.

Although the put system would allow the arbitrator to resolve the terms of delivery, the terms of delivery would be established independent of price (which is established in the earlier fleet wide price arbitration). So, although the specific circumstances of an individual harvester and an individual processor may be subject to arbitration, this structure isolates the arbitrators consideration of those circumstances from the establishment of the price. Price adjustments at the individual level, however, could be the most equitable method of accommodating individual delivery term preferences and are likely to be the center of any negotiations between harvesters and processors after the establishment of the fleet wide price.

Developing a fleet wide price ensures that all participants are subject to the same arbitration finding. The averaging effect of establishing a fleet wide price, however, could have unintended effects. The first possible complication is that arbitrating a fleet wide price might inhibit IPQ holders from transacting prior to the arbitration price finding. Since a negotiated price could affect the arbitration outcome, the IPQ holders may be less inclined to settle prices prior to the arbitration unless the price is perceived to be at or below the predicted arbitration outcome. Since these negotiated settlements are likely to provide information to the arbitrator and influence the arbitration finding, discouraging these settlements could reduce the information available to the arbitrator when making a decision. The second effect is that establishing a universal price could discourage IPQ holders from settling for a price higher than the arbitrated price after the arbitration finding is made. The incentive to settle at a higher price could be muted, if an IPQ holder perceives that the settlement could be used against the IPQ holder by other holders of Class A shares or in arbitration in the following year. These effects could be mitigated by processors that wish to use prices for A share deliveries to compete for a harvester’s B share deliveries.

Another issue is how the establishment of a fleet wide price applicable to all arbitrated outcomes will affect the incentive for improvements for IPQ holders. Fleet wide pricing could have an averaging effect on ex vessel prices. If IPQ holders rely on the fleet wide pricing, the high revenue IPQ holders may receive a greater return from their production than low revenue IPQ holders. At the same time, IFQ holders delivering to these different IPQ holders will receive the same price for their deliveries as those delivering to low revenue IPQ holders. So, at the fleet wide price IPQ holders that receive higher than average revenues will share a lower percentage of their revenues with harvesters than low revenue IPQ holders. By allowing a larger share of revenues to be retained by the high revenue IPQ holder, however, the fleet wide price could create incentives

for increased revenues for all participants. The following year's arbitration could consider these improvements with a possible modification of the price formula to accommodate the change, increasing the revenues for all Class A deliveries. While the upward pressure on all ex vessel prices might be desirable, the appropriateness of this price pressure and revenue sharing is likely to depend on the specific circumstances. If the cooperation and action of harvesters contribute to the higher revenues, the fleet wide averaging might not be appropriate. If the high revenue opportunity is available to all IPQ holders, the incentive of the price pressure would be appropriate. The success of the system in achieving an equitable outcome will depend on the extent to which the arbitrator can sort through the specific circumstances and adjust the pricing formula accordingly.

A particular caveat with this alternative is the potential for antitrust issues to arise with processors all participating in the same arbitration proceeding. The system would rely on the arbitrator to approach each processor independently to avoid antitrust violations. Whether this would effectively avoid antitrust problems without an antitrust exemption.¹⁷ The committee would like the arbitration program to be governed by existing antitrust laws and does not believe that an antitrust exemption should be granted for the arbitration program. An additional hurdle that must arise in the sharing of market and price data is the level of confidentiality that should be accorded. At some level this data is likely to be proprietary and should be kept confidential.

Lastly, this model contains provisions for the arbitrator to back calculate first wholesale prices for sales to affiliates. The broad, fleet wide scope of this model should aid the arbitrator in verifying (or developing a proxy) for the first wholesale price for these sales. Since the arbitrator will have access to sales from all processors, information concerning arm's lengths transactions should be available to verify (or determine appropriate adjustments) to sales to affiliates.

Analysis of Structure II - The Last Best Offer Model

Under this system, each IPQ holder would be subject to a single arbitration proceeding. Proceedings may be initiated by an IFQ holder (or a group of IFQ holders) prior to the season after committing to deliver shares to the IPQ holder. The proceedings would use a final offer arbitration system. In the proceedings, IFQ holders could elect to submit offers collectively. Any IFQ holder that does not elect to join in a collective bid could submit an individual bid. The IPQ holder would submit a single bid. For each IFQ holder bid, the arbitrator would select between that IFQ holder bid and the IPQ holder's bid. This last best offer (or final offer) format limits the discretion of the arbitrator to balance the interests of the parties. Instead the arbitrator is left to accept either the IFQ holder's or IPQ holder's offered terms.¹⁸

The requirement that IFQ holders commit shares to an IPQ holder to initiate the arbitration process is perceived as a benefit of this system by some participants. The matching of IFQs with IPQs in the preseason could streamline that process in the rationalization program, where a one-to-one correspondence of shares provides no alternative but share trading for harvesters that cannot evenly match shares with the processor that they wish to deliver to. The pre-arbitration share matching, however, is perceived by some as a downfall of this system, since it would require a harvester to commit deliveries to a processor prior to knowing the terms of that delivery. Despite the one-to-one relationship between A shares and IPQs, some participants

¹⁷ NOAA General Counsel has requested the Department of Justice Antitrust Division to examine this issue and is awaiting a response.

¹⁸ The use of final offer arbitration rather than conventional arbitration (in which the arbitrator is given complete discretion in decisionmaking) can influence positions taken by parties to an arbitration proceeding and arbitration outcomes. A discussion of the relative merits of final offer arbitration and conventional arbitration appears in the following section.

believe negotiating leverage would be altered by requiring harvesters to commit deliveries to a specific processor prior to establishing the price for those deliveries. Arbitration systems typically require both parties to accept the arbitration outcome prior to its determination.

Under this arbitration structure, the price formula (or price) is specific to the IFQ holder and IPQ holder. An advantage of this system is that the price formula and all other delivery terms are determined simultaneously. Consequently, the arbitrator will consider all terms of delivery at the time that price is determined. By considering the specific needs of the different participants, the arbitration outcome might more accurately address the needs of the participants. Similarly, the arbitration system may promote negotiated settlements between IFQ holders and IPQ holders by facilitating the simultaneous discussion of all terms of delivery including price.

The separation of IPQ holders in the process could limit the effectiveness of the system in protecting IFQ holders that deliver to low revenue IPQ holders. To create incentives for each IPQ holder to increase revenues, an arbitrator will need to consider the performance of the IPQ holder with respect to all processors in the fishery (including any that do not hold IPQs). A revenue dividing pricing formula that considers only the revenues of the participating IPQ holder might reduce the incentive for low revenue IPQ holders to improve revenues. On the other hand, a revenue dividing formula that has a component that weights the performance of all processors in a fishery could be used to create an incentive for an IPQ holder to be competitive with others in the industry. The potential of this system to incorporate a fleet wide component into the arbitrated price depends on the degree to which participants incorporate industry performance into final offers and whether arbitrators have access to information from the industry as a whole that is necessary to validate those offers. Isolating an arbitrator with information from a single IPQ holder could limit the effectiveness of arbitration in protecting the interests of IFQ holders.

Given the division of revenues standard supported by the committee, the isolation of an IPQ holder in the proceedings could also be problematic in situations where the IPQ holder makes substantial sales to affiliated companies. If the arbitration outcome awards an IFQ holder a specific portion of the processor's revenues, sales to affiliates at below market prices will decrease the IFQ holder's revenues.¹⁹ The last best offer model contemplates a back calculation procedure involving the arbitrator and both parties to determine accurate first wholesale prices. Resolution of this problem may be aided by developing formulas that look at a broader portion of the fleet than the individual processor. Use of this broader scope, together with developed procedures for validating (or adjusting) prices, could mitigate any unfairness arising out of non-competitive prices in sales to affiliates.

The isolation of each IPQ holder in the arbitration process also mitigates (possibly not eliminating) antitrust issues. A potential antitrust problem could arise from the distribution of data across all arbitration proceedings. This distribution of data is necessary to create incentives for processing improvements and aggressive marketing. Sharing of data could raise confidentiality concerns since sensitive proprietary information could be at issue. The access of the arbitrator to pricing and product information from all processors (necessary to establish incentives for improvement) could raise either confidentiality or antitrust concerns, if these data are shared with the IPQ holder in the proceeding. This data is likely to be critical to the arbitrator establishing a price that creates processor incentives for revenue improvements.

The last best offer structure would allow harvesters the flexibility to act either collectively or individually in the arbitration proceeding. The disadvantage of not compelling a collective bargaining unit is that the proceedings could be less organized and possibly disrupted by the independent bidding of several different

¹⁹ These below market price sales may be motivated by internal corporate decisions unrelated to the relationship between the processor and its fleet.

IFQ holders. The level of disruption likely would depend on the specific rules that govern the proceedings and the arbitrator's ability and willingness to control the proceedings by imposing structure on the arbitration process. IPQ holders in this circumstance could be required to negotiate with several IFQ holders independently, which could complicate the development of a single coherent position in the arbitration process. The potential disruption of participation in the process by individual IFQ holders must be balanced against the objective of IFQ holders in advancing their own interests over a collective interest. Some IFQ holders could object to being required to participate collectively in the arbitration. For example, an IFQ holder may wish to present an isolated price bid to accommodate special circumstances and scheduling requirements. Whether requiring collective participation is appropriate depends on the extent to which the IFQ holder's circumstance is likely to be unique in comparison to other IFQ holders delivering to the IPQ holder.

This structure would also allow an IFQ holder that did not participate in an arbitration proceeding to receive the benefit of the arbitration finding by agreeing to deliver crab harvested with its A shares under the terms of the arbitration decision. A possible problem with this arrangement is that an arbitration decision might be inadequate for all IFQ holders that would make deliveries to an IPQ holder. For example, if the arbitration only involved 40 percent of an IPQ holder's shares, it is possible that the proceedings only concerned deliveries for which the IPQ holder had a specific known but limited market. Application of this decision to all deliveries to the IPQ holder might not be appropriate since other deliveries could be used to satisfy secondary demands. A requirement could be added that final offers be broad enough to cover all of an IPQ holder's shares. Under this scenario, the IPQ holder and the participating IFQ holders would include terms for deliveries from others not present at the arbitration. Although this would provide a price for all deliveries, IFQ holders participating in the arbitration are unlikely to give much consideration to an offer for deliveries of the IFQ holders that do not participate. Whether this situation requires a remedy, depends on whether IFQ holders that do not participate in the process in the first instance merit protection. If options are adopted that provide any IFQ holder with a right to join arbitration proceedings by unilaterally committing shares to an IPQ holder, those not participating in the arbitration could be argued to have remained out of the proceedings at their own peril.

An additional feature in this option is that the parties could agree to follow a modified schedule for fisheries with extended seasons. For example, if a fishery were to be several months long, an IFQ holder and IPQ holder might agree that deliveries for their shares would be made late in the season. Rather than arbitrate early in the season, the parties could agree to postpone the establishment of the price formula until late in the season. This procedure could be beneficial to both parties and result in the arbitrator having more complete information concerning the deliveries when making a determination.

Analysis of Structure II - The Last Best Offer Model with the "Highest Price Option"

Under this option, at the conclusion of the last arbitration the arbitrator would select the highest arbitrated price, which would be applied to all arbitrated deliveries. If the different arbitration outcomes include both price formulas and straight prices, the arbitrator will have the discretion to select one of each to be applied at the election of harvesters. To be considered for the highest price finding, an arbitrated price must apply to at least 7 percent of the IPQs in a fishery. This highest price could come from arbitration proceedings with two different processors that collectively account for 7 percent of the fishery's IPQs. In order to receive the benefits of the 'highest price,' the harvester would have to accept all the terms of the arbitration finding, including delivery dates and timing. In determining which arbitrated price is the highest, the arbitrator would consider terms of delivery that will have a significant impact on price, such as delivery location and timing.

This option is intended to mimic price negotiations currently conducted in the largest fisheries. Currently, harvesters negotiate price collectively through the Alaska Marketing Association (AMA). Representatives approach each processor independently for price offers. When representatives believe a processor has made

an offer that is acceptable to the fleet, AMA members vote whether to accept the price. Although only the offering processor would be bound by the price, typically all other processors match the offer establishing a single price in the fishery. Although informally applied, to be applicable a price must be from a “major” processor or from more than one minor processor. In general, processing capacity that represents approximately 7 percent of the fishery must agree to the price for the price to be acknowledged by all processors in the fishery.

Proponents of the “highest price” alternative believe that it establishes a structure that allows harvesters to continue to negotiate prices as in the current fishery. If a sufficient number of harvesters agree to join a collective bargaining association, a representative of the association could arbitrate prices with all processors. These different proceedings would all generate separate prices and the arbitrator of the last proceeding could select the highest arbitrated price and apply that price to the entire fleet. To induce high offers from processors, participants in the collective bargaining association could pledge their B shares to the processor that offers the highest price in arbitration. Under this scenario, processors would use arbitration offers to bid for B share deliveries. Each processor would have an incentive to bid for the highest price since all will pay the highest price, but only the processor offering the price would receive any B share deliveries. If harvesters can organize a collective bargaining association to follow this procedure, the A share price would like be a competitive price, with processors earning only normal profits. If all harvesters participate in this collective action, harvesters could capture all rents from the fishery.²⁰

Use of this arbitration system to develop a single fleet wide price for all deliveries could pose several problems.

1. If the system works as intended, all deliveries in the fishery would be arbitrated. Since only harvesters that arbitrate would receive the arbitrated price, all harvesters will need to arbitrate their deliveries for the system to work as intended. Any harvesters that elect to settle prices with a processor could be subject to rightful criticism from other members of the fleet whose position in arbitration is weakened by removing the harvesters’ shares from the arbitration. In addition, if a processor settles all of its price negotiations with its fleet, the removal of that processor from the arbitration altogether weakens the position of the remainder of the fleet in arbitration. In this system, arbitration (not negotiation) is likely to be the norm for price setting.
2. Since all processors would required to pay the highest arbitrated price, the system could be used by a processor to exert pressure on its competitors. Whether a processor would use the provision in this strategic manner cannot be predicted.
3. A potential benefit of the “last best offer” structure is that the arbitration can be used to address individual circumstances of harvesters and processors attempting to agree to delivery terms. The “highest price” system is contrary to (and could frustrate realizing) that objective. The system could proceed in two very different ways. First, each arbitration proceeding could develop a price that is easily applied to the entire fleet. These arbitrated outcomes could be applied to all deliveries, but much of the delivery specifics (such as location and individual timing preferences) would be left for the parties to negotiate or resolve in some other manner after the high price is announced. Alternatively, arbitration proceedings could result in very specific delivery terms and prices, which account for delivery locations and individual timing preferences. Determining the “highest price” from these specific outcomes could be very difficult for the arbitrator since the prices would vary

²⁰ Many harvesters contend that the industry is unlikely to be able to achieve this level of organization. The incentive to organize, however, is clear and could overcome past reluctance of harvesters to work together, if harvesters perceive the price leverage generated by the B shares of the fleet.

with delivery specifics. The nature of the final offer format would also prevent arbitrators from adapting an arbitration outcome in a manner that is more applicable to the fleet in its entirety. In addition, some of the outcomes might be inconsistent with delivery requirements of other participants (i.e., regional requirements). In this case, these parties could either rely on the original arbitration finding (which is not the “highest price”) or would have to negotiate workable price accommodations for deliver terms that both parties find acceptable. In either case, the benefits of the “highest price” finding could be lost to the harvester.

4. The fleet wide approach of using a single harvester collective to the arbitration that is likely to drive the arbitration outcome to the highest price is likely to be very confrontational. This confrontational approach could hurt relationships between processors and their fleets complicating the resolution of any disagreements outside of arbitration.
5. One purported benefit of “last best offer” structure is that arbitration can occur relatively close to the season opening. Some participants are concerned that adequate information to decide price is unavailable several months prior to the season.²¹ In the opinion of these participants, a system of arbitration that schedules proceedings close to the season opening is preferable to one that decides price several months before the opening. Although the “last best offer” structure is intended to accommodate this interest, the addition of the “highest price” option could frustrate this end. The arbitrator tasked with determining the “highest price” could require a substantial amount of time to determine which price is the highest given the variety of different formulations and delivery specifics. If post arbitration negotiations would be necessary to resolve delivery details, a substantial period of time may be required after the announcement of the “highest price” (but before the season opening) to resolve delivery details.

Analysis of Structure II - The Last Best Offer Model with the “Non-Binding Price Signal Option”

Under this option, simultaneously with the release of the marketing report, the arbitrator or panel of arbitrators would release an advisory, non-binding price formula. The price formula is intended to provide participants in both sectors with guidance on an appropriate price formula for the upcoming season. After release of this advisory formula, participants would be expected to negotiate deliveries, and if necessary arbitrate any deliveries that could not be agreed under the “last best offer” structure.

The issuance of a non-binding price by the arbitrator could be very helpful to parties making a good faith effort to reach agreement in the rationalized fishery. This arbitrator’s price statement is likely to be a starting point for most negotiations. Participants can be expected to vary prices and terms from the non-binding formula to accommodate their preferences for delivery timing and location and other terms. Given the complexity of issues that are likely to be confronted by participants and arbitrators, the non-binding formula is likely to be very useful to participants attempting to determine reasonable positions to take in negotiations and arbitration proceedings. Without the guidance of the price statement, in the first few years of the program, some participants may have great difficulty constructing a workable price formula.

The arbitrator’s development of a non-binding price formula should also mitigate a problem introduced by the final offer format of the last best offer model. In the final offer format, the arbitrator is also prevented

²¹ The actual benefit of compressing negotiations into a brief period immediately before a season is questioned by some participants. These participants believe that use of price formulas is a better way to accommodate market volatility. Anecdotal evidence from pollock fishery participants suggest that a formula can successfully address future price volatility. In addition, timing the arbitration immediately prior to the season would force the arbitrator to quickly decide which arbitrated price is the “highest price”. This decision could be difficult if the arbitration proceedings generated several different price formulations.

from developing a reasonable compromise formula, if the parties make very different offers. The advisory price formula should increase the probability that an arbitrator receives price formulas of a common structure that lend themselves to comparison. Without a starting point for developing a formula, arbitrators could receive price offers with substantially different structures. Although both parties may have a rationale for their offers, the arbitrator's task of selecting from these different offers could be very challenging. Since the announced price formula is a reflection of an unbiased arbitrator's opinion of a reasonable price, parties should be wary of attempts to deviate substantially from that price. While providing the advisory price formula as a starting point does not ensure that offers will not differ in structure, the parties will be on notice that variation from the structure of the advisory formula will need to be justified.

The basis for negotiations formed by the advisory price also has the character of not undermining individuals' preferences. The use of individual arbitration proceedings provides the parties flexibility to accommodate individual preferences and allows for modifications from the advisory formula to reflect these changes. So, while providing a starting point for negotiations, this option would allow the parties to make justifiable modifications from the formula to address individual needs.

The arbitration committee has proposed three changes to the provision in the Council motion intended to make the option more consistent with the arbitration structure adopted by the Council and more workable. **Those changes are described in the following three paragraphs.**

The arbitrator should apply the arbitration standard to determining the non-binding price formula.

The option provides that the arbitrator determine the price based on the historical (1991-2000) distribution of first wholesale revenues between harvesters and processors with adjustments for developments that occur in the fisheries after rationalization. If the non-binding formula is based on the arbitration standard, that formula is likely to be more useful in guiding negotiations and would be a more reliable signal of the possible future arbitration findings.

The non-binding arbitration should be conducted by a different arbitrator than the "last best offer" arbitration proceedings. The use of a different arbitrator for the non-binding arbitration will ensure that an objective, unbiased arbiter issues the finding in the binding "last best offer" arbitration. If a party challenges the initial non-binding arbitration finding in the "last best offer" proceeding, that party is unlikely to receive an unbiased assessment of the finding by the same arbitrator. Using different arbitrators for the two proceedings will provide a neutral, unbiased arbiter for the binding "last best offer" proceeding.

The non-binding price formula should be a benchmark price, identifying product forms, delivery times and locations on which it depends. To effectively guide individual negotiations, the non-binding price should be specific as to the terms under which it is established. By identifying the product forms, delivery locations and times on which the price formula relies, the formula will provide a better guide to parties who are negotiating deliveries in the fisheries.

Analysis of Structure I - Single arbitration proceeding for each IPQ holder, with IFQ holders required to participate collectively.

This structure is the same as the last best offer model, except that IFQ holders would be required to act collectively in the arbitration proceeding. Generally, the benefits and detriments of the last best offer model would be retained in this structure. The only exception is that the interests of the individual IFQ holders would be subordinated to the collective interests of all IFQ holders participating in the arbitration proceeding with an IFQ holder. Most participants believe that individuals should be free to assert their own position in the arbitration proceeding, if they desire.

Multiple (but a limited number of) arbitration proceedings for each IPQ holder, with IFQ holders permitted to participate independently or collectively (Structure III).

This structure is similar to Structure II, however, a second arbitration would be permitted for IFQ holders that have shares that are not included in the first arbitration proceeding. The second arbitration would be available to IFQ holders that chose not to engage in the first arbitration or that did not commit all shares at the time of the initial arbitration proceeding. This structure is intended to avoid the need to apply an arbitration finding to IFQ holders that did not participate in an arbitration proceeding. Conditions could be imposed which would limit the availability of the second proceeding to situations where both the IFQ and IPQ holders have substantial shares uncommitted. The arbitration decisions could still be made available to IFQ holders that do not participate in the arbitration to avoid leaving out IFQ holders with minimal holdings.

The need for permitting a second arbitration could be questioned, since under Structure III an IFQ holder would have a unilateral right to commit shares and join arbitration proceedings with any IPQ holder with unsubscribed shares. In addition, defining the circumstances under which an IFQ holder can initiate a second arbitration is likely to be either under inclusive or over inclusive, prohibiting initiating arbitration by an IFQ holder that had a reasonable excuse for not joining a first arbitration or permitting arbitration in some instances where the IFQ holder had reasonable opportunity to join a first arbitration proceeding. Establishing specific criteria for when arbitration is or is not permitted could also lead to some manipulation by those intending to either avoid or qualify for multiple arbitration proceedings.

Multiple (and an unlimited number of) arbitration proceedings for each IPQ holder, with IFQ holders permitted to participate independently or collectively (Structure IV).

This structure would be similar to Structure IV above, but would extend the right to arbitrate to any IFQ holder at any time. This structure would avoid need to apply arbitration findings to nonparticipating IFQ holders, since his option would provide an open option to arbitrate. While the option avoids the problem of applying an arbitration finding to those that did not participate, the cost of this option could be excessive. Unlimited multiple proceedings could be disruptive to planning by IPQ holders to the detriment of many IFQ holders. In addition, unlimited proceedings could be costly to all participants, who would share the costs of the arbitrator.

3.7.8 The relative merits of conventional arbitration and final offer arbitration

In conventional arbitration, the two parties each present their arguments to the arbitrator and the arbitrator has unlimited discretion in choosing the appropriate decision. The fleet wide model advanced by the committee uses conventional arbitration. In final offer arbitration, each party submits to the arbitrator a final offer. The arbitrator's decision making is limited to choosing one of those two final offers. In the Newfoundland fisheries, final offer arbitration is used. The last best offer model advanced by the committee would also use final offer arbitration. Comparisons of these two systems suggest that the different rules can affect the positions taken by the two parties and the outcome of the arbitration process.

In conventional arbitration, parties present their arguments and the arbitrator is given the latitude to decide any appropriate outcome. Although the arbitrator will resolve the dispute, conventional arbitration is perceived by some to create no incentive for parties to settle disputes.²² Instead, critics believe that conventional arbitration leads parties to exaggerate demands, expecting an arbitrator to make a decision

²²In evaluating arbitration systems, one should keep in mind that negotiations are likely to be colored by the outside prospect of arbitration. So, even if parties reach a settlement that outcome is likely to be biased by the prospect of arbitration and the potential impacts of arbitration (see Dept. of Industrial Relations, 1999).

between the two parties positions, in some cases simply splitting the difference (Young, 1991 at 8). In addition, the unbounded submission of dispute to the arbitrator is argued to give the parties less control over the outcome of the dispute (Brams, 1989 at 66).

To address these problems, alternative forms of arbitration have been developed, the most widespread of which is final offer arbitration. The requirement of the arbitrator to select from the parties' final offers is intended to limit the discretion of the arbitrator to develop a solution outside those proposed by the parties, maintaining more control of the outcome in the participants (Brams, 1998 at 66). Final offer arbitration is also intended to discourage the parties from taking unreasonable positions, instead creating an incentive for each party to submit an offer that is more reasonable than the other party's offer (Young, 1991 at 8). Several analyses have examined whether final offer arbitration does in fact drive parties toward settlement or less extreme positions and whether outcomes under final offer arbitration differ from those under conventional arbitration.²³ In general, a participant in a final offer arbitration will attempt to make an offer that is relatively close to the arbitrator's preferred settlement and is also relatively favorable to its side (Brams, Kilgour, and Merrill, 1991). The potential for an extreme outcome is argued to reduce posturing under final offer arbitration and contribute to the positions of the two parties converging to a settlement (Brams, Kilgour, and Merrill, 1991; Dept. of Industrial Relations, 1999).

A few general predictions can be made concerning how different types of participants fair under final offer arbitration. If one party values winning the arbitration, that party will tend to offer greater compromises achieving a less desirable result for the party. Parties that represent a group of constituents (such as union representatives) are likely to be more sensitive to the need to win (Brams, Kilgour, and Merrill, 1991).

Another factor that is likely to affect the position taken by a party in arbitration and the arbitration outcome is the willingness of a party to take risks, commonly referred to as a party's risk aversion. The principle underlying final offer arbitration is that the risk of an unsatisfactory arbitration finding will induce parties to make more reasonable offers.²⁴ Risk averse parties are thought to concede more in an offer to minimize the risk of losing the arbitration. As a result, the risk averse party is more likely to win the arbitration, but will win less on average. These two competing effects pose a challenge in predicting the effects of final offer arbitration on outcomes. Although not well established, at least one theoretical evaluation of these effects has concluded that the when participating in final offer arbitration concessions of the risk averse party outweigh the benefits to risk averse parties of winning more often (Dept. of Industrial Relations, 1999). In general, the party with more at stake in an outcome is likely to be more risk averse. For example, a participant in the crab fisheries with few interests outside of crab is likely to be more risk averse than a participant that is diversified with interests in several different fisheries.²⁵

One rationale for advanced for supporting final offer arbitration is that the complex price negotiations likely to arise in the crab fishery require that the arbitrator's discretion be limited. Most participants believe that formula pricing is the most equitable resolution of pricing in the fishery. Formulas are likely to include several parameters, possibly time of delivery, quality of crab, product market prices, product market shares, and exchange rates. Although persons familiar with the crab industry might be capable of developing such

²³ Other types of arbitration have been developed, many of which have not been fully tested (Brams, 1991). Recent studies have tested aspects of some of these new systems (for example, see Dickensen, 2001). Many of these tests rely on experimental methods (Brams, 1989).

²⁴ This result is not well established and is contradicted by some results (see Dickensen, 2001).

²⁵ Uncertainty also contributes to the tendency of parties to settle a dispute to avoid arbitration. The more certain the parties are of the potential arbitration decision, the more likely the parties are to settle a dispute (see Dept. of Industrial Relations, 1999). This influence of uncertainty argues for the selection of an arbitrator with a well grounded understanding of the issue subject to arbitration.

a formula given an extended period of time, arbitration will likely be conducted in a tight time frame, allowing the parties a limited amount of time to educate the arbitrator on crab markets. A final offer system is therefore argued to be more effective in both compelling the parties to develop pricing formulas and to reduce the amount of information necessary for an arbitrator's decision. This argument, however, assumes the arbitrator or arbitration panel will disregard formulas suggested by the parties and substitute its own discretion concerning an appropriate formula for the suggestions of the parties. Although the arbitrator may exercise some of the wide discretion granted in making a decision, the potential for abuse of that discretion by a carefully selected arbitrator is small. In addition, the final offer arbitration could prevent an arbitrator from fashioning a reasonable middle ground resolution to a dispute between two uncompromising parties.

3.7.9 Analysis of additional provisions

The five structures developed by the committee overlap with each other substantially, with each containing options that could be applied to any of the structures.²⁶ To assist the Council in evaluating the alternatives, each option is briefly described and analyzed independently. The different program alternatives to which the option can be applied are noted.

3.7.9.1 Market report

One feature of the Newfoundland crab fishery system of binding arbitration is a preseason market analysis prepared by an independent market analyst. Both of the advanced structures contain provisions for the development of a third party market analysis, which would be presented to all participants in the fishery prior to the season. The committee also has reached a consensus on the following provision:

Market Report

An independent market analyst selected by the mutual agreement of the sectors will present to both sectors and all designated arbitrators an analysis of the market for products of that fishery.

The market analysis is intended to provide transparency of markets and form the basis for negotiations. The market analysis should reduce posturing by the parties and provide an arbitrator with needed background on market conditions. The report should cover ex vessel prices for deliveries of Class A and Class B crab harvests, as well as both first wholesale and consumer prices for crab and crab products, so that it comprehensively describes the market for crab and its products. Crab price volatility is likely to limit the utility of the market report for setting fixed ex vessel prices for the season. The report, however, could provide valuable information to participants on the overall conditions of the market preceding the season and information concerning the key factors that may affect prices. With extended seasons peak harvests may not be at the season opening, however, to be useful for negotiations the marketing report must be prepared prior to completion of most delivery contracts. If contracts are based on a formula that adjusts prices with changes in market conditions, general market information may be adequate to provide the needed transparency.

²⁶ Although many of the options could be applied to any of the structures, including the fleet wide structure, proponents of the fleet wide structure have requested that the fleet wide structure be evaluated and considered in its entirety. Proponents believe that the structure including all of its identified elements are critical to that structure meeting its objectives.

3.7.9.2 Selection of the arbitrator and market analyst

Both alternative models advanced by the committee provide for the selection of the arbitrators and market analyst by mutual agreement of the parties. In addition, the committee has reached consensus on the following provision:

Selection of the Arbitrator(s) and Market Analyst

The market analyst and arbitrator(s) will be selected by mutual agreement of the PQS holders and the QS holders. PQS holders collectively must agree and QS holders collectively must agree. Processors may participate collectively in the selection process. The details of the selection will be decided at a later time.

Various procedures could be used for this process, including the selection of individuals by each sector to serve on panels and the selection of additional persons by this panel. Most importantly, the process should be by agreement of both sectors. The development of the specific selection process is not imperative at this time.

3.7.9.3 Shares subject to binding arbitration

Both structures advanced by the committee contemplate that the arbitration would apply to only Class A shares (and Class C shares, when those shares are not subject to IPQ delivery requirements). In addition, the committee has reached a consensus on the following provision:

Shares subject to binding arbitration

This binding arbitration system shall address price disputes between holders of delivery restricted IFQ (including Class A IFQ and Class C IFQ when subject to delivery restrictions) and holders of IPQ. Binding arbitration does not apply to the negotiation of price for deliveries under the class B IFQ and Class C IFQ when not subject to delivery restrictions. C share holders, however, may elect to participate in the arbitration process prior to delivery restrictions taking effect.

Because of the allocation of both harvesting and processing shares for crab harvested with Class A shares, it is thought that transactions for delivery of Class A crab is most in need of arbitration to establish a fair, equitable, or competitive price.

An additional consequence of applying arbitration to only delivery restricted shares is that it provides greater market freedom for users of Class B shares. The arbitration system is the outside alternative for establishing a price for A share crab deliveries. Some participants have suggested that IPQ holders may demand the delivery of B share crab in price negotiations for A share crab. In the absence of an arbitration system for establishing A share prices, harvesters holding only A shares would have little negotiating leverage with IPQ holders, since A share crab can be delivered only to IPQ holders. The arbitration system, however, creates an institutional structure for establishing a price for A share crab independent of B share crab deliveries. So, a harvester trying to negotiate an A share price who is faced with a demand for B share crab deliveries can effectively respond that the negotiation only concerns A share crab using arbitration as a fall back to establish the A share price. This structure will clearly aid harvesters in negotiating higher prices for B share crab and will improve the opportunity of processors without IPQs to enter the market through B share crab purchases.

This does not suggest that processors without IPQ will not be disadvantaged in the market for crab relative to IPQ holders. Processors without IPQs will be disadvantaged since the dedication of a large share of landings to IPQ holders will limit their ability to compete for a large share of the market and limit their ability to realize economies of scale (without purchasing IPQs).²⁷

3.7.9.4 Shares of processor affiliates

Since some harvesters and processors have affiliations, the arbitration system should consider that participation of processor affiliated IFQ holders in the binding arbitration process could influence the outcome of that process. The committee developed the following options for addressing shares of processor affiliates and has reached a consensus in support of option 3:

Shares of processor affiliates

Option 1

Holders of IFQs that are affiliated with processors are not eligible to participate in the arbitration process. Processor affiliation will be determined using the threshold rule with percent thresholds of 10, 25, and 50 percent.

Option 2

Entities that are partially owned by processor affiliates will be permitted to participate in arbitration, however, the participation will apply only to a share of IFQs equal to the ownership share of owners not affiliated with a processor (e.g., if an entity owning any part of a processor owns a 75 percent interest in 100 IFQs, the nonaffiliated owner of those IFQs may participate in arbitration with 25 shares).

Option 3

Participation of processor affiliates in binding arbitration as IFQ holders will be determined by any applicable rules governing anti-trust. Any parties eligible for collective bargaining under the Fishermen's Marketing Act of 1934 will be eligible to participate in binding arbitration. No antitrust exemption should be made to enable processor affiliated IFQ holders to participate in arbitration.

To reduce that influence, the committee has identified a preferred option, which would be to rely on current general anti-trust rules (without any special exemption) for determining whether a processor affiliate could participate in arbitration. The separation of interests in the binding arbitration program could be compromised by participation of processor affiliates as IFQ holders. Because of the sensitivity of ex vessel price negotiations under the new program, a conservative approach to participation of processor affiliates in price negotiations might be appropriate. To accomplish this end, the committee proposes that general antitrust rules govern the participation of processor affiliates in the process.

3.7.9.5 Transferability of benefits of arbitration to other IFQ holders (opting in to an arbitration finding)

Both of the arbitration structures advanced by the committee allow non-participants in an arbitration proceeding to “opt in” to the results of the proceeding by agreeing to accept all of the terms of the arbitration

²⁷ The separation of markets for crab harvested with Class A shares and crab harvested with Class B shares should also contribute information to the arbitration process. If transactions for crab harvested with Class B shares are in a competitive market prices for those landings should provide additional information to industry, market analysts, and arbitrators concerning market trends.

finding. Allowing non-participants (who hold Class A IFQs) the benefit of the arbitrator's decision has the effect of dispersing the benefits of arbitration across a broader portion of the fleet. In general, an arbitration decision binds only the participating IFQ holders and IPQ holder. If an IPQ holder has additional uncommitted shares an IFQ holder would have a unilateral right to commit deliveries to IPQ holder subject to all of the terms of the arbitration finding.

In the fleet wide model, this ability to opt in to an arbitration finding would apply only after the arbitration of a put. An IFQ holder would then be permitted to opt in to all of the terms defined by the arbitration of the put. Since the last best offer model permits different IFQ holders to submit different offers, several different arbitrated prices could exist. The choice of which offer an IFQ holder accepts the terms of would be left to the IFQ holder. If the arbitration finding limited the time of delivery or the quantity of crab that could be delivered under its terms, the IFQ holder would be limited by those terms. These limitations could be critical to an IPQ holder purchasing crab for a particular customer who demands a limited quantity of crab at a specific time.

3.7.9.6 Payment of the arbitration and market analysis

The committee developed the following two options concerning the payment for the costs of arbitration, developing a consensus in support of option 1:

Payment for the Arbitration and Market Analysis

The payment for the market analysis and the arbitrators will be shared by the two sectors. Cost shall be shared by all participants in all fisheries.

Option 1

For shared costs, the payment of those costs shall be advanced by IPQ holders. The IPQ holders will collect the IFQ holders' portion of the shared costs by adding a pro rated surcharge to all deliveries of Class A crab.

Option 2

Administration of payments will be accomplished by allocation of a share of the cost recovery funds to the binding arbitration program.

Both options contemplate that cost of the market analysis and the arbitrators will be shared equally by the two sectors. Within each sector, payment for the arbitration costs would be based on shareholdings. Option 1 would provide for administration by the industry without direct involvement of NOAA Fisheries. This option could simplify agency administration of the program and avoid disputes between industry and the agency concerning the fund disbursements. Option 2 would allocate a portion of the cost recovery funds to support binding arbitration. The second option might be supported, if industry seemed incapable of smoothly administering the funding mechanism.

3.7.9.7 Inseason performance disputes and quality disputes

Both of the alternatives advanced by the committee contain provisions for the settlement of inseason performance disputes. In addition, the committee has advanced a more limited option for the settlement of quality disputes at the dock. The options for the settlement of disputes are:

Performance-related dispute resolution.

Disputes arising out of any IFQ/IPQ transactions (including but not limited to disputes concerning product quality, delivery, payment or other harvester and processor performance obligations) will initially be addressed through standard commercial contract procedures (i.e., notice of breach, opportunity to cure for a commercially reasonable period, etc.). Disputes that are not resolved through such procedures will be submitted to binding arbitration before the arbitrator(s). To reduce the risk that disparate resources could affect the outcome, the costs of arbitration will be paid out of the pool of funds collected (as taxes or industry assessments) to support the price arbitration process. On the other hand, to discourage frivolous or strategic (as opposed to substantive) complaints, the arbitrator(s) may deny access to arbitration or assess arbitration costs and fees in cases where a party asserts a non-substantive claim. (This option appears as 13. in the Fleet Wide Model)

Quality dispute resolution.

In cases where the fisherman and the processor cannot come to agreement on quality and thus price for crab, two mechanisms are suggested for resolving the price dispute-after the processor has processed the crab (to avoid waste from the dumping the load at sea): (1) In cases where fishermen and processors have agreed to a formula based price, the two parties would take their normal shares of the price, after the disputed load is sold. (2) This type of dispute would most likely apply in cases where fishermen desire to stay with fixed dockside prices and there is disagreement on quality and therefore price. These cases could be referred to an independent quality specialist firm. The two parties in dispute would decide which firm to hire.

In both provisions, would use third party experts to resolve disputes. The first, broader, provision would rely on the arbitrator for dispute resolutions, while the second, more limited, provision provides for the dispute to be resolved by an independent quality specialist firm. The use of the arbitrator may be favored, since the arbitrator may have some familiarity with the parties and the contract under which the deliveries are being made. The use of a third party quality specialist could be more appropriate for quality disputes, if the arbitrator does not have expertise in that area. The first option also provides for the payment of costs from general funds, which may be desirable to prevent costs from discouraging parties to assert their rights. The option also includes a provision for the payment of costs by any party bringing a non-substantive claim to discourage frivolous claims.

3.7.9.8 Data used in arbitration proceedings

The committee developed a series of provisions concerning the data to be used in the arbitration proceedings. the following provisions are supported by a consensus of the committee:

Under any arbitration structure, the arbitrator must have access to comprehensive product information from the fishery (including first wholesale prices and any information necessary to verify those prices).

Processors may participate in common discussions concerning historical prices in the fisheries.

Subject to limitations of antitrust laws and the need for proprietary confidentiality, all parties to an arbitration proceeding shall have access to all information provided to the arbitrator(s) in that proceeding.

Data collected in the data collection program may be used to verify the accuracy of data provided to the arbitrator(s) in an arbitration proceeding. Any data verification will be undertaken only if the confidentiality protections of the data collection program will not be compromised.

The first provision is intended to ensure that the arbitrator has comprehensive market information that can be used for arbitration decisions. Comprehensive market knowledge is critical to fair arbitration findings. The second paragraph is intended to allow processors to collectively discuss historic prices to facilitate the development of the historic division of revenues, the committee's favored standard. Antitrust concerns may be raised by price discussion among processors. Fair proceedings require that all parties have access to the same information. The third paragraph is intended to require data considered by the arbitrator to be shared with all participants in a proceeding, except to the extent that such sharing would result in a violation of antitrust laws or divulge confidential data.

The last paragraph would provide for the use of data collected in the data collection program for the verification of data used in the arbitration process. Verification using the data collection program would be undertaken only if and to the extent that confidentiality protections can be maintained. Use of data for verification in some circumstances could result in the data becoming public. The committee position is that use of the data in a manner that could compromise confidentiality would not be permitted.

3.7.9.9 Payment of the arbitration and market analysis

The committee developed the following two options concerning the payment for the costs of arbitration, developing a consensus in support of option 1:

Payment for the Arbitration and Market Analysis

The payment for the market analysis and the arbitrators will be shared by the two sectors. Cost shall be shared by all participants in all fisheries.

Option 1 For shared costs, the payment of those costs shall be advanced by IPQ holders. The IPQ holders will collect the IFQ holders' portion of the shared costs by adding a pro rated surcharge to all deliveries of Class A crab.

Option 2 Administration of payments will be accomplished by allocation of a share of the cost recovery funds to the binding arbitration program.

Both options contemplate that cost of the market analysis and the arbitrators will be shared equally by the two sectors. Within each sector, payment for the arbitration costs would be based on shareholdings. Option 1 would provide for administration by the industry without direct involvement of NOAA Fisheries. This option

could simplify agency administration of the program and avoid disputes between industry and the agency concerning the fund disbursements. Option 2 would allocate a portion of the cost recovery funds to support binding arbitration. The second option might be supported, if industry seemed incapable of smoothly administering the funding mechanism.

3.7.9.10 Enforcement of the arbitration decision

An effective system of arbitration will require effective enforcement of decisions. Both harvesters and processors could benefit from the certainty that arbitrated findings may provide, if enforcement is adequate and available to both sides. The following options are proposed for enforcement of arbitration decisions:

Enforcement of the Arbitration Decision

The decision of the arbitrator will be enforced by:

1. civil damages
2. specific performance
3. forfeiture of unused IFQs or IPQs in the fishery for the following season (1 year use-it-or-lose-it) subject to hardship exceptions.

The first option for enforcement of arbitration decisions is civil law. Although enforcement would require court action, civil action might be predictable than the other remedies. Under civil law damages would be based on harm and therefore would be determined based on the specific circumstances. In addition, civil damages would require parties to take reasonable steps to mitigate damages, so participants could not take advantage of a breach by another party. Option 2 would enforce arbitration decisions by specific performance (i.e., requiring parties to perform in accordance with the arbitration decision). While fulfilling the findings of the arbitrator, forcing a harvester to fish or a processor to process could be infeasible and viewed as draconian. The third option would impose a "use-it-or-lose-it" that would forfeit unused IFQs and IPQs for a single season. Such a provision could be implemented in two ways. First, a "no fault" provision would result in both parties losing their shares for a year. The loss of shares, however, could impact the two parties differently, offsetting the bargaining positions and balance of market power. Alternatively, a system could forfeit the shares of the breaching party for a year. A fault based system, however, could be difficult to administer since adjudication and appeals processes could be time consuming. In addition, adjudications could overly complicate administration of annual share allocations for RAM Division.

3.7.10 Oversight and administration of the binding arbitration program

An effective binding arbitration program will require careful oversight and administration. A system of rules will define the program. The realization of the program's goals will depend in large part on whether these rules function effectively and have their intended effects. To mitigate unintended effects, the program will need to be adaptable. Adaptation is particularly important given the novelty of the program. Two general approaches to administration of the program are possible.

Oversight and Administration

Oversight and administration of the binding arbitration should be conducted in a manner similar to the AFA cooperative administration and oversight. System reporting requirements and administrative rules should be developed in conjunction with the Council and NOAA Fisheries after selection of the preferred program.

Under the first approach, NMFS and the Council would have a very active role in administering and monitoring the details of the program. Under the second approach, industry would be required to comply with reporting requirements providing NMFS and the Council with the information necessary to assess the success of the program and to rectify fundamental shortcomings in the program. Administration would be undertaken primarily by industry, avoiding government involvement in pricing setting process and providing greater flexibility to adopt agreed to modifications without government action.

Under the first administration alternative, NMFS would oversee the details of the program. Administration under this approach presents several problems. First, the Council and NMFS would be required to develop detailed rules governing the binding arbitration process, using the standard APA regulatory process. Once the program is implemented, NMFS would oversee the day-to-day operation of the program, attending to the details of any required notices and possibly overseeing hearings. The agency would be required to follow the public process requirements of the APA, resulting in very long response times. This level of oversight is likely to be expensive for the agency and could result in significant agency involvement in the details of price negotiations. Extensive government involvement in private contracts could be viewed as overly intrusive. This approach would also require the Council and NMFS to fine tune the rules of the program. Some of these changes could be fundamental to the program and therefore are the province of the Council and are best decided through the Council process. Other provisions, however, are likely to be less controversial and pertain to the general operation of the program. For example, the parties may decide that a notice period is either too long or short, interfering with the parties' ability to reach a negotiated agreement. Altering such a provision through the Council process or through some other procedure administered through NMFS would likely be costly, cumbersome, and time consuming and could be an obstacle to the program achieving its objectives.

The second alternative for administration and oversight would be patterned after NMFS administration of the AFA cooperatives. NMFS oversight of the cooperatives focuses on elements of that program that are important to public management of the fisheries. Cooperatives are required to report harvests, bycatch, discards, monitoring procedures, and penalties in an annual report to the Council and NMFS. On a more general level operations of the cooperatives are overseen by requiring cooperatives to file a copy of the cooperative's contract 30 days prior to beginning fishing under the contract. These reporting requirements provide NMFS and the Council with information necessary for determining whether the program is functioning effectively. In the case of binding arbitration, requirements could be developed for the filing of signed arbitration agreements and price contracts, best offers, identifying the agreed upon arbitrator and independent market analyst, and similar general requirements of the program. General reporting requirements and a general oversight role for NMFS should provide both NMFS and the Council with the information necessary to determine whether the program is serving its stated purpose without creating cumbersome requirements for modification and operation of the program. Under this model, minor modifications could be adopted by the parties without direct involvement of NMFS or the Council. The scope of these permitted changes could be defined by the Council and NMFS and could be limited to aspects of the program that are less appropriate for government involvement. Limiting government involvement will remove some of the restrictive requirements of public decision making. The parties could petition the Council for changes in the program, if they believed that it was not serving its purpose or needed modification.

3.8 Options for skippers and crew

This section analyzes the alternatives in the Council motion that are intended to address concerns of skippers and crew by allocating a portion of the initial allocation to skippers and crew, providing a first right of refusal to skippers and crew on a portion of any share transfer, creating an owner on board requirement for a portion of each allocation, preserving historical crew shares, or providing low interest loans to skippers and crew for the purchase of QS. The Sustainable Fisheries Act is pertinent to the Council’s action concerning skipper and crew protections. The Act requires, in part, that any new IFQ program:

considers the allocation of a portion of the annual harvest in the fishery for entry-level fishermen, small vessel owners, and crew members who do not hold or qualify for individual fishing quotas.

National Research Council report recommendations.

The NRC report “Sharing the Fish” recommends that regional councils “consider including hired skippers and crew in the initial allocation of IFQs where appropriate to the fishery and goals of the specific IFQ program.” The report concludes that even though crew may invest minor amounts of capital in comparison to vessel owners, crew may have undertake significant financial and physical risks to participate in a fishery. Crew assume financial risks in fisheries where skippers and crew are paid with crew shares. In addition, crew may assume substantial physical risks in certain fisheries. These risks justify the consideration of crew interests in designing an IFQ program and could justify an initial allocation of shares to skippers and crew.

Alternatively, the report recommends that councils consider developing programs that ensure the availability of QS for crew purchase, such as the block program in the halibut IFQ program, and loan programs that assist skippers and crew in purchasing QS.

3.8.1 Initial allocation to captains and crewmembers

The following option considered by the Council would be intended to benefit skippers and crewmembers by distributing a portion of the initial allocation to skippers and crew:

<p>1.8.1 Options for skippers and crews members:</p> <p>Option 1.</p> <ul style="list-style-type: none">I. Percentage to Captains and/or crew: A range of percentages for initial allocation from 0% to 20% should be analyzed. (i.e. 0%, 10%, 20%) A crewman is defined as a US citizen who held a a commercial fishing landing permit or crew license during the qualifying period.II. Species specific: As with vessels.
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Under this option, skippers or crew would be allocated between 0 and 20 percent of the initial allocation of harvest quota shares. In addition to the considerations raised by the NRC report, a few other factors should be considered in determining whether and how large an initial allocation should be made to skippers and crew. First, the influence of any skipper or crew allocation on the different interests in the fishery should be considered in the context of the rationalization program selected. For example, if a two-pie rationalization program is adopted the influence of the crew or skipper allocation on the relationship between harvesters and processors should be considered. Although crew and vessel or LLP owners are likely to have similar

interests, the allocation of harvest shares to crew could influence the price negotiations between harvesters and processors by introducing new participants to this process. The ability of crew to move between vessels could also alter the negotiating leverage of the different vessel owners. Since it is the ability of crew members to offer shares to the person who they work for that provide crew with a more permanent interest in the fishery, this influence is intended and is not necessarily a negative influence. The influence, however, should be considered in the context of the rationalization program as a whole.

A second factor that should be considered in assessing the options for allocating shares to crew is whether to include owner-operators in the crew allocation. Owner-operators could be argued to receive a double allocation if they are included in the crew allocation. If the provision is intended to protect crew interests under rationalization, one could argue that owner-operators, who will already receive an allocation based on their activity as owners, are not subject to the same loss of interest as crews under rationalization.

Owner-operators interested receiving an allocation may argue that omitting them from the crew allocation has the potential to decrease the interest of their fishing operations. For example, if owner-operators do not receive a crew initial allocation, the allocation associated with a vessel or LLP of an owner-operator would decline, since the owner-operator would not receive a share of the crew allocation. The allocation associated with a vessel or LLP that is not owner-operated would increase since both the owner and the hired crew would receive an allocation. In some of the smaller fisheries under consideration for rationalization, the impact of excluding owner operators could substantially change the distribution of interests among participating vessels, as the harvest allocation could be made to less than 20 LLP or vessel owners.

It also could be argued that including owner-operators in the initial allocation may encourage the practice of having owner-operated vessels. The provision that requires crew shares be fished on a vessel that the quota holder is onboard would ensure that the owner-operator continue working onboard the vessel to utilize the quota. Otherwise they would be required to divest themselves of the quota or forgo its use. In addition, if crew quota is utilized, it may be in the interest of the owner to hire skippers with quota to operate their vessel rather than operating the vessel themselves. This could make economic sense depending on the amount of quota held by the skipper and value the vessel owner can derive from harvesting those crab after paying the skipper, versus operating the vessel himself.

When vessel or LLP owners share an ownership interest in a vessel with an owner-operator, the balance of power among the owners could be changed by having a crew allocation that includes owner-operators. Partnerships are usually carefully structured to establish clear rules for decision making and authority. A vessel or LLP owner that shares ownership with an owner-operator could find that the allocation to owner-operators offsets the balance that they have constructed in their agreements with owner-operators. At the extreme, a majority owner could effectively lose power and become a minority owner in the event that owner-operators receive an initial allocation. Given our current knowledge of ownership structures it is not known if there are any cases where this could potentially occur.

The exclusion of owner-operators from the initial allocation, however, could erase the investment of those skippers that recently purchased an interest in a vessel for the purpose of gaining an interest in the fishery. For example, a skipper that anticipated the rationalization of the fishery might have chosen to invest in a vessel and its history to ensure that he or she would gain an interest in the fishery after rationalization. If the investment is relatively small, that skipper could end up with less quota shares than if he or she did not purchase an interest in the fishery. For example, if a skipper chose to purchase a 5 percent interest in a vessel and its history and owner-operators are excluded from a 10 percent skipper allocation, it is conceivable that the skipper could receive a 5 percent interest in the vessels QS, rather than the 10 percent allocation he or she would be entitled to as a hired skipper.

3.8.2 Options considered and excluded from further analysis

The Council considered options that would allocate shares based to all crew (rather than only captains) based either on historic participation or on a point system modeled after the point system used by the State of Alaska in SE Alaska for the limited entry dungeness, king, and Tanner crab fisheries. The Council considered applying this program to either captains only or to all crew. Allocations to crew other than skippers, was viewed as problematic since participation cannot be verified by ADF&G fish tickets. Verification of participation for determining crew eligibility for initial allocations would be by affidavit or some other form of evidence. Eligibility of crew could not be accurately projected in the analysis. Anecdotal evidence from participants in the fishery suggests that approximately one-half of each crew returns to a vessel each year. Many of those who do not return to a vessel do not leave the fishery but move to another vessel. With average crew sizes of approximately 5 or 6 persons, one may estimate that at least 3 persons per vessel would be eligible for an initial allocation in each fishery. Assuming that 3 persons per vessel apply for an initial allocation, the number of eligible crew can be approximated based on the number of vessels participating in each fishery. Table 3.8-1 shows the estimated number of crew eligible to receive an initial allocation based on the assumption that 3 persons per vessel are eligible for an allocation.

Table 3.8-1 The estimated number of crew eligible to receive an initial allocation under a point system.

Fishery	Most Recent Year*	Number of Vessels in Most Recent Year	Estimated Number of Eligible Crew
WAI Brown King Crab	2000-2001	12	36
WAI Red King Crab	1995-1996	4	12
Bristol Bay Red King Crab	2000	244	734
Bering Sea <i>C. Opilio</i>	2000	228	684
Bering Sea <i>C. Bairdi</i>	1996	188	564
EAI Brown King Crab	2000-2001	15	45
Pribilof Blue King Crab	1998	56	168
Pribilof Red King Crab	1998	57	171
St. Matthew Blue King Crab	1998	131	393

* Most recent year for which ADF&G fish ticket data are available.

The second option would determine the eligibility of crew to receive an initial allocation based on a point system of the type used by the State of Alaska in its Southeastern Alaska crab pot fisheries. A copy of the applications for those fisheries is attached hereto as Appendix 3-5. Generally, the program awards points to participants based on their participation in the fisheries, with recent participation and consistent participation receiving higher numbers of points.²⁸ Under the program, participation as a skipper is awarded substantially greater points than participation as a crewmember. Additional points are awarded for consistent participation, which is reflected by the quantity of harvests or the number of months in a season in which deliveries are made. Since some of the BSAI crab fisheries are single delivery fisheries, consistent participation could be based on participation in multiple fisheries in a single year. Points are also awarded based on the percentage of a person's income that is derived from the fishery. Skippers and crew that derive a substantial share of their income from the fisheries are awarded additional points.

²⁸ The State program also awards points for vessel ownership and gear purchases, which are generally inappropriate for purposes of awarding points for crew allocations.

A few different examples of possible point structures were considered by the Council for allocating shares to skippers and crew. Points could be allocated for past participation with points awarded for the seasons of participation, consistent participation for landings in multiple years and fisheries, and for economic dependence. These options were viewed as problematic for several reasons. Measures of economic dependence could be especially difficult to prove. In addition, participants in the fishery have advised that most persons who would accumulate a significant number of points under the measures of participation are likely to satisfy any reasonable income dependence test. In short, income dependence estimates may be costly to administer and add little information concerning dependence on the fisheries that is not contained in the other measures. Other measures of activity in the fisheries such as points for deliveries or for consistency of participation are likely to be similar to poundage based systems for allocations (such as those used for general harvester and processor allocations) and are likely to be less representative of a participants activity in the fishery.

3.8.3 Share allocations to captains (C shares)

The Council motion of June 2002 identifying a preferred alternative for rationalization of the Bering Sea/Aleutian Islands crab fisheries provided that captains would be allocated 3 percent of the harvests in the fisheries. The Council motion also provided for the selection of a committee to develop specific options to implement the allocation of those shares. The committee developed a set of options and identified specific preferred options for the program. The preferred program and each option in that program were unanimously supported by the committee.

In assessing the different options, interactions between elements of the program should be considered. In addition, the objective for allocating captains shares (or "C shares") should be kept in mind to ensure that a program that meets those goals is developed. At the same time, the interaction of these rules with other aspects of the rationalization program must be considered to determine the effect of C shares on the program, as a whole.

The Council may wish to reinforce its intention that all shares under the rationalization program are a revocable privilege (and not a right) by including a provision in the motion that C shares will be a privilege, subject to, at a minimum, all limitations on IFQ privileges.

3.8.3.1 Basis for the allocation

Two options for the basis of the allocation are proposed:

1.8.1.2 Percentage to Captain:

1. Initial allocation of 3% shall be awarded to qualified captains as C shares.
 - a. Allocation from QS pool
 - b. Allocation is from each vessel's allocation to the skipper on the vessel

Option a would set aside 3 percent of the total QS pool for allocation to qualified captains as "C shares". Option b would make available up to 3 percent of the QS awarded to any vessel for distribution to qualified captains that fished on that vessel during the qualifying period.

Option b is an attempt to structure a distribution under which each vessel would retain its allocation unaffected by the allocation to captains. The logic behind the proposal is that a vessel's allocation would go either to its owner or the captains that fished on the vessel. Following the rationale, the total allocation to each

vessel would be unaffected by the captain share allocations since the vessel's allocation would go to the owner and its captains. Whether a vessel's allocation remains whole, however, depends on whether the captain remains with the vessel.

Taking the C share allocation from the QS pool as a whole (rather than from each vessel) might be favored for several reasons. First, this allocation would distribute the burden of C shares equally among all vessel owners. Allocation on a vessel basis would not be distributed equally among all vessel owners but would burden vessel owners that maintained a single captain during the qualifying period the most. In addition, if the Council's intention is to allocate 3 percent of the QS pool to captains taking that allocation from the QS pool directly is a more direct approach to making the allocation. A vessel based allocation with up to 3 percent of each vessel's allocation available to eligible captains that fished on those vessels would allocate less than 3 percent of the QS pool to captains because landings by ineligible captains would reduce the total C share allocation from 3 percent.

Administration of the allocation is also simplified if the allocation is from the QS pool since the C share allocations would be independent of the vessel allocations. Administration of the allocation on a vessel basis would be cumbersome since it would require that a vessel's allocation be finalized prior to finalizing the allocation to its captain.

Allocation of a portion of the QS pool to captains would be fairer to participating captains since the allocation would be based solely on the activities of the captain, independent of the vessels on which the captain fished. For example, allocation on a vessel basis would preclude eligible captains that fish on unqualified vessels from getting an allocation. Legal landings could be made on unqualified vessels fishing under an interim permit. The captain of the vessel would not be rewarded with C shares, if the allocation comes only from the vessel (rather than the QS pool) since no vessel allocation would exist.

Allocating C shares from the QS pool could also help build captain/vessel owner relations. If a captain's allocation comes from a general pool, the vessel owner's allocation is not affected by the captain's allocation. A vessel's harvest will be maximized by obtaining the largest allocation for the captain. So, a vessel owner and captain have a common interest in maximizing the allocation to the captain. If the captain's allocation comes only from the vessel that the captain fished on, the owner of that vessel would have an interest directly opposed to the captain. Under that system, a vessel owner's allocation would be maximized by minimizing its captain's allocation. By pitting the owner against the captain, relationships could be harmed.

The vessel-based allocation is also likely to reward vessel owners with a history of poor relations with captains. A vessel that does not retain a captain could have prevented that captain from qualifying. The allocation that would go to the captain would then remain with the vessel. If the captain's allocation is from the QS pool as a whole, the captain's own activities determine the allocation. Captains unable to maintain good relations with vessel owners would receive shares based strictly on their participation, which is likely to be compromised by those poor relations.

3.8.3.2 Fishery basis for allocations

The following provision would define the C share allocation the different fisheries:

- | |
|--|
| <p>1.8.1.3 Species specific:</p> <ol style="list-style-type: none">1. As with vessels. |
|--|

This provision is assumed to provide that C shares will be categorized by fishery. This is necessary for a complete allocation of harvest shares in each fishery.

3.8.3.3 Eligibility

The following options would define eligibility for C share allocations:

1.8.1.4 Eligibility:

1. A qualified captain is determined on a fishery by fishery basis by

1) having at least one landing in

- a) 1 of the qualifying years used by the vessels
- b) 2 of the qualifying years used by the vessels
- c) 3 of the qualifying years used by the vessels and

2) having recent participation in the fishery as defined by at least

- a) one landing per season in the fishery in the last two seasons prior to June 10, 2002.
- b) one landing per season in the fishery in one of the last two seasons prior to June 10, 2002.
- c) one landing per season in the fishery in two of the last three seasons prior to June 10, 2002.

Suboption: For recency in the Adak red king, Pribilof, St. Matthew, and bairdi fisheries a qualified captain must have at least

- a) one landing per season in the opilio, BBRKC, or AI brown crab fisheries in the last two seasons prior to June 10, 2002 (operators of vessels under 60 feet are exempt from this requirement for the Pribilof red and blue king crab fishery).
- b) one landing per season in the opilio, BBRKC, or AI brown crab fisheries in one of the last two seasons prior to June 10, 2002 (operators of vessels under 60 feet are exempt from this requirement for the Pribilof red and blue king crab fishery).
- c) one landing per season in the opilio, BBRKC, or AI brown crab fisheries in two of the last three seasons prior to June 10, 2002 (operators of vessels under 60 feet are exempt from this requirement for the Pribilof red and blue king crab fishery).

2. A captain is defined as the individual named on the Commercial Fishery Entry Permit.

For captains who died from fishing related incidents, recency requirements shall be waived and the allocation shall be made to the estate of that captain. All ownership, use, and transfer requirements would apply to C shares awarded to the estate.

* This could be used to qualify captains as a general group or on fishery by fishery basis.

The options include two participation requirements, a historical participation requirement and a recent participation requirement. The historical requirement options range from requiring at least one landing in one qualifying year to requiring at least one landing in three qualifying years. Requiring a single landing is likely adequate given that small GHs in recent years have limited several fisheries to single landing seasons. The requirement of participation in multiple qualifying years might be favored to show dependence on the fisheries.

Three different recent participation options are proposed, one landing in one of the last two seasons, one landing in two of the last two seasons, and one landing in two of the last three seasons. For fisheries that have been closed in recent years, options are included that would require recent participation in an open fishery. Although strict requirements (i.e., requiring participation in both of the most recent seasons) are likely to limit eligibility of participants that have left the fishery or have limited dependency on the fisheries, these strict

requirements could also eliminate participants with a long history who have missed a recent season because of unavoidable circumstances. An additional option would provide an exemption from the recency requirements to captains who died from fishery related causes. Allocations would be made to the captain's estate and would be subject to any transfer and use requirements under the program.

Table 3.8-2 shows the number of eligible captains in each fishery for each combination of the eligibility options where eligibility is based on qualification and recent landings in the fishery. Table 2 shows the number of eligible captains in each fishery for closed fisheries using recent participation requirements for fisheries that are currently open. The number of captains eligible in each fishery differs substantially under the different options. The recency requirement of having landings in two most recent seasons reduces the number of eligible captains in some fisheries by as much as half from the most liberal option of having a landing in one of the two most recent seasons. In general, requiring landings in multiple qualifying years also reduces the number of eligible captains slightly from a requirement of a single landing in one qualifying year. The qualifying year participation requirements, however, could be justified since a single instance of an unavoidable circumstance is unlikely to eliminate a person from eligibility and participation in the qualifying years demonstrates reliance on the fisheries.

Requiring recent participation in an open fishery to be eligible for an allocation in a closed fishery also reduces the number of eligible captains, in the most extreme cases by as much as one third. These recency requirements, however, could be justified to avoid allocating shares to persons that left the fisheries as long as 5 years ago.

The tables show that the number of eligible captains under most of the alternatives is less than the number of harvest allocations. The exception in most fisheries occurs if landings are required in only one qualifying year and in one of the two most recent seasons. A more inclusive standard might be favored if the objective of the program is to provide all captains with some interest in the fishery that can be sold on departing. A drawback to including participants with a landing in only one qualifying year is that the allocation is likely to be very small. The marketability of these small allocations is questionable. The result could be that several small allocations are not fished, as occurred in the halibut and sablefish fishery. More restrictive eligibility rules will result in allocations that are on average larger and could be more easily sold or fished. Narrow allocation rules could be problematic in the Western Aleutian Islands (Adak) red king crab fishery where only 4 captains would receive an allocation under the more restrictive options.

Table 3.8-2 Number of eligibility captains in each fishery under various qualifying year landings and recency landings requirements.²⁹

Qualifying Years Fished	Recency Requirement ¹ (Landings in most recent seasons)	Fishery							
		Western Aleutian Islands (Adak) Golden King Crab	Western Aleutian Islands (Adak) Red King Crab	Bristol Bay Red King Crab	Bering Sea C. Opilio	Bering Sea C. Bairdi (EBS Tanner Crab)	Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	Pribilof Red and Blue King Crab	St. Matthew Blue King Crab
Landings in 1 Qualifying Year	1 of 2 seasons	19	22	264	196	283	17	76	167
	2 of 2 seasons	8	2	180	148	130	12	34	81
	2 of 3 seasons	13	7	224	186	180	13	48	111
Landings in 2 Qualifying Years	1 of 2 seasons	11	7	232	182	250	15	55	121
	2 of 2 seasons	7	2	172	142	130	12	34	81
	2 of 3 seasons	11	7	216	174	180	13	48	111
Landings in 3 Qualifying Years	1 of 2 seasons	9	6	195	161	227	14	45	85
	2 of 2 seasons	6	2	152	130	124	12	32	68
	2 of 3 seasons	9	6	189	155	174	13	43	83
Number of harvest share allocations		11	28	254	245	266	12	110	138

¹ Most recent seasons are those most recent prior to June 10, 2002.

Sources: NPFMC Crab Rationalization Database, Version 1, 2001 and ADF&G Westward Fish ticket records.

²⁹ The qualifying years considered to determine eligibility are those of the Council's preferred rationalization alternative.

Table 3.8-3 Number of eligible captains in currently closed fisheries under various qualifying year landings requirements with recency requirements based on landings in fisheries currently open.³⁰

Qualifying Years Fished	Recency Requirement ¹ (Landings in most recent seasons in an open fishery) ²	Fishery			
		Western Aleutian Islands (Adak) Red King Crab	Bering Sea C. Bairdi (EBS Tanner Crab)	Pribilof Red and Blue King Crab	St. Matthew Blue King Crab
Landings in 1 Qualifying Year	1 of 2 seasons	20	244	101	149
	2 of 2 seasons	18	175	81	112
	2 of 3 seasons	19	215	93	135
Landings in 2 Qualifying Years	1 of 2 seasons	5	220	57	105
	2 of 2 seasons	5	163	49	83
	2 of 3 seasons	5	199	55	99
Landings in 3 Qualifying Years	1 of 2 seasons	4	186	39	74
	2 of 2 seasons	4	141	36	62
	2 of 3 seasons	4	173	38	73
Number of harvest share allocations		28	266	110	138

¹ Most recent seasons are those most recent prior to June 10, 2002.

² Open fisheries are the Bering Sea C. opilio, the Bristol Bay red king crab, the WAI (Adak) golden king crab, Sources: NPFMC Crab Rationalization Database, Version 1, 2001 and ADF&G Westward Fish ticket records.

The following option would base allocate C share allocations to eligible captains on the same qualification periods used for the allocation of shares to vessels. The distributions would be based on the landings shown by fish tickets with each eligible captain receiving shares equal to the average annual percentage of the qualified landings during the qualifying years.

- 1.8.1.5 Qualification period:
 - 1. As with vessels.
- 1.8.1.6 Distribution per captain:
 - 1. C QS based on landings (personal catch history based on ADF&G fish tickets) using harvest share calculation rule.

Fish tickets would be used to verify landings, simplifying administration of the program. The allocation method would be the same as used for vessels, under which an allocation is equal to the annual average harvests in a fishery.

3.8.3.4 Share designations

The preferred rationalization alternative creates several different types of harvest shares, which impose delivery requirements on crab harvested with those shares. The following options would subject C shares to none, some, or all of these designations:

³⁰ The qualifying years considered to determine eligibility are those of the Council's preferred rationalization alternative.

Regionalization and Class A/B Designation

Option 1: C shares shall be a separate class of shares and not be subject to Class A share delivery requirements.

- Suboptions
- a. This allocation shall be made off the top and shall not affect the Class A/Class B share split for harvest shares. C shares shall not be subject to regional designations.
 - b. This allocation shall be made from the harvest Class B shares. C shares shall not be subject to regional designations.

Option 2: C shares shall be a separate class of shares but shall be subject to the Class A/Class B split and any related delivery requirements associated with the parallel harvest shares. C shares shall be subject to regional designations.

Option 3: C shares shall be a separate class of shares and shall all be subject to Class A share delivery requirements.

Option 4: C shares shall not be regionally designated or have an IPQ delivery requirement, but when used shall be delivered with the same regional distribution as the harvest shares used on the vessel on a season by season basis.

Initial Allocation Regionalization

If C shares are regionalized, at the initial allocation regional designations shall be made based on the captain's history, with an adjustment to the allocation to match the PQS regional ratio made based on the same scheme used for regional adjustment of harvest shares.

In determining whether to apply delivery restrictions the Council should consider the nature of the C shares and their use. Subjecting C shares to the Class A/Class B designation of harvest shares would require that C share holders match deliveries with processor shares. While this may be workable in instances where the captain and vessel owner have a good working relationship, coordination of deliveries would add complication, which could be particularly problematic if a processor does not hold sufficient shares to receive all of a vessel's harvester shares and the vessel captain's C shares. Although this situation is unlikely to occur frequently, the C share holder is likely to have little leverage in negotiating the delivery of the C shares. In addition, imposing regional delivery restrictions might have only a minor impact on the regional distribution of landings. For example, if only 75 vessels participate in a fishery and most of the 75 vessels have some C shares fished, landings of C share harvests are likely to be distributed in a similar manner to the overall IFQ landings.³¹ In addition, the impact landings distributions from regionalization of C shares is likely to be limited because C shares are only a small percentage of the total harvest.

Complications arising from delivery restrictions are more problematic if C shares are subject to limits on leasing, owner on board requirements and ownership and use caps. These provisions could be important to fulfilling the purpose of C shares but will limit the ability of C share holders to use shares other than on a perfectly matched vessel. If leasing of shares is not allowed, captains will make long-term investments in C shares. Regional and delivery requirements could also have an effect on the market for C shares. While these share designations could decrease the price received by sellers, they also will segment the market for buyers interested in purchasing shares. If those shares must have a regional distribution similar to the vessel owners, a captain could have few alternatives if a vessel owner is unreasonable in negotiating payments to the captain for operating the vessel or consolidates fishing operations. For example, consider the case of a captain owning C shares and operating a vessel that fishes in the C. opilio fishery with landings in the North and the Bristol

³¹ Since C shares could be owned by captains and crew, multiple C share holders could fish their shares from a single vessel. With multiple share holders some concentration of shares could occur.

Bay red king and the Pribilof red and blue king crab fisheries with landings in the South. If the owner decides not to rehire the captain, the captain will be forced to either sell shares or locate a vessel that fishes with shares with the same regional distribution. In short, if C share transfers are limited, delivery restrictions on C shares could have a limited effect on the distribution of landings but could have a substantial effect on the utility of those shares to their holders. The limitations on use and transfer, in and of themselves, will also contribute to the distribution of C share landings more closely corresponding to harvest share landings.

If C shares are regionalized, the suboption would provide that regional designations would be made using the same method as will be used for regionalizing vessel harvest share allocations. Under that system, shares are regionalized based on historic landings with an adjustment made pro rata to all shareholders to match the aggregate harvest share allocation to the aggregate processor share allocation.

3.8.3.5 Transferability

The following options would govern the transferability of C shares:

1.8.1.7 Transferability criteria:

1. Purchase of C QS.

a. C QS may be purchased only by persons who are

- Option 1. US citizens who have had at least 150 days of sea time in any of the US commercial fisheries in a harvesting capacity and
- Option 2. active participants

An "active participant" is defined by participation as captain or crew in at least one delivery in a crab fishery included in the rationalization program in the last 365 days as evidenced by ADF&G fish ticket, affidavit from the vessel owner, or evidence from other verifiable sources.

The motion contains two options concerning the sale of C shares, either or both of which could be adopted. The first option would permit transfer to any person with at least 150 days of sea time in a U.S. commercial fishery in a harvest capacity. The second option would allow transfers of QS only to active participants, where active participants are defined as skippers and crew that have participated in at least one delivery in a fishery included in the proposed rationalization program in the last 365 days. This participation could be demonstrated by either an ADF&G fish ticket, an affidavit of the vessel owner, or other verifiable evidence.

Permitting transfer of C shares to any person could limit the effectiveness of these shares in protecting the rights of crewmembers. If C shares could be sold to vessel owners, it is likely that the shares would protect only captains and crewmembers that receive an allocation, and not entering captains and crew or captains and crew wishing to increase their interests in the fisheries. Allowing transfer and use only by active captains and crew with a history of participation as a harvester would create a separate class of shares that could result in a lower share price, making the shares more affordable to crew wishing to purchase shares. This limitation on transfers would also decrease the windfall to those captains that received an initial allocation. This separate class of shares would only be available to active captains and crew, increasing the likelihood that their interests are protected by these shares. Requiring participation in the BSAI crab fisheries increases the likelihood that C shares will be held only by those knowledgeable of the fisheries.

The following options have been proposed to regulate leasing of C shares:

1.8.1.7 C share leasing

- a. C QS are leasable for the first three seasons a fishery is prosecuted after program implementation.
Suboption: limit to the following fisheries only: Pribilof red and blue crab and St. Matthew blue crab
- b. In cases of hardship (injury, medical incapacity, loss of vessel, etc.) a holder of C shares may lease C QS, upon documentation and approval, (similar to CFEC medical transfers) for the term of the hardship/disability of a maximum of 2 years over a 10 year period.

Prohibitions on leasing are intended to ensure that C share holders are active in the fisheries and hold shares as a long term investment to support their active participation. The first provision would permit leasing of C shares in each fishery for the first three years the fishery is open after implementation of rationalization. Permitting leasing in these early years could assist captains in the transition to a rationalized fishery. In addition, permitting leasing could help stabilize prices of C shares in the early years, when trading is likely to peak as captains consolidate interests or exit fisheries. The suboption would limit this three year permitted leasing to the St. Matthew blue king and Pribilof red and blue king crab fisheries. This provision would be premised on the idea that these fisheries are less accessible and have fewer participants. As such, it is possible that not all skippers and crew would participate in these fisheries in every year, or that consolidation of the fleet would occur under a rationalization program and fewer vessels and crew would be used to harvest the quota. Leasing would permit a skipper or crewmember to maintain an interest in the fishery in the event that he or she is unable (or it is not economical for him or her) to participate in the fishery in one of the first years of the rationalization program.

An additional option would permit 2 years of leasing in the case of a hardship (such as a medical disability). Permitting leasing during hardships will prevent a forced divestiture of C shares by a person unable to participate because of uncontrollable circumstances.

3.8.3.6 Owner on board requirements and ownership caps

Owner on board requirements could be applied to C shares to ensure that the shares benefit active captains and crewmembers.³² Ownership caps would ensure that the benefits of the shares are distributed among several participating captains and crew. The following owner on board requirements and ownership caps are proposed:

1.8.1.9 Captain/Crew on Board requirements

1. Holders of captain QS or qualified lease recipients are required to be onboard vessel when harvesting IFQ.
2. C QS ownership caps for each species are
 - Option 1. the same as the individual ownership caps for each species
 - Option 2. the same as the vessel use caps for each species
 - Option 3. double the vessel use caps for each species

C share ownership caps are calculated based on the C QS pool (i.e. section 1.7.4). Initial allocations shall be grandfathered.

³² Permitted leasing of shares would be an exception to the owner on board requirements.

The only owner on board option would require that the owner of the underlying QS be on board the vessel on which the shares are fished. Any permitted leasing of shares would be an exception to this owner on board requirement.

Three options are provided for establishing ownership caps. These range from the individual ownership cap to the double the vessel use cap (or four times the individual ownership cap). Permitting C share ownership up to the vessel use cap could be justified as a means to allow each captain to own a portion of the C share pool equivalent the share of the QS pool that can be fished on a vessel. This would allow the number of participating captains holding C shares to be reduced to the same level as the number of participating vessels in each fishery. Since C shares could be owned by captains or crew, multiple persons on each vessel could own C shares. Lower caps on C share ownership could facilitate a more active market for C shares and prevent their consolidation. The small share of the fishery represented by C shares should also be kept in mind in setting the cap.

The following provision would exempt C shares from a vessel's use cap:

1.8.1.9

3. Use caps on IFQs harvested on any given vessel shall not include C shares in the calculation.

By exempting C shares from use caps, captains are provided greater mobility and flexibility to move throughout the fleet. In addition, this would treat C shares as a separate share class governed by rules designed specifically for C shares.

3.8.3.7 Catcher/processor captains

Catcher/processors have a unique role in fisheries because of their participation in both harvesting and processing. The following options relate to allocations and use of C shares by catcher/processor captains:

1.8.1.10 C/P Captains

Captains with C/P history shall receive C/P C QS at initial issuance. C/P C shares shall carry a harvest and processing privilege.

- Option 1. The same rule applies to C/P C QS if they leave the C/P sector as in section 1.7.2.4.
- Option 2. C/P C shares shall be useable only on C/Ps.
- Option 3. C/P C shares may be harvested and processed on C/Ps or harvested on catcher vessels and delivered to shore based processors.
- Option 4. If C shares are not subject to IPQ delivery requirements, C shares may be harvested and processed on C/Ps or harvested on catcher vessels and delivered to shore based processors.

The first provision would allocate catcher/processor C shares to captains with catcher/processor history. This provision is necessary for these captains to continue their historic participation. Four different options are proposed for governing later use of catcher/processor shares and the use of C shares on catcher/processors. Option 1 would permit catcher/processor shares to be divided into separate harvest shares and processing shares, if they were taken out of the catcher/processor sector. This provision only applies if C shares are subject to processor share delivery requirements. Option 2 would limit the use of catcher/processor C shares

to the catcher/processors. Option 3 would provide greater flexibility allowing use of catcher/processor shares on catcher vessels delivering to shore based processors. Options 2 and 3 could be adopted whether or not C shares are subject to processor share delivery requirements. Option 4 would provide additional flexibility for the use of C shares, if C shares are not subject to IPQ delivery requirements. The provision would allow the use of all C shares on catcher/processors.

3.8.3.8 Cooperatives and binding arbitration

The following option would permit C share holders to enter cooperatives:

1.8.1.11	Cooperatives
	C share holders shall be eligible to join cooperatives.

Permitting cooperative membership for C share holders might facilitate greater coordination of the use of C shares with harvest shares. Cooperative membership, however, would not affect the restrictions on use and leasing of the C shares.

Whether C shares holders are eligible for binding arbitration should depend on the nature of the shares. If IPQ delivery restrictions are imposed on the shares, inclusion in the arbitration program is more appropriate. If C shares are not subject to delivery restrictions the need for inclusion of the C share holders in the binding arbitration program is decreased.

3.8.4 Crewmember first right of refusal on QS transfers and owner on board requirements

The Council motion contains an options for a crewmember first right of refusal on QS transfers and for owner on board requirements. Since these two provisions operate in a very similar manner and have very similar effects, their discussion is consolidated in a single subsection. Both of these provisions would result in a portion of each person's initial allocation being designated for sale exclusively to skippers and crew. Their similarities would allow the Council to combine various provisions from each proposal into a single option to protect crewmember interests.

The first right of refusal.

The following first right of refusal provision is contained in Section 1.8.1 of the Council motion:

1.8.1 Option 2: First right of refusal on quota share transfers

1. A range of 0-20% of initially issued QS would be designated as crew shares, these shares would remain as a separate class of QS. Transfer of initially issued QS must include transfer of 0-20% crew shares for which there will be a first right of refusal for eligible crew to buy. The owner of the QS being offered for sale would have to give notice to NMFS RAM division of the impending sale. RAM in turn could then notify the fleet of the available QS. After this initial transfer crew QS will be available for transfer to any active participant in the fishery.
2. If a qualified buyer cannot be found then 50% of the 0-20% crew QS offered for sale would have to be gifted to a pool available to qualified buyers and the remaining 50% of the 0-20% could then be offered for sale on the open market to any buyer.
3. The crew pool of QS would be overseen by RAM. The proceeds from the sale of this QS by auction to the highest qualified bidder would go into a dedicated low interest loan program for crew.
4. Time frame for the first right of refusal is 1-3 months.
5. Eligibility of a U.S. citizen to purchase crew shares would be defined by participation in at least one delivery in the subject crab fishery in the last year as evidenced by ADF&G fish ticket or affidavit from the vessel owner.

Under this option, eligible crewmembers would be provided with a first right of refusal on a portion of any transfer of QS. Depending on the Council's choice, the provision could provide eligible crewmembers with a first right of refusal on between 0 and 20 percent of any transfer of QS. This first right of refusal would require that the holder of the QS sell the shares to an eligible crewmember regardless of the price that could be obtained for the shares from persons not qualified as crew.

Eligible crewmembers wishing to purchase the shares would have between 1 and 3 months in which to make an offer on the shares. The ability of crewmembers to submit offers on short notice should be considered in determining an appropriate period for the exercise of the first right of refusal. If crew are active at sea, learning of the availability of shares and organizing financing may be difficult suggesting that a longer period for submitting offers should be favored.

Under the option, only active participants (persons with at least one landing in the most recent fishery) would be permitted to purchase shares. Participation requirements could be verified with an overseeing agency, in the same manner as the RAM office currently oversees crew requirements for purchase of halibut and sablefish IFQs. Since several persons would have a right to bid on these shares, competition among those persons could be relied on to determine the price.

To implement the provision, the QS owner that wishes to sell QS would be required to announce their intent to sell a specific amount of QS. For a specific period (1 to 3 months) eligible crew would be permitted to respond to the notice by expressing an intent to purchase the crewmember portion of the QS and the offer price. The owner would be free to accept any offer from an eligible crewmember at any time. If no sale is made during the specified period, at the end of the period any offer from an eligible crewmember must be accepted (if the owner still wishes to sell the QS). If no offer is made by an eligible crewmember, the crew QS may be sold to any person eligible to purchase QS.

The option also contains a provision that in the event no crew offers are made for the share during the first right of refusal period, the owner would be required to transfer 50 percent of the shares offered on the first right of refusal to a crew share pool to be administered by the RAM office. The other 50 percent could be offered for sale to any buyer. RAM would offer its shares for sale by auction to any qualified crewmember.

The proceeds of that sale would be dedicated to a low interest loan program to be used to finance purchase of shares by crewmembers. The intention of this provision is to ensure that shares offer to crew on a first right of refusal basis benefit crew even in circumstances where a crewmember eligible to purchase those shares cannot be found.

Owner on board option.

The Council motion contains the following option for an owner on board requirement to protect crewmember interests:

Option 5. Owner on board option

- a. A portion (range of 5-50%) of the quota shares initially issued to fishers / harvesters would be designated as "owner on board."
- b. All initial issuees (individual and corporate) would be grandfathered as not being required to be aboard the vessel to fish shares initially issued as "owner on board" shares
- c. Shares transferred to initial issuees in the first (range of 3-7 years) of the program would be considered the same as shares initially issued
- d. "owner on board" shares transferred by initial issuees, after the grace period, would require the recipient to be aboard the vessel to harvest the IFQ/ITQ
- e. In cases of hardship (injury, medical incapacity, loss of vessel, etc.) a holder of "owner on board" quota shares may, upon documentation and approval, transfer / lease his or her shares for the term of the hardship / disability or a maximum of (Range 1-3 years)
- f. Shares issued to CDQ groups are exempt from owner on board requirements

Suboption: Any transfer of QS designated at initial allocation as "owner on board" quota would count against "1st refusal" requirement.

Under this option between 5 and 50 percent of the QS initially allocated to the harvest sector would be designated as "owner on board". This designation would require that the owner of the shares be on board the vessel that fishes the shares. Any person receiving shares in the initial allocation would be exempt from the requirement for those shares. In addition, any shares acquired by initial issuees during a specified exemption period, that would be between 3 and 7 years in length, would be subject to the same exemption from the requirement. The exemption from the owner on board requirement granted to initial issuees make the requirement very similar to the first right of refusal provision. The first right of refusal provides more protection to crews since any shares transferred from an initial issuee at any time are subject to the first right of refusal. The owner on board provision would only apply to purchase made after a 3 to 7 year exemption period. In addition, the first right of refusal provision not only requires that the owner of the shares be on board the vessel but also requires a person to meet specific participation requirements to be eligible to purchase the shares. Those eligibility requirements would protect current participants more than a simple owner on board requirement.

The owner on board provision contains a hardship provision that would permit a person to lease shares during the term of any verified hardship up to a maximum of 1 to 3 years. This provision also could be applied to the first right of refusal if that option is selected by the Council. CDQ shares are explicitly exempt from the owner on board requirement. This exemption would also apply to the first right of refusal provision implicitly.

Both the "first right of refusal" option and the "owner on board" designation would create a second class of shares that would likely sell for a lower price than unrestricted shares. The magnitude of the price difference

cannot be predicted but would depend on several factors including the number of vessel owners that typically directly participate in the fisheries and the availability of funding for crew shares.

If either of these provisions is selected by the Council, the Council must also decide whether regional designations would apply to these shares and whether these shares will be subject to any “class A/class B” distinction. Applying either of these additional designations to the shares will restrict the ability of crew to use the shares and could restrict the ability of crew holding these shares to change vessels. To the extent that creating these shares is intended to empower crews, that empowerment would be decreased by these designations by limiting crew mobility. In addition, any further designation of these shares would also create additional classes of shares, each of which would have its own price in the market. For example, it is likely that a “Class A North First Right of Refusal” share would trade at a lower price than a “Class B First Right of Refusal” share, because of the different restrictions on the deliveries of crab caught with those different shares.

The suboption would apply only if the Council chose to adopt both an owner on board option and a first right of refusal option. In that case, any shares transferred as owner on board shares would be credited toward the obligation of a QS holder to offer shares on a first right of refusal basis. This provision would effectively limit the percent of shares designated as crew shares to the higher of the percent subject to the first right of refusal and the percent subject to the owner on board requirements.

3.8.5 Protection of traditional crew shares

The Council motion contains the following option intended to protect traditional crew shares:

- | | | |
|-------|-----------|--|
| 1.8.1 | Option 3. | Protection of traditional and historical crew share percentages with no sunset based on the Canadian Groundfish Development Authority Code of Conduct. |
| 6.2.3 | (i) | Option for skipper and crew members: Protection of traditional and historical crew share percentages with no sunset. |

The first option is contained in the IFQ program alternatives. The second provision is contained in the cooperative program alternatives.

The Code of Conduct (CoC) of the Canadian Groundfish Development Authority (GDA) is designed to protect the interest of the crews. Under the Groundfish Trawl Long-Term Management Plan, 80 percent of the groundfish trawl TAC is allocated as Individual Vessel Quotas (IVQ). The remaining 20 percent is set aside for allocation by the Minister of Fisheries on the advice of the GDA. The portion related to the CoC is 10 percent, while the remaining 10 percent is allocated for regional development, market and employment stabilization, and sustainable fishing practices. The GDA is composed of seven voting members (Board of Directors) and nine non-voting, ex-officio members, who provide expertise and background information to the voting members.

The primary purpose of the CoC is ensure fair treatment of crew and safe vessel operation. Under the CoC, crew share arrangements are not to be negatively impacted by the IVQ program. Specifically, the program provides that vessel owners will not require crew to contribute to the vessel’s original IVQ costs or costs related to replacing quota shares shifted to other vessels and crew will not be coerced into contributing to the leasing of IVQ, or any other non-traditional costs related to the operation of the vessel. In addition, any adverse changes in crew size or vessel maintenance operations related to the IVQ system are not allowed.

The provisions of the CoC are enforced only on receipt of a complaint from a crewmember. In the absence of a CoC complaint that has been found valid, the Division of Fisheries and Oceans will allocate CoC quota at the beginning of each quota year to each licensed vessel according to the vessels' IVQ holdings. If a CoC complaint is found valid, the GDA can recommend to the Division of Fisheries and Oceans that the violating vessel's CoC quota be withheld.

The complaints procedure is straightforward. A crewmember, the fishers legal representative, or a third party who believes he or she has been unfairly treated or who believes his or her safety has been jeopardized, may file a complaint with the GDA. Complaints should be accompanied by evidence and are kept confidential.

The success of the CoC has been limited. Over the four years the program has been operational, there has only been one complaint, which was found invalid. The GDA has not recommended any withholdings of CoC quota. One reason for the limited success of the program is that its enforcement could hurt the very people it is intended to protect. If a crewmember files a valid complaint, GDA could recommend withholding 10 percent of the violating vessel's quota. Withholding this quota, however, punishes not only the violating vessel owner but also the crew of that vessel (including the harmed person). Anecdotal evidence from fishery participants also suggests that vessel owners have found ways to overcome the limits on crew contributing to the cost of leased quota. Owners who have sold quota leave crew in a position of having to agree to lower crew shares or forgo fishing. Facing this decision crew have willingly fished for lower shares. Since crew have consented to the lower shares, the CoC enforcement provisions have not been implemented to protect their interests.

The provision to protect traditional and historic crew shares with no sunset is not well defined and cannot be analyzed in the absence of additional guidance from the Council. In general, any provision that is intended to protect crew shares should be carefully crafted to provide meaningful protection to crew and also allow the rationalization program to function.

3.8.6 Low interest loan program for crew QS purchases

The Council motion contains the following option for the development of a low interest loan program for the purchase of QS by skippers and crew:

1.8.1 Option 4.	A low-interest rate loan program for skipper and crew purchases of QS would be established or made part of the existing loan program for IFQ purchases.
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Under this option, a loan program for skipper and crew purchases of QS would be developed or loans to crab skippers and crew would be incorporated into the existing loan program for halibut and sablefish IFQs. That program is currently funded with cost recovery funds from the halibut and sablefish IFQ program. A similar funding program could be developed in the crab fishery to assist with the purchase of crab shares by crewmembers. The Sustainable Fisheries Act currently requires the collection of fees to disburse the costs of management and enforcement of any new IFQ programs. In addition, some or all of the vessel buyback program is intended to be funded from the collection of fees from participants in the fishery. In determining the extent of any loan program, the Council will need to consider the burden that each of these fees will impose on fishery participants.

In some cooperative program options a loan program may not be appropriate or adequate to protect the interests of skippers and crew. An effective program depends on the ability of skippers and crew to purchase shares in the fishery. For the loan program to be effective shares must be available in the market in relatively small quantities which would be affordable to skippers and crew.

The halibut and sablefish IFQ loan program.

The Sustainable Fisheries Act amended section 1104A(a)(7) of Title X1 of the Merchant Marine Act and Section 303(d)(4) and 304(d)(2) of the Magnuson-Stevens Fishery Conservation and Management Act to allow a loan program for entry-level fishers or fishers who fish from small vessels. Title X1 of the Merchant Marine Act of 1936 is the credit authority under which NMFS will make these loans. This authority is subject to the Federal Credit Reform Act of 1990.

In 1998, the NMFS announced the availability of long-term loans for financing or refinancing the purchase cost of quota share (QS) in the halibut and sablefish fisheries. Eligible applicants include any entry-level fisher or a fisher who fishes from a small vessel and is a U.S. citizen. Applicants who fish from a small vessel must be eligible to receive (hold) the QS and at the time of the loan may not own QS that results in more than 50,000 lb of IFQ during the year of the loan. Entry-level fishermen cannot own QS that results in more than 8,000 lb of IFQ during the year of the loan. The amount of IFQ the applicant would possess after purchasing the QS is not considered. In addition, applicants cannot own freezer vessels or vessels over 60 feet in length and must be a crew member aboard the vessel that harvests the IFQ.

Applicants financing QS must fund 20 percent of the purchase price from funds other than the loan. The interest rate for the loan will be 2 percent higher than the U.S. Treasury's costs of borrowing public funds of an equivalent maturity. As of February 7, 1999, the interest rate for a 20-year loan would have been 7.65 percent. Interest is simple interest. The maximum maturity for these loans is 25 years. However, the maturity can be less than 25 years. Payments are made quarterly in equal installments. The purchase QS is collateral for the loan. Additional collateral may be required. The application fee is 0.5 percent of the loan amount, which goes to pay for the processing fees.

The Sustainable Fisheries Act amended sections 303(d)(4) and 304(d)(2) of the Magnuson-Stevens Act authority to reserve up to 25 percent of any fees collected from the fishery to be used for the loan program. Starting in 2000, 1.8 percent of halibut and sablefish exvessel value was collected for future loan disbursements. RAM division is currently permitted to collect up to a maximum of 3 percent of exvessel value. Prior to collection of funds from the exvessel proceeds, Congress appropriated \$5 million for loan disbursements annually.

Anecdotal evidence suggests the program has had some success. During the four years the loan program has been functioning, an average of 35 to 50 loans have been made annually. Generally, the maximum loan amount has been approximately \$350,000 made in multiple disbursements and the minimum has been \$20,000. To date there have been no defaults of loans and few late payments (most of which have occurred during the November to March period when the fishery is closed).

In addition to the loan program proposal, the captain's QS committee proposed additional options concerning the proposed loan program:

1.8.1 Loan Program (continued)

These funds can be used to purchase A, B, or C shares.

Loan funds shall be accessible by active participants only.

Any A or B shares purchased under the loan program shall be subject to any use and leasing restrictions applicable to C shares (during the period of the loan).

National Marine Fisheries Service (NOAA Fisheries) is directed to explore options for obtaining seed money for the program in the amount of \$250,000 to be available at commencement of the program to leverage additional loan funds.

The committee proposed that loan funds be available only to active participants, defined as a person with at least one landing in a BSAI crab fishery in the last 365 days. In addition, the committee recommends that the initial funding of \$250,000 be sought, which would be available for loans on implementation of the rationalization program. Development of funding through the cost recovery program could take as long as three years and significantly affect both purchasers and sellers of C share holders. The proposed initial funding could be used to finance loan money of approximately \$25 million, which would provide stability to the C share market from the outset. The committee supports active participation in the fisheries by any purchaser of shares during the life of any loan used to purchase the shares. Several details of the loan program will need to be specified prior to implementation of the program. Eligibility criteria for loans, maximum loan amounts, any limitations on the number of shares that can be purchased with loan money all must be determined. The current committee could continue to work to develop the details of the loan program.

The options proposed for the loan program are intended to advance the program as a means for active participants to obtain or expand interests in the fishery. Permitting active participants to use loan funds to purchase any type of harvest shares provided the buyer complies with limitations on use and transfers that require active participation in the fishery should facilitate the increased interests of active participants in the crab fisheries. Obtaining advanced funding for the loan program would also assist in the development of a market for C shares, which could prevent some consolidation of C shares in the early years of the program. The loan program is likely to assist captains, who received small allocations, and crew, who received no allocation, in gaining an interest in the fisheries. A loan program will also reduce the funding of C share purchases by vessel owners, which could aid captains and crew in developing greater independence in a rationalized fishery.

3.9 CDQ and community allocations

Section 3.4 of the Council motion contains the following options for allocating a share of the fisheries subject to the rationalization programs to the CDQ program³³:

³³ Paragraph 6.2.3(f) of the cooperative program alternative includes identical options.

Element 4. Community development allocation (based on existing CDQ program):

- Option 1. No change from existing program
- Option 2. Expand existing program to all crab fisheries under this analysis.
- Option 3. Increase for all species of crab to 10%
- Option 4. Increase for all species of crab to 12.5%

The current allocation of crab to CDQ groups is 7.5 percent of the GHL in the Bristol Bay red king crab, Pribilof red king crab, Pribilof blue king crab, Norton sound red king crab, Bering Sea *C. opilio*, and Bering Sea *C. bairdi* fisheries. The first option would maintain this allocation. Option 2 would expand the allocation to include all crab fisheries included in the rationalization program. This would extend the CDQ allocation to the EAI (Dutch Harbor) golden king crab, WAI (Adak) golden king crab, WAI (Adak) red king crab, EAI (Dutch Harbor) red king crab, St. Matthew blue king crab, EAI *C. bairdi*, and WAI *C. bairdi* fisheries (if those fisheries are included in the program). Option 3 would broaden the CDQ allocation to include all of the crab fisheries and increase the CDQ allocation to 10 percent. Option 4 would also broaden the allocation to include all crab fisheries and would increase the allocation to 12.5 percent.

Option 5 would allocate any unused resource during the base period to the CDQ program. It would make an allocation exclusively to the community of Adak equal to the average unharvested GHL from that fishery during the qualifying period. The implications of this option depend on the definition of the “base period”. If the base period is decided to be the qualifying years under which allocations to harvest vessels are made, several base periods must be considered. In any case, the only fisheries that could be impacted by this option are the Aleutian Islands golden king crab fisheries. In the most recent seasons, however, harvests from these fisheries have not left a sufficient amount of crab for an allocation according the ADF&G managers. In some seasons in the qualifying year options, a share of these fisheries was not harvested, which could be allocated to Adak, if that is intended.

Table 3.9-1 shows CDQ allocations under the different options based on the GHL from the most recent fishery. The table also shows the effects of that allocation on non-CDQ vessels by computing the number of pounds the CDQ allocation would remove from the average vessel’s allocation. The average number of vessels in a fishery is average number of vessels estimated to receive an allocation under each of the different qualifying year options for each fishery. The Western Aleutian (Adak) red king crab fishery was not included because the fishery has been closed since 1996 season and the GHL has been extremely small. During the 1995/1996 season, only 39,000 pounds of red king crab was harvested.

The amount of the CDQ allocation based on the different options varies in each fishery. In the Bering Sea *C. opilio* fishery, the current CDQ allocation (7.5 percent) was approximately 2 million pounds based on a 2000 GHL of 26.5 million pounds. This allocation translates to slightly less than 8,000 pounds per vessel from the non-CDQ fleet. Options 3 and 4 would allocate approximately 2.65 million pounds and approximately 3.3 million pounds to the CDQ fishery, removing approximately 10,000 pounds and 13,000 pounds per vessel from the non-CDQ fleet.

In the 2000 Bristol Bay red king crab fishery approximately 0.6 million pounds was allocated to the CDQ fishery (based on a GHL of 7.7 million pounds and a 7.5 percent CDQ allocation). This averages slightly more than 2,000 pounds per vessel from the non-CDQ fleet. Under Options 3 and 4 slightly less than 0.7 million pounds and slightly less than 1.0 million pounds would have been allocated to the CDQ fishery (or approximately 2,900 pounds or 3,600 pounds per non-CDQ vessel).

Under the status quo, CDQ groups would be allocated slightly less than 0.5 million pounds in the Bering Sea *C. bairdi* fishery (based on the current 7.5 percent CDQ allocation in that fishery) or approximately 1,700 pounds per non-CDQ vessel on average (based on the 1996 GHL, the last year that fishery was open). Under Options 3 or 4, that allocation would be increased to approximately 0.6 million or approximately 0.7 million pounds (approximately 2,300 pound or 2,900 pounds per non-CDQ vessel on average).

Currently, CDQ groups receive no allocation in the Eastern Aleutian Islands (Dutch Harbor) golden (brown) king crab fishery. Expanding the CDQ program to include this fishery would result in an allocation of 0.2 million pounds based on the 1999/2000 season GHL and the current CDQ crab allocation of 7.5 percent. Each non-CDQ vessel would receive an allocation of approximately 16,000 pounds less, if the CDQ allocation is made at 7.5 percent. A CDQ allocation of 12.5 percent of GHL, as proposed in Option 4, would result in an allocation of approximately 0.4 million pounds to the CDQ groups. The 12.5 percent allocation would result in decrease in the allocation to non-CDQ vessels of slightly less than 27,000 pounds.

Similarly, no allocation to CDQ groups is made in the Western Aleutian Islands (Adak) golden king crab fishery. Expanding the CDQ allocation program to include this fishery would result in an allocation of 0.2 million pounds based on the 1999/2000 season GHL and a CDQ allocation of 7.5 percent. This allocation would decrease the average allocation to non-CDQ vessels by approximately 13,500. If Option 4 is selected, the 12.5 percent allocation, the CDQ allocation would be approximately 0.3 million pounds. The average non-CDQ vessel would receive an allocation of approximately 22,500 pounds less, if the 12.5 percent allocation is adopted. The relatively large decrease in non-CDQ allocations in the Aleutian Islands golden king crab fisheries would occur because many fewer vessels participate in these fisheries than in the other BSAI crab fisheries.

The most recent season for the Pribilof king crab fisheries combined the two fisheries using a single GHL. The analysis here uses the combined activity in the fisheries to estimate the impact of the options. Since both of these Pribilof fisheries share a single LLP endorsement, the overlap in fleets is substantial. The number of vessels used for determining the vessel impacts is the average number that would receive an allocation in the Pribilof red king crab fishery, because that number is higher than the number that would receive an allocation in the Pribilof blue king crab fishery. In the two Pribilof crab fisheries being considered for rationalization the current 7.5 percent CDQ allocation would constitute slightly less than 0.1 million pounds based on the 1998 GHL (the last season these fisheries were open). This allocation would have resulted in a reduction of allocations to non-CDQ vessels of approximately 800 pounds per vessel.

In the St. Matthew blue king crab fishery the current CDQ allocation would result in CDQ groups receiving approximately 0.3 million pounds based on the from 1998 GHL (the last season the fishery was open). This allocation would reduce the average allocation to non-CDQ vessels by approximately 2,125 pounds. If a 12.5 percent of allocation is made to CDQ groups, the CDQ allocation would have been approximately 0.5 million pounds during the 1998 season, which would result in a reduction of the average non-CDQ allocation of approximately 3,546 pounds.

Table 3.9-1 Allocations to CDQ groups and decreases in allocations to non-CDQ vessels under the rationalization alternatives

Fisheries/Option	CDQ Allocation	Average Number of Non-CDQ Vessels*	Average Pounds Per Non-CDQ Vessel
Bering Sea C. opilio fishery (GHL in 2000 was 26.5 million pounds)			
Option 1 - Status Quo (7.5% of GHL)	1,987,500		7,918
Option 3 - Increase to 10% of GHL	2,650,000		10,558
Option 4 - Increase to 12.5% of GHL	3,312,500	251	13,197
Bristol Bay red king crab fishery (GHL in 2000 was 7.7 million pounds)			
Option 1 - Status Quo (7.5% of GHL)	577,500		2,155
Option 3 - Increase to 10% of GHL	770,000		2,873
Option 4 - Increase to 12.5% of GHL	962,500	268	3,591
Bering Sea C. baird fishery (GHL in 1996 was 6.2 million pounds)			
Option 1 - Status Quo (7.5% of GHL)	465,000		1,735
Option 3 - Increase to 10% of GHL	620,000		2,313
Option 4 - Increase to 12.5% of GHL	775,000	268	2,892
Eastern Aleutian Islands (Dutch) golden (brown) king crab fishery (GHL in 1999-2000 was 3 million pounds)			
Option 1 - Status Quo (No allocation)	0		0
Option 2 - Expand existing program to Dutch golden (7.5%)	225,000		16,071
Option 3 - Increase to 10% of GHL	300,000		21,429
Option 4 - Increase to 12.5% of GHL	375,000		26,786
Option 5 - Percent of resource not utilized (harvest in 99/00 was 3.1 million pounds)	0	14	0
Pribilof red and blue king crab fisheries combined (GHL in 1998 was 1.25 million pounds)**			
Option 1 - Status Quo (7.5% of GHL)	93,750		830
Option 3 - Increase to 10% of GHL	125,000		1,106
Option 4 - Increase to 12.5% of GHL	156,250	113***	1,383
St. Matthew blue king crab fishery (GHL in 1998 was 4.0 million pounds)			
Option 1 - Status Quo (7.5% of GHL)	300,000		2,128
Option 3 - Increase to 10% of GHL	400,000		2,837
Option 4 - Increase to 12.5% of GHL	500,000	141	3,546
Eastern Aleutian Islands (Adak) golden (brown) king crab fishery (GHL in 1999-2000 was 2.7 million pounds)			
Option 1 - Status Quo (No allocation)	0		0
Option 2 - Expand existing program to Adak golden (7.5%)	202,500		13,500
Option 3 - Increase to 10% of GHL	270,000		18,000
Option 4 - Increase to 12.5% of GHL	337,500		22,500
Option 5 - Percent of resource not utilized		15	

*Average number of vessels receiving allocation under the qualifying year period.

** In the most recent season, these fisheries were combined.

*** Average number of vessels qualified in the Pribilof red king crab fishery.

The CDQ options in Section 3.4 of the Council motion also contain an option applicable only to the Aleutian Islands golden king crab fisheries. Option 5 of Section 3.4 provides the following:

Option 5. For the Aleutian Islands brown king crab fishery, the percentage of resource not utilized (difference between actual catch and GHL) during base period is allocated to the community of Adak.

3.9.1 Adak crab allocation

Under the option, an amount of crab equal to the unharvested resource would be allocated to the community of Adak from this fishery.

Table 3.9-2 shows the GHL and catch in the Western Aleutian Islands (Adak) golden king crab fisheries.³⁴ Prior to the 1996-1997 season, this fishery was managed through monitoring inseason harvests rather than with a specified GHL. This management prevents any determination of a specified percent of the fishery that was unused in those years. In the 2000-2001 season, catch exceeded the GHL so no unharvested crab were left on the table. In 1999-2000 season, approximately 99 percent of the GHL was harvested. State managers believe that the small amount of excess crab that year would be insufficient to make a separate allocation and therefore believe that the entire resource was utilized in that year as well. In the 1998-1999 season, only 62 percent of the allocation was harvested leaving slightly more than 1 million pounds on the table. In both the 1996-1997 and the 1997-1998 seasons, approximately 89 percent of the GHL was harvested.

Because of the limited history of specific GHLs in this fishery, if the Council selects this option it might be advisable to also designate the share that would be allocated to Adak to avoid any uncertainty concern the size of the allocation.

Table 3.9-2 GHL and catch from the Aleutian Islands golden king crab fisheries from 1996-1997 to 2000-2001 (in thousands of pounds).

Season	GHL	Catch	Unharvested GHL	Percent Unharvested
1996-1997	2,700	2,404	296	11.0
1997-1998	2,700	2,406	294	11.0
1998-1999	2,700	1,670	1,030	38.1
1999-2000	2,700	2,663	37	1.4
2000-2001	2,700	2,903	0	0
Total	13,500	12,045	1,657	12.3

Source: Westward Region, ADF&G

³⁴The entire GHL from the Eastern Aleutian Islands (Dutch Harbor) golden king crab fishery has been harvested in recent years leaving no unharvested resource in that area.

The Council included the following option requesting additional analysis of the Adak allocation in Section 4 of the Council motion:

(4.0) Adak allocation clarification

Goals of Allocation: The 10% community allocation of Golden King Crab was developed to provide the community of Adak with a sustainable allocation of crab to aid in the development of seafood harvesting and processing activities within that community. Adak is a community that has similar attributes to the communities that have already been awarded community development quotas (CDQ). It is a very small second class city with a year-round population of over 110 residents, with commercial fishing as the only source of private sector income. As a Bering Sea community, the transportation alternatives are highly constrained without road, ferry, limited air service, or barge service. While the community government is supported by modest local taxes and municipal assistance a critical source of revenue is the revenue sharing from the Alaska commercial fisheries business tax. Adak does not qualify as a CDQ community because of the reasons described in the Council staffing document, and the Council's allocation to Adak is to serve a similar end. The Council believes that there are no other similarly situated communities in the Western Aleutian Islands that are not already CDQ communities.

Criteria for Selection of Community Entity to Receive Shares:

1. A non-profit organization will be formed under Aleut Enterprise Corporation with a board of directors selected from the enterprise foundation's board.
2. A non-profit entity representing the community of Adak, with a board of directors elected by the community (residents of Adak) in a manner similar to the CDQ program. As a sub option, the shares given to this entity may be held in trust in the interim by the Aleut Enterprise Corporation and administered by it.

For both options 1 and 2 above, a set of use procedures, investment policies and procedures, auditing procedures, and a city or state oversight mechanism will be developed. Funds collected under the allocation will be placed in trust for 2 years until the above procedures and a plan for utilizing the funds are fully developed.

Performance standard for management of the allocation to facilitate oversight of the allocation and assess whether it achieves the goals: Use CDQ type management and oversight to provide assurance that the Council's goals are met. Continued receipt for the allocation will be contingent upon an implementation review conducted by the State of Alaska to ensure that the benefits derived from the allocation accrue to the community and achieve the goals of the fisheries development plan.

The Council's preferred alternative in June 2002 specified the following:

For the WAI golden king crab fishery, the percentage of resource not utilized (difference between the actual catch and GHL) during the base period is allocated to the community of Adak. In any year that sufficient processing exists at that location, the percentage of the

difference between the GHL and actual catch that was not harvested in these 4 years is not to exceed 10%.

The Council revisited the above provision of the June motion on the crab rationalization program in October, and requested clarification of and additional information regarding the goals of the Adak allocation, the selection of a community entity to receive the quota shares, and the management and oversight mechanisms necessary to evaluate whether the goals of the allocation are being met. The Council adopted two options for analysis regarding the selection of a community entity to receive the quota shares and general language describing the broad concept proposed for management and government oversight. The two decision points for the Council include determining: 1) the entity to receive and manage the Adak community allocation, and 2) the type of government oversight that should apply. The purpose of this paper is to provide the requested analysis to support a Council decision on these issues.

Goals of the allocation

The 10% Adak community allocation of golden king crab would be intended to provide the community of Adak with a sustainable allocation of crab to aid in the development of local seafood harvesting and processing activities. Thus, the goal of the allocation would be to provide Adak with a means for sustainable participation in fisheries harvesting and processing within the community. As such, the allocation would represent a policy decision by the Council to provide a direct allocation to a community which is currently building its fisheries economy to support redevelopment and population growth. Building on the concept of community development quotas, a community fishing quota,³⁵ such as the proposed allocation to Adak, can potentially be used to direct the flow of economic and social benefits from a fishery to a coastal community.

The rationale for supporting Adak through a direct allocation is premised on Adak's exclusion from the CDQ Program and the contention that there are no other similarly situated communities in the western Aleutian Islands that are not part of the CDQ Program.³⁶ The Council's allocation to Adak is intended to serve a similar purpose as the CDQ Program, which provides CDQ eligible communities the means for participating in, starting or supporting commercial fisheries business activities to strengthen the local economy.³⁷ The CDQ Program was developed to allow western Alaska coastal communities to participate in marine fisheries "in their backyard," which had previously been foreclosed to them because of the large amount of capital investment needed to enter the fishery. The crab allocation to Adak is proposed for similar reasons, as the Aleutian Islands golden king crab fishery is located in close proximity to Adak Island and requires substantial capital investment.³⁸ Thus, the rationale exists that Adak is similar to the eligible CDQ communities in many

³⁵See section on community fishing quotas, Sharing the Fish, 1999, p. 128.

³⁶Note that there are some other non-CDQ Aleutian Islands communities that were also Aleut villages prior to their use as military sites during World War II, such as Attu, Shemya, and Amchitka, and which continue to have an active military presence. Thus, one could envision a similar scenario for these villages in the future should they transition to civilian communities. There are also other communities, such as villages on Unalaska Island, that were Aleut communities prior to World War II and were not repopulated following the war.

³⁷Note, however, that Adak's economy is very different from the CDQ communities in that the CDQ communities have historically had high unemployment rates and low median incomes compared to the rest of the State of Alaska. While Adak does not have a similar historical range and is currently building its economy, the economic structure of Adak is very different from the CDQ communities. See the Draft Crab EIS (2002) Adak community profile for details.

³⁸One of the factors that distinguishes the Aleutian Islands golden king crab fishery from other fisheries in the crab rationalization program is that participants contend it is far less efficient than other crab fisheries. Because of the lower CPUEs, participants attempt to overcome the inefficiencies by using more pots than are used in other fisheries. Entry into the fishery is more costly because of equipment requirements and the fishery is primarily fished by relatively larger vessels than the Bering Sea crab fisheries. (Bering

respects and may warrant a comparable allocation to enter into and sustain participation in the golden king crab fishery. The unique circumstances that likely resulted in the exclusion of Adak from the CDQ Program are discussed in the following section, as are the attributes that currently make Adak different from the CDQ eligible communities. These differences, along with the mechanism proposed to distribute quota to Adak, may influence the selection of a community entity to receive the shares and the oversight and monitoring aspects of this proposal. These are discussed later in this paper.

Background

This section provides a general, condensed background on the community of Adak, specific to the purpose of this paper. For further details and a complete community profile, please see the Draft Crab Environmental Impact Statement (Draft Crab EIS, December 2002). This work is referenced several times in this paper and is currently being completed for the crab rationalization project.

Adak Island was heavily populated by the Aleut people at the beginning of the historical era, but was eventually abandoned in the early 1800s as the Aleut hunters followed the Russian fur trade eastward and famine set in on the Andreanof Island group. Subsistence activities continued on and around the island, however, until World War II. The military was engaged in activity on Adak Island during World War II, and a Naval Air Station was developed there after the war. Military operations on the island likely prevented Adak from being certified as a Native village under the Alaska Native Claims Settlement Act (1971), one of the qualifying criteria for community eligibility in the CDQ Program.

The Naval Air Station on Adak was officially closed on March 31, 1997. Since 1913, the island itself has been a Federal wildlife refuge, and was included within the Alaska Maritime National Wildlife Refuge established by Congress in the Alaska National Interest Lands Conservation Act (ANILCA) in 1980. Adak Island remains part of that refuge today, and thus, the lands withdrawn for military purposes during World War II will revert back to Department of Interior (DOI) ownership and U.S. Fish and Wildlife Service (USFWS) management. This is a multi-step endeavor under the base closure and realignment process. Early in the closure process, the Aleut Corporation, the Alaska Native regional corporation of the Aleutian/Pribilof region, expressed interest in exchanging some of its real property interests elsewhere in the Aleutian Islands for property at Adak. Given that the DOI sought opportunities to enhance the wildlife refuge, it was agreed that upon receipt of its previously withdrawn lands on Adak Island, the DOI would convey a portion of the northern half of Adak to the Aleut Corporation, in exchange for more valuable wildlife habitat owned by the corporation in the eastern Aleutians. Thus, while a portion of the island will remain under U.S. Fish and Wildlife Service management, the land exchange will eventually result in approximately 47,000 acres of the northern portion of Adak being transferred to the Aleut Corporation.³⁹ From this, some lands in and around the community will be subsequently transferred to the City of Adak.⁴⁰ Today, however, this portion of the island remains the property of the DOI and continues under military withdrawal status and as such is not directly managed by the USFWS.

A land transfer agreement was recently concluded between the DOI and the U.S. Navy/Department of Defense, passed through Congress, and is awaiting Presidential signature. Because Adak is within the wildlife

Sea Crab Rationalization Program Alternatives, NPFMC, May 2002).

³⁹Not all lands that were controlled by the military on the northern portion of the island will pass into Aleut Corporation (or other private) ownership. A significant portion of land on the southeastern edge of the former military controlled area will be retained as Federal land. This area has high wildlife value and is contiguous with the USFWS retained southern portion of the island.

⁴⁰The community incorporated as a Second Class City in April 2001.

refuge, special Congressional legislation is necessary to convey Adak property to the Aleut Corporation.⁴¹ This is expected to be completed sometime in the next year. While the final land transfer is not yet complete, an estimated 30 families, mostly Aleut Corporation shareholders, have since relocated to Adak (September 1998) to establish a non-military community.

The current population demographics of Adak continue to differ from the CDQ communities in the region. The 2000 census reported that about 35% of the population of Adak is comprised of Native Alaskans, compared to greater than 78% in the existing CDQ communities. While not a program intended only to benefit the Native population within eligible communities, all of the CDQ groups have a significant population of Alaska Natives and three of the six groups have resident Native populations of greater than 90%. While the Adak population does not have a Native majority, the community is very much an Aleut community by virtue of the driving role of the Aleut Corporation (the regional Native corporation) in its foundation and development and the predominant role of Aleut individuals in local governmental positions (Draft Crab EIS 2002). As stated previously, Adak did not become certified as a Native village under the Alaska Native Claims Settlement Act due to the fact that it was essentially a non-Native community at the time of the passage of the Act.

The level of existing infrastructure in Adak also sets Adak apart from the eligible CDQ communities.⁴² Many of the CDQ communities, prior to their participation in the program, had very limited fisheries-related infrastructure present in the community. The community of Adak has had a shore-side processing plant in the community since only late February 1999, which is currently operating as Adak Fisheries LLC. Other processing operations took place sporadically in Adak during the time it was a military base, although they are not well-documented (Draft Crab EIS 2002). The Aleut Corporation will receive most of the Naval facilities, including a fuel port and crew transfer facilities, three deep water docks, airport, and housing units, in the final land transfer. (In addition to housing and fishing-related infrastructure, the military also constructed several recreational facilities, including a movie theater, roller skating rink, swimming pools, ski lodge, bowling alleys, skeet range, auto hobby shop, photo lab, racquetball and tennis courts. A new hospital was built in 1990.) While the level of existing infrastructure alone in no way denotes that the community of Adak has substantial harvesting or processing capability absent the proposed crab allocation, it does contribute to the overall makeup of the community and distinguishes it from the majority of the CDQ communities.

While its military history, demographic makeup, and infrastructure set Adak apart from the CDQ communities, there are some similarities as well. Adak is a very small second class city in the Aleutian Islands, with the 2000 census reporting 316 residents, 200 to 225 of which are considered year-round (Draft Crab EIS 2002). During the peak fishing seasons, additional people come to Adak to work in the processing plant. Adak also has very limited alternative sources of private sector revenue other than fishing, and depends on a combination of local taxes (3% sales tax), a fuel transfer tax (\$0.02/gal), and municipal assistance, in addition to revenue sharing from the Alaska commercial fisheries business tax. Like other communities in the Aleutian Islands, transportation alternatives are constrained to limited air or barge service. In this sense, Adak is very similar to existing CDQ communities located in the Aleutian Islands, such as Atka and Nikolski.

⁴¹Source: Statement of H.T. Johnson, Asst. Secretary of the Navy, before the Subcommittee on Public Lands and Forests of the Senate Committee on Energy and Natural Resources, May 9, 2002.

⁴²Another of the criteria for eligibility in the CDQ Program is that a community must not have previously developed harvesting or processing capability sufficient to support substantial groundfish fisheries participation in the BSAI, unless the community can show that benefits from an approved CDP would be the only way to realize a return from previous investments (50 CFR 679.2).

Adak's current effort to transition from a military base to a commercial fishing center, however, is the most distinctive characteristic of the community. As stated previously, Adak has a small resident population, and while the intent is to develop Adak as a commercial center and civilian community with a private sector economy, like most communities in the region with commercial development, Adak's economy is marked by seasonal variation. The summer months mark the 'contractor season,' and the first few months of the year mark the peak local fishing season. About 32,150 acres of the land to be conveyed to the Aleut Corporation has been found environmentally suitable to transfer by the Navy, with the remaining 15,000 acres expected to receive a similar finding by early 2003.⁴³ Because the community of Adak has been focused on its redevelopment plan and the transition process, the majority of total employment in the community has been either directly or indirectly related to this effort. However, while the majority of the employment in the summer continues to be related to contractor activities to cleanup the former military site, the primary employment of full-time residents is with the city, the AEC, and small private businesses. (Draft Crab EIS, 2002).

The Federal government and the State of Alaska fully support the redevelopment of the community of Adak. Under the Base Closure Community Assistance Act of 1993 (BRAC), Congress made the following findings:

3) It is in the interest of the United States that the Federal Government facilitate the economic recovery of communities that experience adverse economic circumstances as a result of the closure or realignment of a military installation.

(4) It is in the interest of the United States that the Federal Government assist communities that experience adverse economic circumstances as a result of the closure of military installations by working with such communities to identify and implement means of reutilizing or redeveloping such installations in a beneficial manner or of otherwise revitalizing such communities and the economies of such communities.

(7) The Federal Government may best contribute to such reutilization and redevelopment by making available real and personal property at military installations to be closed to communities affected by such closures on a timely basis, and, if appropriate, at less than fair market value. (Sec. 2901)

The Congressional language implies that economic reuse/redevelopment is the highest priority of BRAC. Further, it is the policy of the Department of Defense (32 CFR Part 175) to help communities negatively affected by base closures to achieve economic recovery in ways based on local market conditions and locally developed reuse plans. To further this purpose, the Department of Defense identifies a Local Redevelopment Authority (LRA) in each base closure community. The LRA is defined as any authority or instrumentality established by state or local government and recognized by the Secretary of Defense, through the Office of Economic Adjustment, as the entity responsible for developing the redevelopment plan with respect to the installation or for directing implementation of the plan. Under 32 CFR Part 175, Revitalizing Base Closure Communities - Base Closure Community Assistance: "The LRA should focus primarily on developing a comprehensive redevelopment plan based upon local needs. The plan should recommend land uses based upon an exploration of feasible reuse alternatives" (Section 175.7).

In most cases, military bases that are being closed have been located within or near established communities, and the affected local governments typically form a local redevelopment authority to plan and implement

⁴³Source: Statement of H.T. Johnson, Asst. Secretary of the Navy, before the Subcommittee on Public Lands and Forests of the Senate Committee on Energy and Natural Resources, May 9, 2002.

reuse per the authority administered under BRAC.⁴⁴ Adak, however, is located in an unorganized borough and was only incorporated as the City of Adak as recently as 2001. Given these somewhat unique circumstances, the Adak Reuse Corporation (ARC) was organized as a non-profit entity and recognized as the official LRA in Adak subsequent to the military base closure. While the assets of Adak are still under Navy ownership, the ARC holds a transitional Master Lease agreement for the base. In turn, the ARC has sublet portions of the base and assets to the Aleut Enterprise Corporation, a for-profit subsidiary of the Aleut Corporation.

While the ARC is not formally related to the Aleut Corporation, the Board is composed of the commissioner of the Department of Community and Economic Development; two other persons selected by the Governor who serve as heads in State government; and four public members appointed by the Governor, two of whom must be residents of the area that is within the boundaries of the Aleut Corporation (AS 30.17.020). Thus, while ARC was formed specifically for Adak reuse needs, the structure of the Board was an attempt to represent the region and neighboring communities, regional service providers, governments, and fisheries interests, and was not community-based, per se (Draft Crab EIS, 2002). Designation of the ARC as the LRA may be atypical in the sense that most of the guidance governing LRAs states that they should have a broad-based membership, including, but not limited to, representatives from those jurisdictions with zoning authority over the property. Thus, typically the LRA is a local government or commission with broad representation. As noted previously, the Aleut Corporation will control a substantial amount of the northern portion of Adak in the pending land exchange and will own the majority of the buildings located on the northeast half of the island, including the airport, docks, and fuel farm. Thus, Aleut Corporation shareholder representation on the ARC Board is likely both appropriate and necessary to implement the redevelopment plan, as it will be the primary property owner. ARC intends to dissolve upon final transfer of the land to the Aleut Corporation.

At present, management of the community is fairly complex, due to the current transitional phase from a military to a non-military community. While the ARC holds the master lease for the base and its facilities, the airport is the only undertaking in the community run directly by the ARC. As previously stated, the ARC sub-leases some land to the AEC, the main purpose of which is to sell fuel and lease/manage property for other businesses, including the local processor. The AEC has also noted tentative plans to expand fuel services outside of Adak (*The Aleutian Current*, May 2002). The City of Adak itself operates community utilities and some of the existing facilities, although most of the recreational facilities are now closed.

Options for selection of community entity to receive QS

The Council adopted two options for consideration at the October meeting regarding the entity to which the crab allocation should be made:

Option 1. A non-profit organization to be formed under the Aleut Enterprise Corporation (AEC) with a Board of Directors selected from the AEC's Board.

Option 2. A non-profit organization representing the community of Adak, with a Board of Directors elected by the community (residents of Adak) in a manner similar to the CDQ Program.

Suboption: In the interim, the shares given to the non-profit organization may be held in trust and administered by the Aleut Enterprise Corporation.

⁴⁴Source: Statement of H.T. Johnson, Asst. Secretary of the Navy, before the Subcommittee on Public Lands and Forests of the Senate Committee on Energy and Natural Resources, May 9, 2002.

For both Options 1 and 2, a set of use procedures, investment policies, auditing procedures, and a city or State oversight mechanism will be developed. Funds collected under the allocation will be placed in trust for two years until the above procedures and a plan for utilizing the funds are fully developed.

The entity selected would be responsible for receiving and managing the crab quota on behalf of the community, as well as determining the entity or entities to which the quota would be leased and fished. Because Adak does not have an established resident fishing fleet (and no locally owned vessels that have a history of fishing crab), it is not expected that the entity would be leasing the quota directly to community residents. While community residents would not be prevented from fishing the quota should the opportunity arise, it is assumed that for the time being the community entity would lease the quota to one or more of the ten to fifteen vessels that typically participate in the golden king crab fishery in the western Aleutian Islands and deliver to the local plant. The harvest could potentially be delivered to the local processor in Adak,⁴⁵ although there is currently no restriction on where the crab may be landed. Regardless of where the crab is delivered, the primary direct benefit to be derived from the community allocation will likely be in the form of crab royalties. This is very similar to the CDQ Program, in that several of the CDQ species are harvested through partnerships with vessels that are not home ported in, or owned by residents of, the member communities. This is not atypical in the policy discourse surrounding community quotas, and not the only example of a community quota in which the community residents may fish the quota themselves, lease it, or get other fishermen to use it on their behalf.⁴⁶

Option 1

Option 1 would allocate the golden king crab harvester shares to a new non-profit organization formed under the Aleut Enterprise Corporation, a for-profit subsidiary of the Aleut Corporation, created in 1997 to use the infrastructure and property assets of Adak as a foundation for further economic development in Adak and the surrounding region. The long-term plan of the AEC states that its mission is to optimize returns to the Aleut Corporation from fuel, fisheries, and commercial lease ventures (S. Moller, pers. comm. 9/23/02). The AEC's strategy is to build Adak into a year-round fishing hub, complete with processing facilities, a small boat harbor, and a variety of shore-based services (Aleut Corporation newsletter, May 2002). Thus, the AEC is focusing its redevelopment efforts in Adak but continues to act as the economic development arm on behalf of the entire Aleut Corporation and its shareholders.

Given that the priority of the Department of Defense under BRAC is on economic redevelopment of the community of Adak, this may provide sufficient justification for both allowing a community allocation to Adak and making that allocation to an organization with the primary goal of developing the fisheries harvesting and processing capabilities of the community. Given the more specific fisheries and community development mission relative to that of the parent corporation, the AEC, or a non-profit entity organized under the AEC, may be appropriate to designate as the receiving entity.⁴⁷ Pending the final land transfer agreement with the Department of Defense and the Department of the Interior, the Aleut Corporation will have ownership and management control of the majority of facilities that directly and indirectly support fisheries activities. Thus, one may contend that the AEC would be well poised to assume the responsibility of receiving and managing a direct crab allocation for the benefit of the community.

⁴⁵The Adak processor has changed ownership structure several times since its inception. In 1999/2000, the operation primarily bought and processed cod, with some crab. In 2000/2001, the percentage of crab processed and the overall amount of cod increased. For 2001/2002, the operation increased throughput again, with the primary species processed being Pacific cod, followed by crab, halibut and sablefish. (Draft Crab EIS, December 2002).

⁴⁶Sharing the Fish (1999), p.128.

⁴⁷The Aleut Corporation's mission is: "To maximize profits, provide benefits to our shareholders, and preserve our culture."

Option 1 requires that the non-profit formed to receive the crab allocation be comprised of a Board of Directors selected from the AEC Board. One of the prime advantages of using an entity formed under an established organization such as the AEC is that it reduces the initial cost of establishing a decision-making structure and board leadership, financial oversight capability, and other administrative services associated with creating a new non-profit organization. These tasks represent an initial financial cost to the community, as well as the time and political will involved, and could likely be reduced by using an existing entity as an umbrella organization. In addition, the AEC is well known in the community and has already established relationships with those in the fishing industry.

The disadvantage of using a subsidiary established under the AEC is related to the same benefits described above. Because the AEC is an established organization under the Aleut Corporation, there may exist the perception that Aleut Corporation shareholders would receive an unfair advantage relative to other community residents in receiving the benefits of the community quota. Considering that the Council's motion is for a "community development allocation," intended to benefit the community of Adak as a whole, it is not necessarily intuitive that the allocation be made to the regional Native corporation, considering that the corporation has a specific mission and direct obligation to an identified group of shareholders.⁴⁸ In addition, while the AEC is identified primarily with the community of Adak, the parent corporation (Aleut Corporation) also represents shareholders throughout the region and beyond, including areas on the Alaska Peninsula and the Aleutian, Shumagin, and Pribilof Islands.

As mentioned previously, the primary goal of both the AEC and the Aleut Corporation is to maximize profits to the corporation and its shareholders. Thus, there may be a related concern in allowing management of the golden king crab allocation by either entity, in that managing for maximum financial benefit may not represent the maximum benefit to the community overall. The best way to derive community economic benefits from the allocation may not always be in the form of the highest royalty rates, as there may be alternative management decisions which may net a lower royalty rate but provide other real benefits to the community of Adak (i.e., maximizing use of vessels owned or crewed by community residents). Understanding these concerns is key to meeting the goals guiding the proposed action by the Council. Whether the community as a whole benefits from the allocation will be highly dependent upon the ownership entity being representative of the entire community.

Option 2

Option 2 would require the crab allocation to be received by a non-profit organization representing the community of Adak, with a Board of Directors elected by the community (residents of Adak) in a manner similar to the CDQ Program. It is assumed, but not explicit within the option as stated, that the non-profit must be a newly-formed entity, and not an existing entity within the community. This option provides the Council with an alternative that may satisfy some of the major concerns noted above under Option 1. The start-up and administrative costs associated with developing a new organization may reflect the disadvantages of such an option, while longer term benefits may be gained through the ability to structure an entity and Board of Directors that better represent the interests of the community. Option 2 may be appropriate in that it has the potential to create a representation of the community of Adak, and curtail any perception that the allocation only benefits the Aleut Corporation and its shareholders.

⁴⁸The SSC noted, in its review of Amendment 66 (Gulf Community Quota Share Purchase), that in order for the benefits of a community allocation or fishing opportunity to be received by the whole community, it may be necessary for the entity receiving the allocation to be formed for the explicit purpose of managing those fishing resources and an entity that represents the community as a whole and not one segment of the population.

Option 2 also states that a Board of Directors must be elected by residents of the community, in a manner similar to the CDQ Program, presumably to ensure a fair mechanism by which to select a decision-making body. While it was proposed at one time, the CDQ groups are not required by regulation to elect their Board of Directors in an at-large election for each member community of the CDQ group. While some of the CDQ groups with more than one member community prefer this method, each of the groups determines its own means of selecting the Board of Directors. For instance, some of the groups hold community elections, while others prefer to designate individual Board members on a community basis. Thus, the Council would want to identify whether the Board of Directors for the entity receiving harvest shares on behalf of Adak would be required to be developed through a community election. While it may provide a fair means by which to select a Board, community election of Board members could also require expenditures for election expenses and may discourage some qualified persons from attempting to serve on the Board.

For purposes of the CDQ Program, a CDQ group must be a local fishermen's or economic development organization that: 1) represents an eligible community or communities; 2) is incorporated under State or Federal law, and 3) has a Board of Directors composed of at least 75 percent resident fishermen of the community. Option 2 currently only requires that the entity holding crab harvest shares be a non-profit organization, it does not specifically require that it be a fishermen's or economic development organization.⁴⁹ In addition, while the first two requirements are implicit under Option 2, the Council may want to clarify, if it selects Option 2, whether the third requirement would also apply for the purpose of the Adak allocation.

The practicality of this requirement depends on whether there are a sufficient number of resident fishermen that would choose to take on this role. While it is not possible to predict how many fishermen may move into the community, the community profile on Adak provides a current snapshot of the resident population.⁵⁰ Adak has a population of about 316 (2000 census), and currently, the majority of the employment in the community is associated with maintaining the military facilities and providing support to the environmental cleanup operations. There are two vessels based in Adak that are owned by community residents, and, as of 2001, CFEC reports that three residents held four commercial groundfish fishing permits. According to community sources, four or five small vessels participated in local fisheries in 2001. While the local fleet is currently very small, the community is actively promoting the growth of a small boat fleet, and more people who spent at least part of the year in Adak are fishing there ((Draft Crab EIS 2002). The number of current resident fishermen may thus be sufficient to develop a Board of Directors, depending upon individuals' willingness to participate and the assumption that the requirement for resident fishermen on the Board is not specific to crab fishermen. In addition, the Council could consider including a processor representative on the Board. However, given that the community is in a transition phase and may also need varying expertise on the Board to manage the allocation, it may be warranted to consider reducing or eliminating this requirement.

Also provided under Option 2 is a suboption that would allow the Aleut Enterprise Corporation to hold and administer the shares in trust until the proposed entity is in place. While this suboption is intended to help ensure that the community will not forego benefits from the community allocation while the non-profit is being developed, this type of safety net is likely unnecessary. It will most likely take at least one year from the time of Council action to develop and implement the regulations for crab rationalization. Thus, there should be sufficient time available to develop an organization such as proposed under Option 2 for the purpose of receiving and managing the Adak community crab allocation.

Lastly, for both Options 1 and 2, it is proposed that:

⁴⁹A fishermen's organization, the Adak Native Fishermen's Association, was recently formed and convened its first Board meeting in September 2002. This organization is so new that at the time of the fieldwork for this project, a general membership meeting had not yet occurred.

⁵⁰See Draft Crab Environmental Impact Statement, Adak community profile, December 2002.

A set of use procedures, investment policies, auditing procedures, and a city or State oversight mechanism will be developed. Funds collected under the allocation will be placed in trust for two years until the above procedures and a plan for utilizing the funds are fully developed.

It is assumed that the policies noted above will be developed by, or in consultation with, the State of Alaska, should this allocation be approved by the Council and the Secretary. If it is determined that these procedures are integral to meeting the goals of the allocation, it is uncertain whether a time period should be linked to the mechanism to place the funds in trust. The Council may want to consider modifying this statement, such that the meaning changes to require the funds to be placed in trust until use procedures are in place, regardless of how long that may take.

Option for government oversight and allocation management

Included in the Adak proposal is the option to provide performance standards for management of the allocation, in order to facilitate government oversight and assess whether the action is meeting the stated goal. The following concept has been proposed:

Use CDQ-type management and oversight to provide assurance that the Council's goals are met. Continued receipt of the allocation will be contingent upon an implementation review conducted by the State of Alaska to ensure the benefits derived from the allocation accrue to the community and achieve the goals of the fisheries development plan.

Implicit throughout the proposed options and stated goals is that the golden king crab allocation to Adak is intended to represent benefits similar to those received under the CDQ Program. Thus, the structure and implementation proposed has some "CDQ-type" provisions, the range and implications of which can vary greatly. Government oversight in the CDQ Program has two primary elements: 1) requirements to provide information to the government about the activities of the CDQ groups, their affiliated businesses, and vessels and processors participating in the CDQ fisheries, and 2) requirements that certain activities by the CDQ group and their subsidiaries be approved by the State and NMFS before they are undertaken.⁵¹

Understanding that the CDQ Program has substantial reporting requirements and restrictions on the use of the allocations unique to that program, the Council may want to clarify exactly what requirements of the CDQ Program should be applied to Adak upon final action. Some examples will be provided here but it is not the intent of this paper to outline the comprehensive requirements of the CDQ Program. In addition, this section provides an alternative monitoring structure similar to that approved by the Council in April under the halibut and sablefish community quota share purchase program (Gulf Amendment 66).

CDQ Information Reporting Requirements

One of the critical differences between the proposed Adak allocation and the CDQ Program relates to the allocation process and reporting procedures. Allocations of CDQ are made to the CDQ groups, representing one or more communities, on the basis of the groups' approved Community Development Plans (CDPs). Federal regulations explicitly state that these are harvest privileges that expire upon expiration of a CDP; thus, when a CDP expires, further CDQ allocations are not implied or guaranteed (50 CFR 679.30 (a)). Each proposed CDP includes a list of new and existing projects and a request for quota with which to support those projects. Because the groups typically request more than the available quota, it is a very competitive process in which the groups vie for a limited amount of CDQ. The Adak allocation is different in that it is an allocation to one community, absent any competition from other communities. Thus, the primary reason the

⁵¹From RIR/IRFA for proposed Amendment 71 to the BSAI FMP to implement policy and administrative changes to the Western Alaska CDQ Program, May 15, 2002.

crab allocation to Adak would be reduced or terminated, biological reasons notwithstanding, would be due to a determination that the benefits were not accruing to the community and Adak was not sufficiently achieving the goals of its fisheries plan. This absence of competition, combined with not having to apply for the quota on a continual basis, creates a much different environment than that of the CDQ Program.

Should the Council choose to mirror the CDQ Program with respect to reporting requirements, it will need to specify those exact requirements and the frequency in which information must be submitted. The most prominent of the CDQ requirements is the proposed Community Development Plan. The Council's June 2002 action⁵² on the administrative and policy elements of the CDQ Program included a provision that would establish a three-year allocation cycle, meaning the CDPs must be submitted every three years. Under the CDQ Program regulations, a CDP must include a community eligibility statement, community development plan, business plan, statement of the applicant's qualifications, and a description of the managing organization (50 CFR 679.30 (a)). All of this comprises a comprehensive CDP, and as specified, is submitted to the State of Alaska for recommendation to the Secretary of Commerce. In addition, each CDQ group must submit quarterly reports, an annual progress report (including an audited financial statement), annual budget report, annual budget reconciliation report, and any amendments to the approved plan mid-cycle. These reports, in combination with the CDP, encompass the fundamental information requirements in the current CDQ Program.

Related to the competitive nature of the CDQ Program is the need to evaluate the CDPs based on a set of criteria. While the entity representing Adak would not be competing with any other entity for that allocation, there must be criteria by which the plan can be evaluated to determine whether Adak is using the allocation to achieve the purported goals. If, like the CDQ Program, the allocation is intended as a privilege which may be revoked or suspended, there must be standards by which to measure the community's success. The CDQ Program uses the evaluation criteria in State regulations to evaluate the CDPs and determine how well each group is providing benefits to its communities and meeting the milestones identified in its plan. Whether the non-profit organization representing Adak would be held to similar standards is a decision point for the Council. It is also assumed that corresponding regulations would include the opportunity for Adak to comment on and appeal a recommendation to reduce or terminate the golden king crab allocation.

While the current criteria only exist in State regulations, the Council's June 2002 motion consolidated and modified the following criteria for evaluating the CDPs to be placed in Federal regulations:

1. Number of participating communities, population, and economic condition.
2. A Community Development Plan that contains programs, projects, and milestones which show a well-thought out plan for investments, service programs, infrastructure, and regional or community economic development.
3. Past performance of the CDQ group in complying with program requirements and in carrying out its current plan for investments, service programs, infrastructure, and regional or community economic development.
4. Past performance of CDQ group governance, including: board training and participation; financial management; and community outreach.
5. A reasonable likelihood exists that a for-profit CDQ project will earn a financial return to the CDQ group.
6. Training, employment, and education benefits are being provided to residents of the eligible communities.

⁵²At the time of this paper, the Council's June 2002 CDQ action (BSAI FMP Amendment 71) had not yet been submitted to the Secretary of Commerce for review.

7. In areas of fisheries harvesting and processing, past performance of the CDQ group and proposed fishing plans in promoting conservation based fisheries by taking action that will minimize bycatch, provide for full retention and increased utilization of the fishery resource, and minimize impact to the essential fish habitats.
8. Proximity to the resource.
9. The extent to which the CDP will develop a sustainable fisheries-based economy.
10. For species identified as “incidental catch species” or “prohibited species,” CDQ allocations may be related to the recommended target species allocations.

While some of these criteria do not apply to a one community, non-competitive allocation, this list is provided to show what “CDQ-type” management might entail. It would be necessary to develop a set of criteria appropriate for use in evaluating a fisheries development plan provided by the Adak non-profit organization, whether it be similar to what is used currently in the CDQ Program or something different. Under the proposed language, the State of Alaska would conduct the review of the fisheries development plan provided by Adak at a specified interval. For example, mirroring the Council’s June 2002 action on the CDQ Program, this would require Adak to submit a fisheries development plan for review and approval every three years.⁵³ In this sense, the allocation to Adak would be interpreted similarly to the allocations made in the CDQ Program in that it would represent a privilege which may be revoked or suspended if the managing entity does not succeed in providing benefits to the community and implementing its fisheries development plan. This is intended to instill a level of responsibility in the managing entity to demonstrate its successes and be accountable to the community it represents.

The Council intended, and recently confirmed through its June 2002 action on the CDQ Program, that the State take primary responsibility for qualifying eligible communities and reviewing and making recommendations on the CDPs. The State was deemed the entity responsible for applying the criteria and procedures and for ensuring that each group meets the steps outlined in the allocation process. The Council is consulted on the State’s initial recommendations, and the Secretary holds final approval authority and releases quota to the CDQ groups as appropriate. Under the proposed option for the Adak allocation, the State would take primary responsibility to perform an implementation review to ensure that the benefits are accruing to the community and the fisheries plan is being implemented, similar to the role played by the State in the CDQ Program. It is assumed, however, that the final approval of a fisheries plan based on an allocation of Federal fisheries quota would remain with NMFS.

CDQ Prior Approval Requirements

The other primary element of government oversight of the CDQ Program is the requirement that certain activities by the CDQ group and their subsidiaries be approved by the State and NMFS before they are undertaken (i.e., prior approval). It is through the initial approval of the proposed Community Development Plan and through substantial plan amendment requirements that the State and NMFS exercise the authority to review and approve investments before they are made. Substantial amendments to the CDP require a written request by the CDQ group to the State and NMFS for approval of the amendment. The State must forward the proposed amendment to NMFS with a recommendation as to whether it should be approved or

⁵³Establishing a foreseeable allocation cycle and enabling the groups to plan ahead for the time, staff, and cost involved in the development of the CDPs is intended to allow the groups more stability in their development and potentially increase the efficiency of their operations. The intent of the three-year allocation is to allow the CDQ groups relative stability and reasonable expectations for the CDP without establishing permanent, or long-term, allocations. The Council noted that a three-year cycle is likely long enough to allow the groups the necessary flexibility in their CDP development, but short enough to keep the groups accountable to the performance standards and milestones identified in their CDPs. Given that the only practical mechanism for the State and NMFS to adjust the allocations is through the allocation process, the Council recommended a three-year cycle in order to retain this level of government oversight.

disapproved, and NMFS must notify the State in writing of its decision. The Council's June 2002 motion clarified that government oversight extends to subsidiaries controlled by CDQ groups, and 51% minimum ownership denotes effective management control or controlling interest in a company. The Council may want to consider whether this level of oversight is also appropriate for the non-profit entity receiving the community allocation on behalf of Adak.

The practical implication of imposing this requirement on the community entity representing Adak is that it would require the entity to keep its fisheries development plan up to date and submit any changes after the initial approval of the plan to the State and NMFS. If the entity wanted to substantially amend the plan to make a different investment or engage in a different business activity not covered in the plan, it would have to submit a written request to the State and NMFS for approval. For the purposes of the CDQ Program, a substantial amendment is currently defined as including, but not limited to: any change in the list of communities represented by the CDQ group or replacement of the managing organization; a change in the group's harvesting or processing partner; funding a CDP project in excess of \$100,000 that is not part of an approved general budget; more than a 20% increase in the annual budget of an approved project; more than a 20% increase in actual expenditures over the approved annual budget for administrative services; a change in the contract between the group and its harvesting or processing partner, or a material change in a CDQ project.

In sum, the information and reporting requirements, including the requirement for prior approval, make up the critical elements of government oversight within the CDQ Program. The Council may want to clarify that these elements are what is intended by the proposed option under "CDQ-like management and oversight." There are numerous other requirements comprising the CDQ Program, including the requirement that CDQ Program revenues are restricted to fisheries-related projects and investments. While this requirement was relaxed in the Council's June 2002 motion to allow each CDQ group to invest up to 20% of its previous year's pollock CDQ royalties in non-fisheries related, in-region, economic development projects, the first priority of the program continues to be to strengthen the fisheries-related economies in the region. Similarly, the proposed goal of the community allocation to Adak is: "to provide Adak with a sustainable allocation of crab to aid in the development of local seafood harvesting and processing activities." Thus, while potentially appropriate for Council consideration, the fisheries-related restriction is an example of a different type of requirement unrelated to the reporting and monitoring requirements discussed previously. In sum, it will be necessary to clarify if the fisheries-related restriction, and other specific provisions of the CDQ Program, are implicit in the proposed allocation to Adak, or whether only the reporting requirements are to be applied.

Halibut/sablefish community QS purchase program structure

An alternative to the CDQ Program management and oversight is the structure provided in the Council's April 2002 action on the halibut and sablefish community QS purchase program (Gulf Amendment 66). While the program is dissimilar in that it requires eligible Gulf of Alaska communities to *purchase* halibut and sablefish quota share, it begets some of the same concerns regarding fair distribution of the benefits resulting from the community quota share (IFQ). In that action, the Council required that the administrative entity permitted to hold quota share on behalf of eligible communities must be a *new* non-profit organization representing an eligible community or aggregation of two or more eligible communities.

Under the proposed action for Amendment 66, administrative entities must be approved by NMFS to be considered "qualified" prior to purchasing QS on behalf of an eligible community or group of communities. The purpose of the requirement that the non-profit organization be newly formed is to ensure that the entity is explicitly designed to meet the objective of purchasing and holding quota share on behalf of the community. Existing administrative structures, such as municipal governments or tribal councils, may be focused on a host of priorities and issues, of which fishing may be only one. Considering comments from the

Scientific and Statistical Committee, the Council adopted this provision in order to help ensure that the administrative entity designated to purchase and manage the quota share is representative of the entire community, with an express purpose to manage commercial quota share.

The halibut and sablefish community quota share purchase program also provides an alternative model to the reporting and oversight mechanisms inherent in the CDQ Program, and may be considered for the Adak community allocation. Please see the discussion in Section 3.6.2.2. for further details of this structure.

Summary

In sum, in deciding the oversight mechanism for the proposed Adak community allocation, it is important to consider the relationships among the varying interests within the community, and the overall policy concern that the benefits of the allocation reach the community as a whole. As critical is the overall implication that the golden king crab allocation is intended to provide benefits that the community does not currently receive since they are not included in the CDQ Program. Given that the proposed allocation of golden king crab to Adak would be much like the direct allocation of quota made to the CDQ Program, it may be appropriate for the Council to require a similarly high level of government oversight and monitoring.

The language of the current proposal only notes that the entity representing Adak must submit a fisheries development plan and be subject to “CDQ-type management and oversight to provide assurance that the Council’s goals are met.” The two primary elements of government oversight in the CDQ Program are: 1) the requirement for the community development plan and supplemental reports, and 2) the requirement that certain activities by the group and its subsidiaries receive prior approval from the State and NMFS before they are undertaken. Note, however, that the program has many regulatory provisions in addition to these core requirements. Thus, the proposal to provide a community allocation to Adak must first be clarified to determine if these two core elements of CDQ-type oversight should apply. Secondly, the proposal should be clarified to determine if any other specific provisions of the CDQ Program should apply.

3.10 Other management and allocation issues

3.10.1 The effects of rationalization on other fisheries

3.10.1.1 Council alternatives

Rationalization of the BSAI crab fisheries may provide opportunities for fishermen to alter their crab fishing patterns to take greater advantage of other fisheries. Increasing their effort in those other fisheries could negatively impact other participants in those fisheries that have traditionally relied on them for fishing income. Changes in fishing patterns may also provide more opportunities to become involved in other fishing related activities such as tendering. Similar concerns were raised when the AFA was passed. Based on those concerns and requirements to protect participants in other fisheries prescribed in the AFA, the Council spent considerable time developing sideboard caps which limit the amount of other species AFA pollock boats can harvest to their historic levels. A detailed discussion of those caps may be found in the AFA Draft EIS (NMFS, 2001).

3.10.1.2 Historic participation in other fisheries

To expand their operations into Federally managed groundfish or scallop fisheries, crab vessels qualifying under the rationalization program would be required to hold a license and endorsements allowing participation in those fisheries. Groundfish licenses are area specific (GOA and BSAI) with area endorsements for the Western Gulf, the Central Gulf, and the Eastern under the GOA license and area

endorsements for the Bering Sea and the Aleutian Islands under the BSAI license. In the future, endorsements for trawl gear, non-trawl gear, or both gear types will be added to the general license limiting gear deployment to the endorsed type. The Council and the Secretary of Commerce have approved those amendments. Current expectations are that the gear endorsements will be added to licenses for the 2003 fishing year.

BSAI crab vessels meeting the legal requirements could also enter State water fisheries for Pacific cod in the GOA. These vessels also tender when they are not fishing. Each of these options is discussed below. Projecting impacts on the other fisheries and vessel owners, however, is difficult. Movement into those fisheries will ultimately depend on a variety of factors that cannot be projected with accuracy at this time. Some of those factors are the amount of crab quota a vessel owner holds and crab TACs, the cost of converting the vessel to participate in other fisheries, the licenses held by the vessel owner that could be applied to a vessel, and the ability of a vessel to operate efficiently in other fisheries.

Table 3.10-1 lists the crab and groundfish endorsements associated with vessels that appear to qualify under the proposed rationalization alternatives. That table indicates that 86 of the 253 licenses carry endorsements for one endorsement area for groundfish. 63 of the 86 licenses carry endorsements for either the BS or AI. The remaining 23 licenses carry endorsements to fish federally managed groundfish in a GOA endorsement area. Other crab licenses (the remaining 167 licenses) are bundled with a groundfish license that has endorsements for more than one area. Twenty of those licenses carry endorsements for only the BS and AI.

Table 3.10-2 indicates that less than 4 percent of the ex vessel revenue generated by crab vessels that are projected to qualify for the rationalization program came from fisheries other than the BSAI crab fisheries being considered for rationalization, the pollock fisheries, and the Pacific cod fisheries. Of the 4 percent, other groundfish species accounted for less than 1 percent and species outside the Council's FMPs accounted for the remaining 3 percent. These numbers include the AFA catcher vessels whose participation in other fisheries is already capped. When the AFA vessel revenues are excluded, the revenues generated from the pollock and Pacific cod fisheries drop dramatically (see Table 3.10-3).

The Council may wish to consider the information presented in Table 3.10-3 when contemplating sideboards, since the AFA fleet's participation in other fisheries is already capped. Information in Table 3.10-3 shows that the non-AFA vessels had relatively small levels of participation in groundfish fisheries under the Council's authority. A total of \$12.23 million was generated from groundfish fisheries in 2000. Access to the directed BSAI pollock fishery is already limited under the AFA and should not be a concern. Pacific cod accounted for \$11.19 million (over 91 percent) of the total. Participation in other groundfish fisheries generated only \$0.85 million for these vessels in 2000. Therefore, if sideboard caps were placed on these vessels based on their recent historic catch, they would be limited to very small amounts of groundfish other than Pacific cod.

BSAI Pacific Cod Participation in the BSAI Pacific cod fishery is already limited through a variety of regulations. Those include a split of the available BSAI Pacific cod TAC (after CDQ and bycatch deductions) with 51 percent allocated to fixed gear, 47 percent to trawl gear, and 2 percent to jig gear. That split in the BSAI TAC prohibits vessels using one gear type from preempting another gear type's harvest of the quota. Amendment 64 (effective in 2000) further split the fixed gear quota among pot and longline vessels, with pot and longline vessels under 60 feet in length receiving 1.4 percent of the allocation and pot vessels receiving 18.3 percent of the allocation.

Table 3.10-1 Number of LLP vessels with various combinations of crab and groundfish endorsements and CFEC tender permits

Crab Endorsements	Groundfish Endorsements															Grand Total	CFEC Tendering Permits
	WG	SE	CG	CG & WG	BS	BS & WG	BS & CG	BS,CG & WG	AI	AI & BS	AI, BS & WG	AI, BS & CG	AI, BS, CG & WG	AI, BS, CG, SE & WG			
PRBK			2	3				1					1		7	3	
NSRBK		1	2		3		4	1				1	4		16	3	
NSRBK & PRBK								3							3		
BBRKC			2					2							4	3	
BBRKC & PRBK,			1				1	2							4	1	
BAOB				2	1	3	1								7	3	
BAOB, PRBK,				1											1		
BAOB, BBRKC			5	1	2	5	4	11	1	4	12		19		64	30	
BAOB, BBRKC, & ,STMBK					19	8	2	5		9	2	3	6	1	55	23	
BAOB, BBRKC, & PRBK	1		2	1	5	2	4	5		1		1	2		24	13	
BAOB, BBRKC, PRBK, & STMBK	1		3	1	18	7	2	2		3	3				40	26	
AIRK, BAOB, & BBRKC												1			1		
AIRK, BAOB, BBRKC, & STMBK					2	1		1							4	2	
AIRK, BAOB, BBRKC, & PRBK			1												1		
AIRK, BAOB, BBRKC, PRBK, & STMBK					5	1				1	1				8	2	
AIBK, BAOB, BBRKC, & STMBK	1				2					2					5		
AIBK, BAOB, BBRKC, PRBK & STMBK	1				2	1							1		5	3	
AIBK, AIRK, BAOB, & STMBK									1						1		
AIBK, AIRK, BAOB, BBRKC, & STMBK						1									1		
AIBK, AIRK, BAOB, BBRKC, PRBK, & STMBK					1				1						2	2	
Grand Total	4	1	18	9	60	29	18	33	3	20	18	6	33	1	253	114	

Source: NMFS RAM Division LLP data

Key: PRBK = Pribilof red king crab and Pribilof blue king crab
 NSRBK = Norton Sound red and blue king crab
 BBRK = Bristol Bay red king crab
 BAOB = EBS snow crab and EBS tanner crab
 AIRK = Adak red king crab
 AIBK = AI golden king crab

Table 3.10-2 Gross revenue (nominal \$ mill.) by crab vessels projected to qualify under rationalization, by area endorsement on groundfish license

Year	Fishery	Groundfish Area Endorsements on License									Grand Total
		BS	BS & WG	BS & CG	BS, CG, & WG	AI & BS	AI, BS, & WG	AI, BS, & CG	AI, BS, CG, & WG	All Other	
1996	\$ from BSAI Crab	\$ 33.28	\$ 12.68	\$ 2.77	\$ 4.10	\$ 13.07	\$ 5.19	\$ 2.05	\$ 7.35	\$ 8.50	\$ 88.99
	\$ from Pollock	\$ 0.07	\$ 1.17	\$ 0.20	\$ 1.76	\$ -	\$ 2.31	\$ 0.00	\$ 4.81	\$ 0.00	\$ 10.31
	\$ from P. Cod	\$ 3.73	\$ 0.91	\$ 1.13	\$ 1.53	\$ 0.00	\$ 0.57	\$ 0.05	\$ 0.74	\$ 0.18	\$ 8.84
	\$ from Other Groundfish	\$ 0.00	\$ 0.12	\$ 0.23	\$ 0.30	\$ -	\$ 0.01	\$ 0.15	\$ 0.18	\$ 0.22	\$ 1.22
	\$ from Other Species	\$ 0.67	\$ 0.15	\$ 0.75	\$ 0.73	\$ 0.28	\$ 0.00	\$ 0.28	\$ 0.36	\$ 0.99	\$ 4.22
1997	\$ from BSAI Crab	\$ 32.21	\$ 10.60	\$ 3.34	\$ 4.49	\$ 9.15	\$ 5.88	\$ 1.87	\$ 5.54	\$ 7.65	\$ 80.72
	\$ from Pollock	\$ 1.21	\$ 1.48	\$ 1.51	\$ 3.95	\$ 0.09	\$ 12.67	\$ 0.10	\$ 11.24	\$ -	\$ 32.25
	\$ from P. Cod	\$ 3.28	\$ 0.74	\$ 1.14	\$ 2.40	\$ 0.05	\$ 2.93	\$ 0.00	\$ 1.71	\$ 0.01	\$ 12.26
	\$ from Other Groundfish	\$ 0.01	\$ 0.00	\$ 0.19	\$ 0.67	\$ 0.00	\$ 0.41	\$ 0.31	\$ 0.01	\$ 0.23	\$ 1.84
	\$ from Other Species	\$ 0.41	\$ 0.52	\$ 1.68	\$ 1.81	\$ 0.29	\$ 0.00	\$ 0.45	\$ 0.01	\$ 0.84	\$ 6.00
1998	\$ from BSAI Crab	\$ 42.36	\$ 14.48	\$ 3.85	\$ 5.97	\$ 10.41	\$ 7.64	\$ 1.92	\$ 8.32	\$ 8.95	\$ 103.89
	\$ from Pollock	\$ 0.99	\$ 0.83	\$ 1.09	\$ 3.41	\$ 0.02	\$ 7.67	\$ 0.08	\$ 6.34	\$ 0.00	\$ 20.44
	\$ from P. Cod	\$ 1.11	\$ 0.18	\$ 1.23	\$ 2.75	\$ 0.15	\$ 0.95	\$ 0.14	\$ 1.43	\$ 0.07	\$ 8.02
	\$ from Other Groundfish	\$ 0.01	\$ 0.00	\$ 0.31	\$ 0.46	\$ 0.00	\$ 0.01	\$ 0.17	\$ 0.01	\$ 0.05	\$ 1.03
	\$ from Other Species	\$ 0.20	\$ 0.40	\$ 0.58	\$ 1.35	\$ -	\$ 0.00	\$ 0.20	\$ -	\$ 0.53	\$ 3.26
1999	\$ from BSAI Crab	\$ 53.76	\$ 18.69	\$ 6.24	\$ 10.18	\$ 16.97	\$ 10.34	\$ 3.01	\$ 13.54	\$ 13.02	\$ 145.76
	\$ from Pollock	\$ 1.02	\$ 1.40	\$ 2.12	\$ 4.58	\$ 0.39	\$ 12.80	\$ 0.01	\$ 12.52	\$ 0.00	\$ 34.84
	\$ from P. Cod	\$ 2.72	\$ 0.68	\$ 1.87	\$ 4.12	\$ 0.36	\$ 1.54	\$ 0.03	\$ 1.38	\$ 0.31	\$ 13.00
	\$ from Other Groundfish	\$ 0.01	\$ 0.00	\$ 0.12	\$ 0.40	\$ 0.00	\$ 0.01	\$ 0.07	\$ 0.03	\$ 0.09	\$ 0.72
	\$ from Other Species	\$ 0.40	\$ 0.49	\$ 1.30	\$ 2.64	\$ -	\$ 0.00	\$ 0.28	\$ 0.15	\$ 0.65	\$ 5.90
2000	\$ from BSAI Crab	\$ 21.26	\$ 7.34	\$ 2.22	\$ 3.98	\$ 6.28	\$ 3.97	\$ 1.71	\$ 5.16	\$ 8.37	\$ 60.28
	\$ from Pollock	\$ 1.37	\$ 1.52	\$ 1.61	\$ 2.65	\$ 0.37	\$ 9.42	\$ 0.00	\$ 7.30	\$ 0.00	\$ 24.24
	\$ from P. Cod	\$ 4.95	\$ 1.79	\$ 2.17	\$ 2.70	\$ 0.86	\$ 3.02	\$ 1.09	\$ 1.44	\$ 0.82	\$ 18.83
	\$ from Other Groundfish	\$ 0.02	\$ 0.01	\$ 0.18	\$ 0.62	\$ 0.00	\$ 0.01	\$ 0.00	\$ 0.13	\$ 0.07	\$ 1.04
	\$ from Other Species	\$ 0.00	\$ 0.68	\$ -	\$ 0.13	\$ -	\$ -	\$ -	\$ 0.06	\$ -	\$ 0.88
Total	\$ from BSAI Crab	\$182.87	\$ 63.79	\$ 18.42	\$ 28.71	\$ 55.88	\$ 33.02	\$ 10.56	\$ 39.91	\$ 46.48	\$ 479.64
	\$ from Pollock	\$ 4.66	\$ 6.41	\$ 6.53	\$ 16.35	\$ 0.87	\$ 44.87	\$ 0.19	\$ 42.21	\$ 0.00	\$ 122.08
	\$ from P. Cod	\$ 15.78	\$ 4.29	\$ 7.55	\$ 13.49	\$ 1.41	\$ 9.01	\$ 1.32	\$ 6.70	\$ 1.40	\$ 60.96
	\$ from Other Groundfish	\$ 0.05	\$ 0.14	\$ 1.03	\$ 2.45	\$ 0.00	\$ 0.45	\$ 0.70	\$ 0.36	\$ 0.66	\$ 5.84
	\$ from Other Species	\$ 1.68	\$ 2.25	\$ 4.30	\$ 6.66	\$ 0.57	\$ 0.00	\$ 1.21	\$ 0.58	\$ 3.00	\$ 20.25

Source: NPFMC Bering Sea Crab Database 2001 Version 1

Table 3.10-3 Gross revenue (nominal \$ mill.) by non-AFA crab vessels projected to qualify under rationalization, by area endorsement on groundfish license

Year	Fishery	Groundfish Area Endorsements on License									Grand Total
		BS	BS & WG	BS & CG	BS, CG, & WG	AI & BS	AI, BS, & WG	AI, BS, & CG	AI, BS, CG, & WG	All Other	
1996	\$ from BSAI Crab	\$ 33.25	\$ 12.45	\$ 2.55	\$ 3.61	\$ 13.07	\$ 4.94	\$ 2.05	\$ 5.82	\$ 8.50	\$ 86.24
	\$ from Pollock	\$ 0.06	\$ 0.00	\$ -	\$ 0.19	\$ -	\$ -	\$ 0.00	\$ -	\$ 0.00	\$ 0.25
	\$ from P. Cod	\$ 3.60	\$ 0.73	\$ 0.98	\$ 1.29	\$ 0.00	\$ 0.07	\$ 0.05	\$ 0.01	\$ 0.18	\$ 6.91
	\$ from Other Groundfish	\$ 0.00	\$ 0.00	\$ 0.23	\$ 0.30	\$ -	\$ 0.00	\$ 0.15	\$ 0.18	\$ 0.22	\$ 1.08
	\$ from Other Species	\$ 0.67	\$ 0.15	\$ 0.75	\$ 0.73	\$ 0.28	\$ 0.00	\$ 0.28	\$ 0.36	\$ 0.99	\$ 4.22
1997	\$ from BSAI Crab	\$ 31.73	\$ 10.35	\$ 2.86	\$ 3.86	\$ 9.07	\$ 4.17	\$ 1.72	\$ 4.25	\$ 7.65	\$ 75.67
	\$ from Pollock	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.32	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 0.32
	\$ from P. Cod	\$ 2.84	\$ 0.41	\$ 0.68	\$ 1.32	\$ 0.01	\$ 0.71	\$ 0.00	\$ 0.00	\$ 0.01	\$ 5.98
	\$ from Other Groundfish	\$ 0.01	\$ -	\$ 0.19	\$ 0.56	\$ -	\$ 0.19	\$ 0.16	\$ 0.00	\$ 0.23	\$ 1.35
	\$ from Other Species	\$ 0.41	\$ 0.52	\$ 1.68	\$ 1.57	\$ 0.29	\$ 0.00	\$ 0.45	\$ 0.01	\$ 0.84	\$ 5.76
1998	\$ from BSAI Crab	\$ 41.94	\$ 13.86	\$ 3.57	\$ 5.23	\$ 10.30	\$ 6.09	\$ 1.85	\$ 5.88	\$ 8.95	\$ 97.65
	\$ from Pollock	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.13	\$ -	\$ 0.00	\$ -	\$ 0.00	\$ 0.00	\$ 0.13
	\$ from P. Cod	\$ 0.94	\$ 0.17	\$ 0.37	\$ 1.86	\$ 0.00	\$ 0.10	\$ 0.14	\$ 0.14	\$ 0.07	\$ 3.79
	\$ from Other Groundfish	\$ 0.01	\$ -	\$ 0.12	\$ 0.30	\$ -	\$ 0.00	\$ 0.09	\$ 0.00	\$ 0.05	\$ 0.58
	\$ from Other Species	\$ 0.20	\$ 0.40	\$ 0.58	\$ 1.21	\$ -	\$ 0.00	\$ 0.20	\$ -	\$ 0.53	\$ 3.12
1999	\$ from BSAI Crab	\$ 52.38	\$ 17.55	\$ 5.44	\$ 6.74	\$ 16.68	\$ 8.18	\$ 2.84	\$ 9.03	\$ 13.02	\$131.86
	\$ from Pollock	\$ 0.00	\$ 0.00	\$ -	\$ 0.16	\$ 0.00	\$ -	\$ 0.00	\$ -	\$ 0.00	\$ 0.16
	\$ from P. Cod	\$ 2.33	\$ 0.61	\$ 0.97	\$ 2.80	\$ 0.16	\$ 0.16	\$ 0.03	\$ 0.17	\$ 0.31	\$ 7.54
	\$ from Other Groundfish	\$ 0.01	\$ 0.00	\$ 0.12	\$ 0.29	\$ 0.00	\$ -	\$ 0.07	\$ 0.00	\$ 0.09	\$ 0.58
	\$ from Other Species	\$ 0.40	\$ 0.49	\$ 1.30	\$ 2.32	\$ -	\$ -	\$ 0.28	\$ 0.15	\$ 0.65	\$ 5.58
2000	\$ from BSAI Crab	\$ 20.46	\$ 7.08	\$ 2.00	\$ 2.97	\$ 6.18	\$ 2.48	\$ 1.61	\$ 3.92	\$ 8.37	\$ 55.08
	\$ from Pollock	\$ 0.00	\$ 0.00	\$ 0.07	\$ 0.10	\$ 0.00	\$ 0.00	\$ -	\$ 0.03	\$ 0.00	\$ 0.19
	\$ from P. Cod	\$ 3.88	\$ 1.07	\$ 1.27	\$ 1.98	\$ 0.71	\$ 0.51	\$ 0.34	\$ 0.60	\$ 0.82	\$ 11.19
	\$ from Other Groundfish	\$ 0.02	\$ 0.00	\$ 0.18	\$ 0.46	\$ 0.00	\$ 0.00	\$ -	\$ 0.12	\$ 0.07	\$ 0.85
	\$ from Other Species	\$ 0.00	\$ 0.68	\$ -	\$ 0.13	\$ -	\$ -	\$ -	\$ 0.06	\$ -	\$ 0.88
Total	\$ from BSAI Crab	\$179.77	\$ 61.30	\$ 16.42	\$ 22.41	\$ 55.29	\$ 25.86	\$ 10.08	\$28.91	\$ 46.48	\$446.50
	\$ from Pollock	\$ 0.06	\$ 0.00	\$ 0.07	\$ 0.89	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.03	\$ 0.00	\$ 1.06
	\$ from P. Cod	\$ 13.60	\$ 2.98	\$ 4.27	\$ 9.26	\$ 0.88	\$ 1.55	\$ 0.56	\$ 0.92	\$ 1.40	\$ 35.41
	\$ from Other Groundfish	\$ 0.05	\$ 0.00	\$ 0.84	\$ 1.91	\$ 0.00	\$ 0.20	\$ 0.48	\$ 0.30	\$ 0.66	\$ 4.44
	\$ from Other Species	\$ 1.68	\$ 2.25	\$ 4.30	\$ 5.97	\$ 0.57	\$ 0.00	\$ 1.21	\$ 0.58	\$ 3.00	\$ 19.55

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

The Council and the Secretary of Commerce have also approved adding gear endorsements to groundfish licenses, which are projected to be added to the licenses for the 2003 fishery. Gear endorsements will further limit the number of vessels that will be allowed to use gear types they have not traditionally fished to harvest Pacific cod from the BSAI.

Participation in the BSAI Pacific cod fixed gear fishery will be limited further by Amendment 67. Amendment 67 will add a Pacific cod endorsement to BSAI groundfish fixed gear licenses. The RIR that was developed to implement Amendment 67 projected that only 47 pot catcher vessels met the qualifying criteria for a Pacific cod endorsement (less than half of the number of vessels that have participated annually from 1996-2000). When implemented this will limit the number of crab pot vessels that can participate in the BSAI cod fishery. Finally, the Council is considering Amendment 68, which would further split the pot gear quota (18.3 percent) among pot catcher vessels and pot catcher/processors. This action will be considered when the Council takes up the BSAI Pacific cod split between the fixed and trawl gear sectors that is set to expire on December 31, 2003.

The current Pacific cod harvest limits and limited entry programs (and those under consideration) for the BSAI seem to provide members of the cod fishery protection from increased participation of BSAI crab vessels that could result from rationalizing the crab fisheries. If that level of protection is deemed to be inadequate, the Council could decide to limit BSAI crab vessel harvests to historic levels.

GOA Pacific Cod In 2002, the overall GOA Pacific cod ABC was reduced about 15 percent relative to 2001. An increase in the amount of Pacific cod allocated to the State fishery also occurred in some areas in 2002.

Ninety percent of the GOA Pacific cod has been allocated to the inshore sector and 10 percent to the offshore sector since the first Inshore/Offshore amendment was implemented in 1992. Vessels in the BSAI crab fleet would be assigned to the inshore sector if they deliver GOA Pacific cod to a shorebased processor, they process less than 126 mt of groundfish per week, or they deliver to a floating processor that remains in a single geographic location in the GOA throughout the year. It is assumed that most of the BSAI crab vessels that are eligible to fish in the GOA (under the LLP) could meet the inshore criteria, and harvest Pacific cod assigned to the inshore sector.

Currently the only requirement to fish Pacific cod in the Federal waters of the GOA is a valid groundfish license. Of the crab vessels that appear to qualify for the crab rationalization program, 122 vessels are licensed to fish in the Western Gulf, 106 in the Central Gulf, and two in the Eastern Gulf of Alaska. Given the above distribution of licenses, the primary areas of concern for spillover from the BSAI crab fisheries appear to be the Western and Central Gulf management areas.

Unlike the BSAI, the GOA cod TAC is not divided among gear groups. A single allocation is made that can be fished by any legal gear type (trawl, hook and line, pot, and jig). All cod fisheries are closed once the TAC for a season is taken. Halibut bycatch is apportioned to the trawl and hook and line sectors separately. Separate closures are made for trawl and longline vessels if either gear type catches its halibut bycatch allotment before the TAC is harvested. Pot vessels are exempt from halibut bycatch closures. Therefore, vessels using pot gear are allowed to continue fishing cod even if the halibut bycatch allotments are taken. The pot fishery is closed only when the cod TAC available to them has been harvested.

Western Gulf of Alaska The 2002 Western Gulf TAC is 16,849 mt and will be split 60/40 between the A and B seasons, respectively. The A/B splits are then further divided so that 90 percent is apportioned for processing by the inshore sector and 10 percent is allocated to the offshore sector.

In 2000, Western Gulf Pacific cod harvests made using pot gear averaged about 685 mt per week during the seven weeks (using week ending dates) from January 22, 2000 through March 4, 2000 (NMFS Blend data). Over 98 percent of the Pacific cod harvested with pot gear from the Western GOA (according to NMFS Blend data) was taken during those weeks. The maximum weekly reported catch during this period was 857 mt. The smallest weekly catch was 517 mt. Recall that in 2000 the BS *C. opilio* season was postponed until April 1st, so the entire BS *C. opilio* fleet had the opportunity to fish Pacific cod in the BSAI or the GOA during January and February.

In 2001, the Pacific cod A season opened on January 20th for trawl gear and January 1st for all other gear types. The inshore fishery closed to all gear types on February 27th and the offshore fishery was closed on April 26th. The pot gear fishery was then reopened on September 1st and stayed open for the remainder of the fishing year. The inshore longline fishery reopened on September 1st and closed on September 4th. The trawl inshore and offshore fisheries opened September 1st and closed September 5th. The trawl fishery then reopened on October 1st and closed on October 21st for the remainder of the year.

About 21 percent of cod harvested in the Western Gulf were taken with pot gear during 2001, 22 percent in 2000, 12 percent in 1999, and 8 percent in 1998 (NMFS Web Site⁵⁴). The trend indicates that the harvest of Pacific cod by pot gear in the Western Gulf increased in percentage terms each year from 1998 through 2000 and then declined slightly in 2001. The increase in the percentage of cod harvested with pot gear in 2000 and 2001 likely resulted from a few factors. The BS *C. opilio* season opening was delayed from January 15th until April 1st in 2000, allowing participants in that fishery to increase participation in the cod fishery in January and February. In addition, the harvests in the BS *C. opilio* fishery declined substantially in 2000 and remained relatively low in 2001, freeing up participants to increase their activity in the cod fisheries. This overall increase in effort may indicate that there is some need for sideboards in the Federal Western GOA cod fishery.

During the 1995-2000 fishing years, an average of 27 vessels that appear to qualify for the crab rationalization program participated in the Western Gulf Pacific cod fishery. Those vessels harvested an average of 10.7 percent of the fish retained in the directed Pacific cod fisheries during those years (the numbers include the Pacific cod as well as the other species that were retained in the directed cod fishery). Table 3.10-4 shows the overall participation of BSAI crab vessels in the Western Gulf fisheries over that time period. The percentages show these vessels' groundfish harvests in the Western Gulf using all gear types relative to the total TAC for the area. The total tons of retained harvest and the percent of the Western Gulf TAC are relatively low. Information from both State and Federal waters fisheries are included for Pacific cod. State waters fisheries include those fisheries open after the Federal fishery closes. State waters fisheries typically open seven days after the Federal fishery closes.

⁵⁴The source of these data was the NMFS web site. An example of the location where these files can be found is <http://www.fakr.noaa.gov/2001/goa01g.txt> for the year 2001. The other years (1998 - 2000) can be found by inserting the correct year in the appropriate two places in the Internet address.

Table 3.10-4 Participation of BSAI crab rationalization qualified vessels in the western Gulf groundfish fisheries.

Year	Number of vessels	Pacific cod (mt)	Pacific cod percent of TAC	All other groundfish (mt)	All other groundfish Percent of TAC
1995	31	1,572	7.8	828	2.0
1996	22	2,286	12.1	1,471	1.4
1997	24	2,486	10.3	603	1.6
1998	25	2,204	9.5	481	1.0
1999	17	2,158	5.0	694	1.7
2000	43	4,026	19.5	343	1.0
Average	27	2,455	10.7	737	1.5

Source: Summarized from the NPFMC Crab Data Base 2001 Version 1

As the table shows, the catch of all species taken during the directed Pacific cod fishery almost doubled in 2000. That increase is likely related to the delay of the BS *C. opilio* fishery. If the crab fleet is rationalized, it is unlikely that all 122 LLP eligible crab vessels would elect to fish Pacific cod in the Western GOA during January and February. Some of the vessels would likely continue to fish BS *C. opilio* in these months. Other vessels would likely be sent by their owners to fish cod in the BSAI. Still other vessels would likely be idled, if it were economically efficient to do so. Estimates of the number of vessels that will be used in each activity cannot be made with any certainty. A variety of factors will contribute to a vessel owners ultimate decision to pursue a particular activity. It can only be assumed that owners will consider all factors and determine the best use for a vessel at a particular time of the year. Many of these factors, including relative exvessel prices in the future, variable costs associated with participation in other activities, and tendering options cannot be quantified with the information currently available to the analysts. Given the uncertainty surrounding future decisions, it can only be concluded that a portion of the BSAI crab fleet will elect to participate in future Western GOA cod fisheries.

Central Gulf The TAC set for the 2002 Central GOA cod fisheries is 24,790 mt. Sixty percent of the allocation is assigned to the A season (14,874 mt) and 40 percent to the B season (9,916 mt). The overall 2002 TAC set in the Central Gulf is about 10 percent lower than the 2001 harvest. In the Central GOA, approximately 15 percent of the 27,297 mt of cod taken during the 2001 fishery was harvested using pot gear. About 86 percent of the Central GOA pot cod harvests came from the inshore allocation, and the remaining 14 percent was harvested by vessels defined as offshore.

The pot/jig and longline cod fisheries opened on January 1st and closed March 4th (note that the BS *C. opilio* fishery opened on January 15th and closed on February 14th). The trawl cod fishery opened on January 20th, and also closed on March 4th. All gear types were allowed to resume fishing Pacific cod on September 1st. The longline fishery closed on September 4th and the trawl fishery closed September 5th. Vessels using pot/jig gear were allowed to continue fishing the remainder of the year.

In 2000, the BS *C. opilio* fishery was delayed until April 1st and closed on April 8th, so the GOA cod fishery did not overlap with the BS *C. opilio* fishery. Pot vessels harvested over 38 percent of the Central Gulf TAC in that year. That percentage of the harvest is fairly close to the 36 percent harvested in 1999, the year the Council considered the allocation split among the BSAI Pacific cod fixed gear sector. However it is much higher than either the 15 percent pot vessels harvested in 2001, the 21 percent harvested in 1998, or the 18

percent harvested in 1997. From this information it could be conjectured that rationalization of the BS *C. opilio* fishery could have spillover impacts in the Central Gulf cod fishery. Increases in Pacific cod catch suggest that the pot fleet has already stepped up participation in the Central Gulf cod fishery. The decline in the BSAI crab stocks along with the fixed gear Pacific cod rationalization in the BSAI have likely motivated these increases in cod harvests.

During the 1995-2000 fishing years, an average of 27 vessels that appear to qualify for the crab rationalization program participated in the Central Gulf Pacific cod fishery. Those vessels harvested an average of 9.4 percent of the fish retained in the Central GOA Pacific cod fishery during those years. Table 3.10-5 shows the levels of participation in the Central Gulf fisheries over that time period. The percentages show these vessels' harvest in the Central Gulf using all gear types relative to the total TAC for the area. Information from the Federal waters fisheries are only included for the Pacific cod fisheries. As can be seen from Table 3.10-2 retained catch in the Pacific cod target fishery was almost double the 1995-2000 average. Retained catch by the qualified crab vessels in other fisheries was relatively low.

Table 3.10-5 Participation of the BSAI crab rationalization vessels in the central Gulf groundfish fisheries.

Year	Number of Vessels	Pacific cod (mt)	Pacific cod Percent of TAC	Other groundfish (mt)	Other groundfish percent of TAC
1995	37	3,652	8.0	616	0.6
1996	22	2,864	6.7	809	0.8
1997	14	1,479	3.4	1,007	0.8
1998	16	3,675	8.8	596	0.4
1999	38	4,759	11.1	168	0.1
2000	37	6,278	18.4	143	0.3
Avg. 95-00	27	3,784	9.4	557	0.5

Source: NPFMC Crab Database 2001, Version 1

Eastern Gulf In the Eastern GOA only 3 mt of cod were harvested using pot gear in 2001. Three metric tons is equal to about two percent of the total cod harvested in that area. Given that there are only two vessels that appear to qualify for the crab rationalization program that also hold a license to fish in the Eastern Gulf, that area might not be considered a serious spillover concern.

Catch of Pacific cod by vessels exempt from AFA sideboards

Because the Council is considering exemptions from the GOA Pacific cod sideboards in some of their alternatives, staff was asked to supply information on the catch history of the AFA vessels that are exempt from GOA sideboards. The catch history of those vessels is reported for the years 1995 through 2001. AFA sideboards have been in place since 2000.

Table 3.10-6 below shows that the average harvest of the exempt vessels over the 1995-2001 time period was 12.96 percent of the Central GOA inshore Pacific catch. The exempt vessels harvested the largest percentage of the total catch in 2001; that year those vessels harvested 17.8 percent of the total. However the prior year, those vessel only harvested 11.5 percent of the total. That is the second lowest percentage over the seven year

period. It is not know if 2000 was low because of adjustments to fishing under the AFA, nor is it known if the increase that occurred during the second year of the AFA will continue into the future.

In the Western GOA, the harvest in both 2000 and 2001 was below the seven year average. Those vessels harvested the smallest percent of the total catch in 1999, but their was an increase in their percentage of the total harvest each year through 2001. It is not possible to determine whether that trend will continue into the future.

Table 3.10-6 Harvest of inshore Pacific cod by catcher vessels exempt from the AFA sideboards in the GOA

Year	Central GOA			Western GOA		
	AFA Exempt Vessel's Catch	Total Catch	% of Total Catch	AFA Exempt Vessel's Catch	Total Catch	% of Total Catch
1995	4,927	41,353.0	11.91%	565	18,613.0	3.04%
1996	3,597	42,213	8.52%	813	17,867	4.55%
1997	6,472	43,406	14.91%	986	22,996	4.29%
1998	4,737	38,031	12.46%	1,160	19,650	5.90%
1999	6,165	40,928	15.06%	419	20,197	2.08%
2000	3,481	30,257	11.50%	487	19,945	2.44%
2001	4,495	25,255	17.80%	370	12,461	2.97%
Grand Total	33,874	261,443	12.96%	4,800	131,729	3.64%

Source: Summarized fish ticket data supplied by AKFIN and NMFS annual catch statistics reported on the Alaska Region web site.

Fisheries managed by the State of Alaska Should the State of Alaska wish to limit the participation of BSAI crab vessels in fisheries under their authority, they would need to do so through the BOF process. The State waters Pacific cod fishery and Gulf of Alaska crab fisheries are the most likely candidates for additional effort from these vessels. The cod fisheries may be harvested by pot and jig gear only, and some areas have vessel size restrictions (ADF&G, 2001). The State Pacific cod fisheries in the Chignik and South Alaska Peninsula areas are only open to vessels 58 feet in length and shorter. All of the vessels in the rationalization program are larger than that limit. Only 25 percent of the allocation in the Kodiak area is available to pot vessels over 58 feet in length. The State waters Pacific cod fishery in the Kodiak area is currently allotted 12.5 percent of the Central Gulf's allowable biological catch, and pot gear vessels greater than 58 feet in length are allowed to harvest 25 percent of the allotment in that area. There is no vessel size limit in the Cook Inlet and Prince William Sound areas. Vessels using pot gear are allowed to harvest 50 percent and 40 percent of the allocations in those areas, respectively. The limits on vessel sizes and pot limits that are currently in place should help to protect these fisheries from spillover impacts. However, if additional protections are needed, the BOF has the authority to modify the regulations for these fisheries.

Crab fisheries in the Gulf also fall under the Authority of the Alaska Board of Fish. When open, the quotas in those fisheries have been relatively low in recent years. The Tanner crab fishery in the Kodiak district⁵⁵ currently has a 30 pot limit (based on the GHL being less than 2,500,000 pounds). In the South Peninsula district, a 58 foot vessel limit precludes larger vessels from participating in the Tanner crab fishery. That limit effectively excludes the BSAI crab fleet from fishing Tanner crab in that area. Other fisheries are closed or have regulations that would limit the BSAI crab fleet's participation. Should additional regulations be required, the BOF could implement them through their process.

⁵⁵A total of 144 vessels harvested 516,406 pounds in 2001

Korean hair crab and Bering Sea golden king crab: Participants in both the Korean hair crab fishery and the Bering Sea golden king crab fishery have expressed concern that the BSAI king and Tanner crab rationalization program will provide BSAI crab vessels with both the funds and the opportunity to enter these crab fisheries.

The Korean Hair Crab fishery is not included under the BSAI king and Tanner crab FMP. It has historically been a very small, specialized fishery with only few participants on an annual basis. For example, during the past five years only 20 unique vessels participated, and only 8 vessels have fished 6 or more years. The Alaska Legislature placed this fishery under a vessel moratorium in 1996, with only 24 vessels qualifying. Since the moratorium, only 12 unique vessels have fished 3 or more years. The moratorium is set to expire July 1, 2003. In 2002, a law was signed that tasked the Commercial Fisheries Entry Commission (CFEC) with developing a limited entry program for Korean hair crab. CFEC is expected to have the limited entry program in place before the Korean hair crab moratorium expires. In any event, some of the current participants that qualify for the BSAI crab rationalization could increase participation at levels above their historic average. Because the BOF lacks authority to establish restrictions on vessels that qualify for a federal crab rationalization program, the Council may want to consider sideboards to protect historic participants in this fishery.

The Bering Sea (Pribilof) golden king crab fishery is considered a developing fishery and is managed under a Commissioner's permit. There is no stock assessment, and long term sustainable harvest are unknown. The few vessels that have consistently participated in this exploratory fishery are concerned that vessels qualifying for the crab rationalization program will enter their limited harvest area and disadvantaging historic participants. The current low GHLL and low pot limit may dissuade such entrance, but later BOF action could entice participation. Because the BOF lacks authority to establish restrictions on vessels that qualify for a federal crab rationalization program, the Council may wish to consider sideboard for this fishery as well.

Tendering A total of 114 of the vessels projected to qualify under the crab rationalization program currently are permitted by the Commercial Fisheries Entry Commission to operate as a tender vessel (see Table 3.10-6). No data are collected by ADF&G or NMFS on actual tendering activities. Because of the lack of data, the number of permits held is the only quantitative information available. Yet, it should be noted that various individuals have indicated that tendering is an important part of their vessel's annual activities. If the structure of tendering contracts changes as a result of the crab rationalization program, historic participants could be harmed. However, given the lack of information on this activity, the Council will need to rely primarily on public testimony when considering the impact of tendering on the fleet.

3.10.1.3 Analysis of the Council alternatives

To address concerns related to the increase of BSAI crab vessels in other fisheries, the Council included the following options in Section 1.8.5 of its motion:

1.8.5 Sideboards

Sideboards shall be addressed through a TRAILING AMENDMENT, which shall evaluate the following options:

1. Non AFA vessels that qualify for QS in the rationalized opilio crab fisheries would be limited to their
 - a) GOA groundfish catch history excluding sablefish or
 - b) inshore pcod catch history in the GOA fisheries (with offshore pcod exempt).

The years for qualification would be the same as the qualifying period selected from 1.4.2.1.

2. Sideboard exemptions:
 1. exempt vessels from sideboards which had opilio landings in the qualifying years of:
 - Option a. <100,000 pounds
 - Option b. <70,000 pounds
 - Option c. <50,000 lbs
 - Option d. <25,000 lbs
 3. exempt vessels with more than 100, 200, or 500 tons of cod total landings in the years 95-99
 4. vessels with <10, <50 and <100 tons total groundfish landings in the qualifying period would be prohibited from participating in the GOA cod fishery.

The Council motion defines three alternatives for implementing sideboards in the GOA. The first two are contained in Section 1.8.5 – Option 1 of the Council’s motion. Option 1(a) would limit non-AFA vessels that qualify for BS *C. opilio* QS to their combined percentage of the GOA groundfish fisheries during the qualifying years. The qualifying years for the BS *C. opilio* fishery are 1996-2000. Alternatively, Option 1(b) would the amount of Pacific cod that could be harvested by these same vessels from the inshore allocation to the percentage of the inshore allocation they harvested from 1996-2000. Harvests from the offshore Pacific cod allocation by vessels that qualify for BS *C. opilio* QS would not be limited under Option 1(b). Finally, Option 4 would prohibit vessels that landed less than 10, 50, or 100 metric tons of groundfish in the GOA during the qualifying period from participating in the GOA cod fishery.

It is assumed that any cod harvested for bait, from the GOA, would count against the sideboard caps. Using the same logic, any cod harvested for bait in the past would be included in the caps. Vessel operators would still be free to harvest cod for bait from the BSAI, if they are eligible to fish cod in that area and there is TAC available.

None of the BSAI crab vessels that qualify to fish in the Eastern Gulf had groundfish landings in that area between 1996 and 2000. Therefore, no tables are constructed for the Eastern Gulf since the sideboards in that area would be zero for all the options under consideration. In the other areas of the GOA, tables were constructed based on the catch of LLP qualified vessels that also appear to qualify for BS *C. opilio* QS based on the Council’s preferred alternative. Some vessels that appear to qualify for BS *C. opilio* QS but do not hold the appropriate groundfish license/endorsements also had GOA groundfish landings. Those landings were excluded from the calculations used to derive the tables. The intent of these options is to allow GOA qualified vessels the opportunity to maintain their historic harvest levels. Including the catch of unqualified vessels in the sideboard calculation would have allow qualified vessels to increase their individual harvests from historic levels.

In the Western Gulf, a total of 41 qualified vessels⁵⁶ had 10,414 mt of retained groundfish landings (excluding sablefish) during the qualifying period. Pacific cod from the inshore allocation accounted for 10,342 mt of these harvests. Other groundfish accounted for the remaining 72 mt. These catch levels would yield inshore Pacific cod sideboards of 10.28 percent of the total TAC and sideboards for all other groundfish combined set of 0.04 percent of the total TAC for those species. Given these levels, NMFS is unlikely to open a directed fishery any fishery other than the inshore Pacific cod fishery for the vessels operating under these sideboard caps.

Table 3.10-7 Catch History of LLP qualified (Option 1) vessels in the western Gulf (1996-2000).

	Total Groundfish	Sablefish	Inshore Pacific Cod	Groundfish (less Sablefish)	Other Groundfish
Number of Vessels with landings ¹	41	2	41	41	13
Sideboarded Vessel's Harvest (mt)	*	*	10,342	10,414	72
Harvest of all Vessels (mt)			100,655	263,065	162,410
Percent of Total Harvest			10.28%	3.96%	0.04%

Sources: NPFMC Crab Database 2001, Version 1 and NMFS annual harvest reports from the web (as of August 28, 2002) for the years 1995-2000 (e.g., www.fakr.noaa.gov/1995/goa95b.txt).

1/ A total of 60 BS C. *Opilio* qualified vessels that would be allowed to fish in the Western Gulf area if no sideboards are in place.

In the Central Gulf of Alaska a total of 36 qualified vessels made groundfish landings (excluding sablefish) totaling 20,103 mt. Thirty-eight of those vessels had inshore Pacific cod landings totaling 20,022 mt. Given these harvest levels the BS C. *opilio* fleet would have sideboard caps of 10.27 percent of the inshore Pacific cod fishery and 0.02 percent of the combined other groundfish fisheries. As in the Western Gulf, it is likely that NMFS would open a directed fishery only for inshore Pacific cod for these vessels.

Table 3.10-8 Catch history of LLP qualified (Option 1) vessels in the central Gulf (1996-2000)

	Total Groundfish	Sablefish	Inshore Pacific Cod	Groundfish (less Sablefish)	Other Groundfish
Number of Vessels with landings ¹	40	15	38	36	33
Sideboarded Vessel's Harvest (mt)	20,804	674	20,022	20,103	81
Harvest all Vessels (mt)			194,835	662,300	467,465
Percent of Total Harvest			10.27%	3.04%	0.02%

Sources: NPFMC Crab Database 2001, Version 1 and NMFS annual harvest reports from the web for the years 1995-2000 (e.g., <http://www.fakr.noaa.gov/1995/goa95b.txt>).

1/ A total of 55 BS C. *Opilio* qualified vessels that would be allowed to fish in the Central Gulf area if no sideboards are in place.

Option 4 would preclude vessels that had less than 10, 50, or 100 mt of groundfish landings in the GOA during the qualifying period from participating in the GOA Pacific cod fishery. Table 3.10-9 shows the number of vessels that would be precluded from fishing by this provision and their catch in the GOA cod fishery. Catcher vessels and catcher processors are not separated in this table because there were too few catcher processors to report their landings under the confidentiality standards. The table shows the tradeoff between the thresholds under consideration. As the catch threshold is increased, vessels with larger catch

⁵⁶ This includes only vessels that are qualified under the groundfish LLP to fish in the Western Gulf, that are not AFA eligible, and would qualify to be receive BS C. *opilio* QS.

histories are prohibited from fishing in the GOA. Increasing the threshold from 10mt to 100mt would result in the exclusion of an additional 14 vessels from the GOA cod fisheries. The 130 vessels that would be prohibited from participating using the 10mt threshold had only 123 mt of Pacific cod landings during the qualifying period.

Table 3.10-9 Number of vessels that would be prohibited from fishing Pacific cod in the GOA under Option 4 and their catch (in mt) in the GOA cod fisheries from 1996 to 2000.

GOA Endorsements	Number of Vessels			Catch History of Vessels					
	<10 mt	<50 mt	<100 mt	<10 mt		<50 mt		<100 mt	
				WG	CG	WG	CG	WG	CG
No Grounfish License	52	59	60	14	2	106	94	*	*
No GOA Endorsements	54	63	73	13	7	289	7	705	310
CG Only	4	4	6	*	*	*	*	*	*
WG Only	5	13	16	15	-	247	-	*	*
WG and CG	11	12	12	*	*	93	49	93	49
All GOA areas	4	4	4	0	-	0	-	0	-

Source: NPFMC Crab Database 2001, Version 1

Table 3.10-10 shows the number of BSAI vessels that would remain eligible to participate in the GOA groundfish fisheries under Option 4 and the catch history of those vessels in the qualifying period. The “Grand Total” row reports the total number of vessels that achieved the required landings to remain eligible. However, since not all of those vessels qualify for GOA endorsements under the Groundfish LLP not all the vessels would be allowed to participate in the cod fishery under current regulations. Information in the table indicates that between 35 and 36 vessels would be allowed to fish in the Central Gulf (depending on the option selected) and between 29 and 40 vessels would be allowed to participate in the Western Gulf.

Table 3.10-10 Number of vessels that would be allowed to fish Pacific cod in the GOA under Option 4 and the catch of those vessel (in mt) in the qualifying period.

GOA Endorsements	Number of Vessels			Catch History of Vessels					
	<10 mt	<50 mt	<100 mt	<10 mt		<50 mt		<100 mt	
				WG	CG	WG	CG	WG	CG
No Grounfish License	15	8	7	451	1,065	359	973	*	*
No GOA Endorsements	32	23	13	2,451	824	2,175	824	1,759	521
CG Only	19	19	18	1,203	8,789	1,203	8,789	*	*
WG Only	23	15	12	3,876	1,600	3,644	1,600	*	*
WG and CG	16	16	16	6,330	11,202	6,330	11,202	6,330	11,202
All GOA areas	1	1	1	40	-	40	-	40	-

Source: NPFMC Crab Database 2001, Version 1.

Note: * means that the catch of the one vessel that is qualified in all areas was excluded from the totals so that the total could be reported without violating confidentiality protections.

If the vessels permitted to participate under Option 4 are capped at their historic harvests during the qualifying years, those vessels would be capped at the sideboard percentages shown in Table 3.10-11. The percentages range from 9.78 percent to just over 10.25 percent. For example, if the option of <10mt was selected, the crab fleet would be capped at 10.26 percent of the Central Gulf and 10.18 percent of the Western Gulf Pacific cod

TAC allocated to the inshore sector. These caps are very close to the 10.27 percent and 10.28 percent caps that would be set without eliminating the catch of vessels that are excluded from participating in the sideboard calculations. The change indicates that the vessels excluded from the fishery had a relatively small impact on the size of the sideboard cap, which is expected given that vessels with less than 10, 50, or 100 metric tons of landings were the ones excluded under this option.

Table 3.10-11 Pacific cod sideboard amounts under Option 4

Threshold	Central Gulf	Western Gulf
<10mt	10.26%	10.18%
<50mt	10.26%	9.95%
<100mt	10.26%	9.78%

Source: NPFMC Crab Database 2001, Version 1 and NMFS annual harvest reports from the web for the years 1996-2000 (e.g., www.fakr.noaa.gov/1995/goa95b.txt)

Sideboard exemptions

Two options were also proposed that would exempt vessels from the sideboards under consideration. Option 2 in Section 1.8.5 would exempt vessels from the sideboards that had less than 25,000, 50,000, 70,000, or 100,000 pounds of *C. opilio* landings during the 1996-2000 period. The Option 3 would exempt vessels that had more than 100, 200, or 500 metric tons of Pacific cod landings during the years 1995-1999.

The language in Option 2 is not clear regarding whether it is intended to apply to a vessel's total catch of *C. opilio* during the qualifying years or if it is a vessel's average landings during the years. According to the fishticket data, seven vessels had a total of less than 100,000 pounds of landings of *C. opilio* during the 1996-2000 qualifying period and two vessels had less than 70,000 pounds. At the 100,000 pound threshold, four vessels would be exempt in the Western GOA. Those vessels had a total of 3,385mt of Pacific cod landings during that period (or approximately 37 percent of the total cod landings by BS *C. opilio* qualified vessels). Six vessels would be exempt in the Central GOA. Those vessels accounted for 7,972mt (approximately 46 percent) of the Pacific cod harvested by BS *C. Opilio* qualified boats in that area. At the 70,000 pound threshold, only 2 vessels would be exempt in the Central GOA and 1 vessel would be exempt in the Western GOA. The catch of these vessels cannot be reported for confidentiality reasons.

If the exemption is based on the average annual *C. opilio* landings of a vessel (total landings divided by 5 years), then the number of vessels that would qualify increases to between 10 and 17 vessels, depending on the option selected. The vessels at the 100,000 pound threshold accounted for 10,828 mt of Pacific cod landings in the Central GOA and 3,539 in the Western GOA during the qualifying period.

It is important to note that not all vessels meeting the BS *C. Opilio* threshold to be exempt from the GOA cod fisheries sideboards had Pacific cod landings in the areas they would be exempt. For example under the "<100,000 pound Avg." option, two of the nine vessels in the Central GOA and two of the six vessels in the Western GOA had no cod landings reported in an area they would be exempt from the cod sideboards. Therefore, it may be prudent to consider a minimum poundage requirement of Pacific cod in addition to the BS *C. Opilio* threshold. If either a 50 mt or 100 mt minimum cod requirement was selected, one vessel with some cod landings would be excluded from the Western GOA exemption, in addition to the two vessels with no landings. None the vessels with cod landings in the Central GOA had less than 100 mt of cod landings. In summary, if the Council selects this sideboard exemption as a part of their preferred alternative they may

wish to (1) require a minimum level of Pacific cod activity in the Western and Central GOA and (2) make the sideboard exemptions area specific and not for the entire GOA.

Table 3.10-12 Vessels that would be exempt from sideboards under Option 2 with BS *C. opilio* landings requirements are based on either total catch or average annual catch.

Total	<100,000# Total	<70,000# Total	<50,000# Total	<25,000# Total
Central Gulf				
Number of Vessels ⁴	6	2	0	0
C. Opilio (Lbs.) ²	466,841	*	-	-
Pacific Cod (mt) ¹	7,972	*	-	-
Western Gulf				
Number of Vessels ⁴	4	1	0	0
C. Opilio (Lbs.) ²	310,985	*	-	-
Pacific Cod (mt) ¹	3,385	*	-	-
	<100,000# Avg.	<70,000# Avg.	<50,000# Avg.	<25,000# Avg.
Central Gulf				
Number of Vessels ³	9	8	8	8
C. Opilio (Lbs.) ³	1,147,314	*	*	*
Pacific Cod (mt) ¹	10,828	*	*	*
Western Gulf				
Number of Vessels ³	7	6	6	6
C. Opilio (Lbs.) ³	991,458	*	*	*
Pacific Cod (mt) ¹	3,539	*	*	*

Source: NPFMC Crab Database 2001.

1/ Pacific cod metric tons are from those vessels that have GOA groundfish endorsements on their groundfish license.
 2/ C. Opilio pounds are for all vessels in that area. The C. Opilio catch for vessels that fished both areas is double counted. One vessel fished both the Central and Western Gulf at the 100,000 and 70,000 pound levels.

3/ There were a total of 9 vessels that would be exempt in the Western and Central GOA combined at the 100,000 pound level, 8 at 70,000, 8 at 50,000, and 8 at 25,000 pounds. Therefore all of the vessels would be exempt in the Central GOA.

4/ There are a total of 6 vessels that would be exempt at the 100,000 pound threshold, 2 vessels at the 70,000 pound threshold, no vessels at the two lowest thresholds.

* Denotes that the field was not reported because the catch of fewer than four vessels could be determined.

Option 3 would exempt vessels from sideboards that had more than a minimum amount of Pacific cod landings. The minimum levels under consideration are 100, 200, or 500 metric tons. Though not explicitly stated in the alternative, it is assumed that this applies to GOA cod landings only. Pacific cod landings from the BSAI are not included in the calculations to determine whether a vessel met the stated thresholds.

Table 3.10-13 shows that the 100mt threshold would exempt 38 of the 76 BS *C. opilio* catcher vessels with cod landings in the 1995 to 1999 time period. These 38 vessels accounted for over 95 percent of the BS *C. opilio* fleet's Pacific cod catch during that period. Increasing the minimum cod landings to 500 metric tons would exempt only nine catcher vessels. However, those nine vessels accounted for approximately 75 percent of the total cod landings of the BS *C. opilio* fleet.

Seven BS *C. opilio* catcher/processors had cod landings and were LLP qualified for GOA groundfish. Two Western GOA catcher/processors and one Central GOA catcher/processors would be exempt from cod sideboards at the 500 metric ton level threshold, two in each area at the 200 metric ton threshold, and three in the Central GOA and four in the Western GOA at the 100 metric ton threshold. The catch totals of the catcher/processors cannot be reported in most cases to protect confidential landings records.

Table 3.10-13 Vessels that would be exempt under Option 4 if only Pacific cod landings from the GOA are included in the calculation (using years 1995-99).

Catcher Vessels	> 500mt	> 200mt	> 100mt	All Cod CVs
Central Gulf				
Number of Vessels	5	17	22	38
GOA Cod (mt.)	13,168	16,137	17,705	18,678
Western Gulf				
Number of Vessels	5	10	14	39
GOA Cod (mt.)	4,825	6,249	7,053	8,092
Catcher/Processors	> 500mt	> 200mt	> 100mt	All Cod CPs
Central Gulf				
Number of Vessels	1	2	3	5
GOA Cod (mt.)	*	*	*	818
Western Gulf				
Number of Vessels	2	2	4	6
GOA Cod (mt.)	*	*	1,337	*

Source: NPFMC Crab Database 2001.

Note: The catch of catcher/processors is not reported if there are fewer than 4 vessels for confidentiality reasons.

Korean hair crab

The Council requested that staff analyze the economic dependence of participants in the Bering Sea Korean hair crab fishery to determine if sideboards are warranted. To illustrate this dependence two tables have been generated. The first is Table 3.10-14. It shows the participation patterns of the vessels that have fished Korean hair crab from 1991-2000. The pounds of Korean hair crab landed by these vessels are also reported in the table on an annual basis. Information in the table shows that participation has declined in recent years. More vessels participated in the early to mid 1990's than 1998 forward. In terms of years of participation, the table indicates that 24 of the vessels only fished one year (of 48 total). Five vessels fished two years, two vessels fished three years, five vessels fished four years, four vessels fished five years, two vessels fished six years, four vessels fished seven years, one vessel fished eight years, and one vessel fished nine years. No vessel fished every year from 1991-2000.

Table 3.10-15 shows the vessels participation in Korean hair crab, BSAI crab (excluding Korean hair crab), and other fish and shellfish. The table is broken out by various ranges of years. For the period 1991-2000, Korean hair crab accounted for about 6 percent of the fleet's revenues. When the period 1995-2000 was used, the dependence on Korean hair crab increased to 10 percent. Dependence decreased as more recent years were used. In the 1999-2000 period the Korean hair crab fleet only generated 4 percent of their revenues from that species.

Table 3.10-14 Participation patterns of vessels in the Korean hair crab fishery

Vessel	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
1	-									
2	-									
3	-									
4	-									
5	-									
6	-									
7	-									
8	-									
9										
10	-									
11	-									
12	-									
13	-									
14	-									
15	-									
16	-									
17										
18	-									
19	-									
20	-									
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22	-									
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25	-									
26	-									
27	-									
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29	-									
30	-									
31	-									
32	-									
33	-									
34	-									
35	-									
36	-									
37	-									
38	-									
39	-									
40	-									
41	-									
42	-									
43	-									
44	-									
45	-									
46										
47										
48										
Vessels	7	15	22	14	21	19	16	12	8	3
Catch	384,715	1,356,288	1,439,155	1,904,287	1,986,106	713,309	650,240	290,347	216,979	*

Source: NPFMC Crab Database 2002.

Table 3.10-15 Dependence on Korean hair crab

Time Period	Korean Hair Crab			BSAI Crab			Other Species		
	Vessels	Pounds	Value	Vessels	Pounds	Value	Vessels	Pounds	Value
1991-2000	48	8.949	\$ 23.8	46	327.28	\$ 365.2	43	100.41	\$ 26.3
1995-2000	24	3.859	\$ 10.8	23	74.11	\$ 98.2	21	43.47	\$ 10.2
1996-2000	20	1.872	\$ 5.6	19	55.80	\$ 62.5	16	32.24	\$ 7.1
1997-2000	16	1.159	\$ 3.6	16	47.43	\$ 49.5	12	7.60	\$ 2.1
1998-2000	12	0.509	\$ 1.5	12	29.29	\$ 30.4	11	5.20	\$ 1.6
1999-2000	8	0.229	\$ 0.7	8	10.88	\$ 15.3	7	3.93	\$ 1.2

Source: NPFMC Crab Database 2002.

Finally, Figure 3.10-1 shows the percent of revenue each of the 48 vessels derived from the Korean hair crab fishery between 1991 and 2000. The most dependent vessel in percentage terms generated 63 percent of its revenue in that fishery. A total of five vessels generated over 20 percent of their income from the Korean hair crab fishery, 11 vessels generated more than 10 percent, and 16 vessels generated more than 5 percent. At the other end of the spectrum, 20 vessels generated less than 1 percent of their revenue from the Korean hair crab fishery.

Assigning Sideboards to Vessels or Licenses

The final issue to be discussed in this section is how the sideboards would be applied to participants in the crab fishery. Sideboards caps in the AFA were applied to groups of vessels depending on whether they were catcher vessels or catcher/processors. The class of vessels was then assigned a sideboard cap based on the historic catch of vessels in that group. Those vessels as a group were then prohibited from exceeding their sideboard cap⁵⁷. An inter-cooperative agreement was developed by the catcher vessel cooperatives to help them allocate and monitor sideboard harvests. To enforce the program, NMFS determines if that group of vessels stayed within their caps.

The structure of crab rationalization is different from the AFA and may require a different allocation and enforcement policy for the program to have the desired result. Two methods are discussed in this section. Following that discussion a section describing how sideboards could be managed under cooperatives is provided. The two method of setting caps are:

1. Apply sideboards to the vessel that gave rise to the LLP license and crab quota allocation.
2. Apply sideboards to the LLP license derived from the catch history of the vessel that gave rise to crab quota under the rationalization program.

Under the crab rationalization program, crab harvest quota will be allocated to persons holding valid LLP licenses (there are also additional requirements). Therefore if the sideboards were simply linked to the vessels from whose history the license was derived (like in the AFA), the crab quota could be fished from vessels that are not operating under sideboards, and other vessels could be used to fish any amount of the other species. This could occur because it is expected that under the crab rationalization program, crab licenses would no longer be issued. LLP License holders who, after crab rationalization, continue to hold an LLP groundfish

⁵⁷Caps were calculated as a percentage of the TAC. Each year that percent of the TAC is multiplied by the TAC to determine the amount of each sideboard species that can be harvested.

license, could continue to use that license on their vessel; however, the vessel's groundfish fishing activities would be constrained by the sideboard limitations.

Alternatively, sideboards could be attached to the groundfish license⁵⁸ derived from the fishing history of the vessel upon which the crab quota was earned. Applying the sideboards to the license would prevent any vessel on which the license is used from exceeding the sideboard caps. This system would have two impacts. First, if the license was not sold/moved from the original vessel, the original vessel would be limited by the sideboard caps. If the license was taken off the original vessel, that vessel would no longer be eligible to fish groundfish, unless it had access to a different license. In that case, the vessel using the original license would be operating under the sideboard caps and the crab rationalization vessel would either not be allowed to fish sideboard species, or would have a new license. The crab rationalization vessel would then be subject to any restrictions on the acquired license. In either case, any vessel using a license which generated a crab quota allocation would be operated under the sideboard restrictions. This structure would likely provide the most protection for the non-crab fishermen.

Given the above discussion the Council could consider either placing the sideboard restrictions on the vessel where the crab quota was generated or the license held by the vessel that generated the crab quota. The Council will need to determine which system best meets the objectives of their program.

Once it is determined whether the sideboards are applied to the vessel or the license, then enforcement of the sideboards in a cooperative structure can be defined. As stated earlier, under the AFA, all catcher vessels operating under sideboards were treated as a single class of vessels and the sideboard caps were assigned to that group by NMFS. It was then up to the persons in the AFA catcher vessel fleet to determine who would be allowed to catch the sideboard. That function was primarily preformed through an inter-cooperative agreement signed by the parties involved.

Crab sideboards could be treated like the AFA sideboards or at a finer level. Once the vessel or license holder is determined NMFS could either assign their sideboard caps to

1. the vessel/license holder individually,
2. the cooperative they join, or
3. the entire crab fleet operating under sideboards.

NMFS would likely prefer monitoring the caps⁵⁹ at a gross level since it would be fewer caps to track and monitor. Members of industry may prefer having the caps monitored at the individual or cooperative level. Individual caps would give them more freedom in utilizing the caps without going through the cooperative or some type of inter-cooperative agreement. Individual caps will be more restrictive, on the other hand, if they cannot be freely transferred⁶⁰. From an industry perspective, persons will need to determine whether a more bureaucratic transfer system outweighs the benefits of having an individual cap for sideboard species. From a NMFS/Council perspective, they will need to determine if the costs associated with monitoring additional caps outweigh the benefits.

⁵⁸The sideboard would in essence be an endorsement on the license that allows the holder to harvest up to the sideboard amount listed on the license.

⁵⁹NMFS will need to determine the finest level they feel the caps can effectively be enforced. If that includes all of the options in this section, then the Council could select any of those options.

⁶⁰Any transfer outside of the group where sideboards were assigned would need to go through the RAM division of NMFS. This is necessary to ensure that the caps are being properly tracked and counted.

It is important to remember under any of the above alternatives that the sideboards are caps and not allocations. If the vessels operating under sideboard caps do not harvest the entire cap amount before the open access fishery is closed, they would only be allowed the amount caught at the time of the closure.

Tendering A total of 114 of the vessels projected to qualify under the crab rationalization program currently are permitted by the Commercial Fisheries Entry Commission to operate as a tender vessel (see Table 3.10-16). No data are collected by ADF&G or NMFS on actual tendering activities. Because of the lack of data, little can be said in a quantitative manner beyond reporting the number of permits held. Yet, it should be noted that various individuals have indicated that tendering is an important part of their vessel's annual activities. If the structure of tendering contracts change as a result of the crab rationalization program, they could be harmed. However, given the lack of information on this activity, the Council will need to rely primarily on public testimony when considering the impact of tendering on the fleet.

Table 3.10-16 Percent of the Bristol Bay red king crab fishery projected to be allocated to AFA and non-AFA vessels

Allocation Options	AFA Vessels	Non-AFA Vessels
Option 1A - 1993-99 (All 5 Open Seasons)	11.93%	88.07%
Option 1B - 1993-99 (Best 4 of 5 Open Seasons)	12.49%	87.51%
Option 2A - 1992-99 (All 6 Open Seasons)	12.02%	87.98%
Option 2B - 1992-99 (Best 5 of 6 Open Seasons)	12.50%	87.50%
Option 3A - 1996-00 (Best 4 of 5 Seasons)	12.07%	87.93%

Source: NPFMC Bering Sea Crab Database 2001 Version 1

Processing sideboards

Sideboards for processors were also considered under the AFA. As a result of those sideboards, the Council has limited the amount of crab that can be processed by AFA processors. However, the Council has tabled a discussion of processing sideboards for groundfish until adverse impacts on the non-AFA processing sector are documented. Given that decision under the AFA, the Council may wish to consider a similar stance for crab rationalization. Processors that could potentially be harmed as a result of this action (and merit protection) are those processors not involved in the crab or pollock fisheries (or perhaps those with very limited participation in the crab fishery that generate the majority of their revenue from other fisheries). The number of processors that would need to be restricted as a result of this action is larger than under the AFA, because more companies process BSAI crab than BSAI pollock. Placing limits on those processors would likely constrict the markets for catcher vessels delivering those other groundfish species. The negative impacts that could potentially accrue to catcher vessels would need to be weighed against the expected benefits to the non-regulated processing sector. Until this program is better defined, it is not possible to project those impacts.

3.10.2 AFA sideboards

Under the AFA crab sideboard caps were instituted on qualified harvesters and processors in the BSAI pollock fishery. The need for these caps in a crab rationalized fishery is discussed in this subsection.

AFA crab harvesting sideboards

When the American Fisheries Act (AFA) was developed and implemented, sideboard restrictions were placed on vessels that qualified for BSAI pollock allocations in terms of their activities in other fisheries. The caps

were implemented to protect non-AFA vessels and processors from possible increases in crab harvests and processing activity by AFA participants that would be more able to schedule activity in the pollock fishery to avoid conflicts with the crab seasons. In a rationalized crab fishery in which all harvests are determined by quotas and possibly most processing activity is determined by processing quotas or cooperative allocations, the sideboard caps might be argued to be unnecessary. On the other hand, some participants argue that AFA participants have increased market power and that non-AFA participants need additional protection. The removal of processor sideboard caps might depend on whether the rationalization program includes processing shares or cooperative allocations to processors.

The Council motion includes the following option that would remove the AFA harvester sideboard caps that currently limit harvest of crab by vessels that are members of AFA cooperatives:

- 1.8.3 AFA vessels option: Eliminate AFA harvester sideboard caps on crab species upon implementation.
- 2.8.1 The crab processing caps enacted by Section 211(c)(2)(A) of the AFA would be terminated.

Harvesting sideboards were developed for the Bristol Bay red king crab, BS *C. bairdi* crab, BS *C. opilio* crab, St. Matthew blue king crab, and Pribilof red king crab and Pribilof blue king crab fisheries. The total amount of harvest as well as the number of vessels allowed to participate in the Bristol Bay red king crab and BS *C. bairdi* crab fisheries were capped under the AFA. Given the current restrictions, a total of 42 AFA catcher vessels are currently allowed to harvest nearly 13 percent of the available Bristol Bay red king crab GHL. In the BS *C. bairdi* crab fishery, a total of 28 vessels will be allowed to harvest about 7 percent of the GHL when that fishery is reopened. The remaining three crab fisheries limit only the number of AFA catcher vessels allowed participate in the fisheries. A total of seven AFA catcher vessels are licensed for the BS *C. opilio* crab fishery, two for the St. Matthew blue king crab fishery, and one for the Pribilof red king crab and Pribilof blue king crab fisheries.

All of the 42 AFA catcher vessels qualified to participate in the Bristol Bay red king crab fishery also hold a permanent (transferrable) LLP license for that fishery. Those vessels are projected to be allocated the percentages of the Bristol Bay red king crab fishery listed in Table 3.10-16. The table indicates that variation of the allocation to the AFA vessels under the different qualifying years options for this fishery is slightly more than one-half of one percent. At 2000 harvest levels (7.55 million pounds), the difference between the total allocations to AFA vessels under the options would be approximately 43,000 pounds. The allocation would be slightly larger under Option 1B (best 4 of 5 seasons 1993-99). AFA catcher vessels are projected to be granted the smallest allocation under Option 1A (1993-99). All of the options would allocate slightly less of the quota than the current AFA sideboard cap of approximately 13 percent.

28 AFA catcher vessels are currently permitted to participate in the BS *C. bairdi* fishery. Eleven other AFA vessels had landings of BS *C. bairdi* during the proposed qualification periods, but are currently not allowed to participate in the fishery due to AFA sideboard restrictions. The history of these vessels is summarized in the “AFA Vessels Excluded from the Fishery” column of Table 3.10-17. They are projected to be allocated about one percent of the quota, if the Council permits their inclusion in the initial allocation. The currently participating AFA vessels are projected to be allocated about 6.5 percent of the quota under each of the alternatives. Under any of the alternatives being considered the non-AFA vessels are projected to be allocated about 93 percent of the quota.

Table 3.10-17 Percent of the BS *C. bairdi* fishery projected to be allocated to AFA and non-AFA vessels

Allocation Options	AFA Vessels Excluded from the Fishery	AFA Vessels Allowed to Participate	Non-AFA Vessels
Option 1A - 1992-96 (All 5 seasons)	0.77%	6.35%	92.87%
Option 1B - 1992-96 (Best 4 of 5 Seasons)	0.83%	6.47%	92.70%
Option 2A - 1991/92 - 1996 (Best 5 of 6 Seasons)	1.06%	6.47%	92.47%

Source: Summarized from the NPFMC Crab Database 2001, Version 1

A total of 19 AFA vessels hold valid LLP licenses for the BS *C. opilio* fishery and have catch history during the qualifying years being considered, but are excluded from future fisheries because of AFA regulations. Their catch history is summarized in Table 3.10-18, under the column titled “AFA Vessels Excluded from the Fishery”. The Council will need to determine how the catch history of these vessels should be treated under a rationalization program in which shares are issued in the fishery. These 19 vessels were excluded under the AFA sideboards because they were deemed not to be dependent on the fishery and because of management and enforcement complexities. If these concerns are still relevant, the Council may wish to exclude them from the pool of qualified vessels. However, if these concerns are less of an issue under the proposed management structures, the Council may wish to allocate them shares based on their catch history during the qualifying periods.

Seven other AFA vessels are currently allowed to fish for BS *C. opilio*. The history of these vessels is presented under the column titled “AFA Vessels Allowed to Participate”. These vessels met the criteria set out for participation in the BS *C. opilio* fishery under AFA regulations and hold an endorsement for that fishery under the LLP program. Though fewer in number than the other AFA vessels, they generally harvested about twice as much BS *C. opilio* under each of the alternatives.

Table 3.10-18 Percent of the BS *C. opilio* fishery projected to be allocated to AFA and non-AFA vessels

Allocation Options	AFA Vessels Excluded from the Fishery	AFA Vessels Allowed to Participate	Non-AFA Vessels
Option 1A - 1994-99 (Best 5 of 6 Seasons)	0.81%	1.30%	97.89%
Option 2A - 1992-99 (Best 7 of 8 Seasons)	0.76%	1.44%	97.80%
Option 3A - 1995-99 (All 5 Seasons)	0.59%	1.21%	98.20%
Option 3B - 1995-99 (Best 4 of 5 Seasons)	0.68%	1.25%	98.07%
Option 4A - 1996-2000 (Best 4 of 5 Seasons)	0.56%	1.45%	97.99%

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

The remainder of the fisheries have less than three AFA vessels currently participating. Catch history from those vessels cannot be released for confidentiality reasons. Yet it should be noted that the Council will need to make the same decisions regarding AFA vessels that have catch history during the qualifying period and are currently eligible to participate under AFA regulations in the St. Matthew blue king crab and Pribilof red king crab fisheries. In both cases the total catch of these vessels is a modest amount.

It should be noted that if maintaining the distribution of interests is of concern, limits on transfers would be required. Such limits would tend to constrain competition for quota in the market, which may result in lower

quota prices for non-AFA quota shares. Lower prices would be seen as a plus by non-AFA participants. To project prices, however, is not possible.

AFA crab processing sideboards

In addition to the harvest caps on vessels, the AFA established caps on AFA processors' participation in other fisheries. The AFA processing caps were established to protect non-AFA processors in the crab industry from processors that benefitted from the AFA rationalization of the pollock fishery. Absent the caps, AFA processors were thought to have an unfair advantage, since rationalization of the pollock fishery removed time pressures associated with the derby fishery that existed prior to the AFA and may have increased AFA processors' access to capital. Paragraph 2.8.1 of the Council motion includes the following option that would terminate the crab processing caps created under the AFA:

2.8.1 The crab processing caps enacted by Section 211(c)(2)(A) of the AFA would be terminated.

The Council has implemented crab processing sideboards as part of the AFA amendment package. The crab processing sideboard percentages are determined in the following manner. Upon receipt of an application for a cooperative processing endorsement from the owners of an AFA mothership or AFA inshore processor, the Regional Administrator would calculate a crab processing cap percentage for the associated AFA inshore or mothership entity. The crab processing cap percentage for each BSAI king or Tanner crab species would be equal to the percentage of the total catch of each BSAI king or Tanner crab species that the AFA crab facilities associated with the AFA inshore or mothership entity processed in the aggregate, on average, in 1995, 1996, 1997, and 1998, with 1998 given double-weight (counted twice). Those percentages are given in the far right column of Table 3.10-19 in the column titled "Sideboards". The table also displays allocations under both the alternative under which catcher/processors receive independent harvest and processing shares and the alternative under which catcher/processors receive catcher/processor shares (that include both a harvest and a processing privilege).

The current AFA crab processing sideboard caps are not accounted for in the Council's crab rationalization motion. If processors are allocated quota, as they would be under some of the IFQ and cooperatives alternatives, each company's allocation would be based on their participation in each of the crab fisheries during a given set of years. Should the Council wish to continue the processing splits between AFA and non-AFA processors, they would need to set that split prior to allocations among the processors. However, continuing that division is only necessary if the AFA processors are thought to have an operational advantage that should be mitigated by altering the initial allocation of crab processing quota.

Some vessels owners and smaller participants in the processing sector are concerned that if the AFA crab processing sideboards are removed crab processing could become more concentrated among AFA processors. They feel that the AFA might have improved the position of these processors, enabling them to consolidate crab processing increasing their market power in the crab fisheries. These vessel owners and processors support continuing the AFA processing sideboards to mitigate these possible effects.

Since some catcher/processors are not affiliated with AFA members, under the option in which catcher/processors receive "catcher/processor shares", allocations to AFA processors are higher. In the Bering Sea *C. opilio* fishery AFA processors would receive slightly smaller allocations under Option 2 than under Option 1. Under both alternatives and both options total allocations to AFA processors slightly exceed the total of the AFA sideboard caps. In the Bristol Bay red king crab fishery, the allocations to AFA processors under Option 2 are also slightly less than the allocations under Option 1. In this fishery, the allocation option

with catcher/processor shares would the allocation to AFA processors exceed the AFA sideboard cap. In the Bering Sea *C. bairdi* and the Pribilof blue king crab fishery, the allocations to AFA processors would exceed the sideboard cap under both the option with catcher/processor shares and the option without catcher/processor shares. On the other hand, the allocation to AFA processors in the Pribilof red king crab fishery is less under than the sideboard caps under both the option with catcher/processor shares and the option without catcher/processor shares.

Table 3.10-19 AFA and non-AFA split of processing history by fishery.

Fishery/Option	Allocation with catcher/processors receiving catcher/processor shares		Allocation with catcher/processors receiving processing shares		AFA Sideboards
	Non AFA Processors	AFA Processors	Non AFA Processors	AFA Processors	
Bering Sea Opilio					
Option 1 - 1997 - 1999 (Three year average)	0.286	0.714	0.322	0.678	0.653
Option 2 - 1996 - 2000 (Best 4 seasons)	0.297	0.703	0.333	0.667	
Bristol Bay Red King Crab					
Option 1 - 1997 - 1999 (Three year average)	0.209	0.791	0.238	0.762	0.781
Option 2 - 1996 - 2000 (Best 4 seasons)	0.233	0.767	0.260	0.740	
Bering Sea Bairdi (EBS Tanner Crab)					
Option 1 - 1997 - 1999 (50/50 combination of BBRKC and opilio)	0.248	0.752	0.280	0.720	0.688
Pribilof Red King Crab					
Option 1 - 1996 - 1998 (Three year average)	0.317	0.683	0.317	0.683	0.781
Pribilof Blue King Crab					
Option 1 - 1996 - 1998 (Three year average)	0.293	0.707	0.293	0.707	0.641
St. Matthew Blue King Crab					
Option 1 - 1996 - 1998 (Three year average)	*	*	0.392	0.608	0.641
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab					
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	*	*	0.486	0.514	0.496
Option 2 - 1996/1997 - 2000/2001 (Best 4 seasons)	*	*	0.494	0.506	
Western Aleutian Islands (Adak) Golden King Crab					
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	*	*	0.681	0.319	0.496
Option 2 - 1996/1997 - 2000/2001 (Best 4 seasons)	*	*	0.670	0.330	
Western Aleutian Islands (Adak) Red King Crab					
Option 1 - 1992/3 - 1995/1996 (Four season average)	*	*	0.607	0.393	0.781

* Withheld due to confidentiality requirements.

Source: NPFMC Crab Database 2001 - Version 1

Sideboard caps provided by NMFS Alaska Region

Includes inshore and floating processors in addition to processor affiliated catcher/processors

In the St. Matthew blue king crab fishery and both of the Aleutian Islands golden king crab fisheries, only the allocations with catcher/processors receiving processing shares can be shown (to protect the confidentiality of the few catcher/processors participating these fisheries). In the Western Aleutian Islands golden king crab fishery, the allocation to AFA processors is approximately 20 percent less than the AFA sideboard cap. This is likely a result of substantial catcher/processor activity in this fishery. In the Eastern Aleutian Islands golden king crab fishery, the allocation to AFA processors is less than 2 percent more than the cap under either of the qualifying year options, while in the St. Matthew blue king crab fishery the allocation to AFA processors is approximately 3 percent less than the AFA sideboard cap.

3.10.3 Program duration and review

Options for program review and sunset are contained in two sections of the Council motion. Analysis of these options is consolidated in this section. Section 5 of the Council motion contains the following provisions concerning program duration and review:

5. Program duration and review

The following options apply to all program elements:

- Option 1. Program review after 2 years and every 3 years thereafter to objectively measure the success of the program, including benefits and impacts to harvesters (including vessel owners, skippers and crew), processors and communities by addressing concerns, goals and objectives identified in the Crab Rationalization problem statement and the Magnuson Stevens Act standards. This review should include analysis of post-rationalization impacts to coastal communities, harvesters and processors in terms of economic impacts and options for mitigating those impacts.
- Option 2. Program review every 3 years to objectively measure the success of the program, including benefits and impacts to harvesters (including vessel owners, skippers and crew), processors and communities by addressing concerns, goals and objectives identified in the Crab Rationalization problem statement and the Magnuson Stevens Act standards. This review should include analysis of post-rationalization impacts to coastal communities, harvesters and processors in terms of economic impacts and options for mitigating those impacts.
- Option 3. No program review
- Option 4. Sunset in 5 or 7 years

Section 6.1 paragraph 11 of the Council motion contains the following provision concerning duration and review of the cooperative program alternative:

11) Length of program:

- Option 1. Sunset in 5 years
- Option 2. Program review to objectively measure the success of the program by addressing concerns identified in the Crab Rationalization problem statement and the Magnuson Stevens Act standards.
 - Suboption 1. Program review after 2 years
 - Suboption 2. Program review every 3 years

Although the motion provides that this second set of options applies to only the State of Alaska Voluntary Cooperative program, since the provision could be easily applied to other program alternatives, their application to all program alternatives is considered here.

The NRC study, “Sharing the Fish” points out that IFQ programs that are stable and in which persons are able to make long-term investments will achieve greater benefits. While the Magnuson Stevens Act provides that IFQ programs create a revocable privilege that is not permanent, the creation of a long-term interests could improve stewardship and conservation by giving participants a more direct interest in the condition of the stock.

The Council is considering options that would sunset the program 5 or 7 years after the date of implementation. Other options under consideration would make the program permanent (subject to Council modification when deemed necessary) with reviews set a specific times. Program reviews would be conducted 2 or 3 years after the program is implemented. Under one of the options, this would be a one time review (6.1.11, Option 2, Suboption 1). Addition options provide for periodic review, every two or three years thereafter (5, Options 1 and 2 and 6.1.11 Option 2, Suboption 2). Reviews would be designed to attempt to objectively measure the success of the program by addressing issues raised in the amendment's problem statement and the standards set forth in the Magnuson Stevens Act, including the impact of the action on harvesting and processing sectors, and communities. After reviewing the impacts of the program the Council would have the option of taking corrective action.

Review of a new program can be important to the program's success. A review process would allow for a full evaluation of whether the program is serving intended objectives and could provide guidance to the Council for correcting the program to mitigate harmful or unexpected consequences. Early review of a program can be used to determine that the program is functioning as intended. Periodic reviews can be used to determine whether circumstances have changed in a fishery that would justify amending a management program. Useful reviews, however, are quite costly. A well conducted and fully evaluated review often requires extensive staff time, consultants, and Council time. Reviews are important to ensuring the success of management programs but should be undertaken only if the need and utility of the information gathered in the review are likely to outweighs the costs.

Including a sunset date in the program could have various impacts on the benefits of the program. If the sunset creates a fear that the program will only last five or seven years, it is likely that the sales value of the harvesting and processing quotas would be diminished. The lower values would reflect the uncertainty concerning the long term asset value of shares. The value of a share could be capitalized over the scheduled life of the program, rather than in perpetuity. Individuals could make different assumptions regarding the expected life of the program, with the potential for continuation adding a speculative component to share pricing. Some fishermen will likely expect the program to be reauthorized after five (or seven) years, and the program to continue uninterrupted. These individuals would likely value the asset at close to the discounted rents they would expect to generate over a longer (perhaps infinite) time horizon. Persons that do not anticipate the program being reauthorized would only be willing to pay an amount for the harvesting or processing rights that could be recouped over the years remaining before the program is set to expire.

A sunset date for the program ensures that the Council must address the issue of the operation and success of the program at a future date. If there is uncertainty that the program should continue it may be easier to allow the program to sunset rather than passing an amendment to revoke the program. However, if there is relatively strong feeling the program will be successful, less uncertainty would be faced by the fleet if a permanent program is implemented. The Council would still retain the option to review or discontinue the program if it was not meeting their objectives.

3.10.4 Cost recovery

The Council motion does not address the issue of cost recovery. The Sustainable Fisheries Act, however, requires that provisions of every new IFQ program:

provides for the effective enforcement and management of any such program, including adequate observer coverage, and for fees under section 304(d)(2) to recover actual costs directly related to such enforcement and management

The halibut and sablefish IFQ program currently includes a cost recovery component, which was implemented in 2000. The program requires the payment of 3 percent of the ex-vessel value of all IFQ landings to RAM to defer costs of administering the program. 25 percent of fee collections are required to be used to fund a low interest loan program for IFQ purchases. Payments are made by the IFQ holder and must be made on or before January 31 in the year after the landings. To facilitate tracking of payments IFQ buyers are required to report all landings by October 15th in the year of the landing. NMFS submits bills to all IFQ holders based on these reports for 3 percent of the ex-vessel gross revenues of the landings (based on the average price for the species). Persons may pay a lower amount provided they can demonstrate the actual price paid for landings. The fee can be adjusted downward by NMFS in the event that recovered fees exceed the management and enforcement costs in the fishery.

A similar program in the crab fisheries could be used to disburse management and enforcement costs under the new rationalization program. Some participants believe that inclusion of a cost recovery program from the outset of the program may overtax QS holders since they could have to bear the cost of the buyback program currently being developed for these fisheries. If an IFQ program alternative is selected such a cost recovery program would be required. If a cooperative alternative is selected, the Council would have the choice of whether to include a cost recovery option in the program. In the event that a program includes processor shares, as well as harvester shares the Council will need to consider whether fees should be imposed on harvesters, processors, or both, and whether the fee amount should be based on ex-vessel revenues, first wholesale revenues, or some other measure. Wholesale revenues might not be a preferred measure of the value, as those revenues vary greatly depending on the product produced and also whether the purchaser of the product is affiliated with the seller. For example, if a primary processor owns downstream secondary processors, that processor might set the first wholesale price for accounting purposes that have little or no bearing on the value of the product sold. In addition, maximum revenues in the fishery may be realized by the development of high value products, imposing a fee on the first wholesale price might discourage the development of those products at the primary processing facility, which in some cases could be tantamount to discourage development of the products altogether. Consequently, it may be inadvisable to impose fees on the first wholesale price of the processed crab. The distribution of the costs of any fee program would depend on the market power of the different sectors, which is discussed in the next section.

3.11 Effects of rationalization on products and consumers

The effects on consumers are a critical part of the impact of a rationalization program. Rationalization programs can improve stocks and harvests, distribute harvests over a longer part of the year, and provide fresh products to the market. Few studies of these impacts have been conducted of existing rationalization programs. General comments on the impacts can be provided that can be analyzed for their applicability to the crab fishery to examine the potential of the rationalization program to benefit consumers of crab.

In the current fishery, most of the production is brine frozen clusters. Processors also produce blast and plate frozen clusters, most in large packs (10-20 kg). A few specialty products are produced. Processor representatives, however, report that their ability to develop specialty products is limited by the need to offload and process live crab quickly. In the current fisheries most vessels arrive at plants during the course of a day or two limiting the time processors can devote to high quality products or products that require additional effort from crews. Slowing of fishing under rationalization could provide processors with additional time to improve product quality and diversity of products. The potential for these changes are discussed in turn.

Product quality

Improved freshness and attention to quality are often benefits of rationalization programs. In the halibut IFQ fishery, fishers under less pressure to harvest fish as quickly as possible are able to take better care of their harvests improving product quality. With harvests distributed over an eight month season, processors are prepared to offload harvests and handle the fish with greater care. Buyers and processors have been able to take advantage of the distribution of harvests over a longer season to provide fresh fish to a broader market over a longer part of the year. Processors have the time to focus their efforts on providing fresh product to markets, taking the time and effort in handling and packing to ensure that quality, fresh product reaches the market.

In addition to the ability to provide more fresh product to a broader market, rationalization allows processors to improve product quality on more processed products. The AFA has allowed processors to spend substantially more time in grading. High grades continue to be top quality. More medium grades are produced, since processors can spend more time distinguishing quality, providing a more predictable product to consumers. In addition, more low quality products can be produced as time is available to improve recovery. Development of these lower markets enables the fishery to expand into and serve a different market. Although processors and harvesters benefit from these product developments through increased sales and the ability to extract the greatest revenues from their products, consumers also benefit from increased numbers of products and greater information on product quality. With less pressure to process fish quickly, processors have more time to sort fish and products by grade.

Crab products are currently graded by size and quality (typically shell quality and meat fill). Crab processing is labor intensive relative to other fish processing. Processors in the current fishery have employees on crab lines only a few days or weeks at a time. Little time is available for training. With longer periods of production processors should be able to better train crews to handle and grade crab. More grades of product and improved product recovery could result. In addition, more time for handling could result in improved product quality and more consistent product grading. Distribution of harvests over a longer part of the year, will also reduce freezer time as harvests can be timed to meet customer demands and fill specific orders.

Harvesters can also play a role in increasing product quality. Harvesters in a rationalized fishery will have time to move off stocks of old shell, low quality crab to areas of higher quality, new shell crab. In the current fishery, harvesters have less time to search for schools of high quality crab since fishing seasons are very limited.

The ability to produce higher quality products in slower fishery is also evident from current processing in the CDQ fishery. Processors that participate in the CDQ fishery report that they postpone most of their production of high quality products until the CDQ season, when more time is available for processing. Scheduling of deliveries in that fishery allows the processor greater time to produce specialty products.

Product development

Rationalization programs have enable processors to develop more and new products benefitting consumers. In the pollock fishery, the number of products produced by most participating processors has increased greatly since the implementation of the AFA. Processors that formerly concentrated almost exclusively on surimi have shifted production into fillets and blocks. Although some of this product development was in response to changes in markets,⁶¹ the change is also attributable to processors having the time in a rationalized fishery to increase variety of product outputs.

⁶¹One incentive for the shift from surimi to fillets and blocks was a decline in surimi prices.

New crab products could potentially be developed in a rationalized crab fishery. More uses for older shell crab and higher recovery—through increased meat extraction—could benefit both industry and consumers. Better treatment of new shell crab—including using more time consuming blast and plate freezers instead of brine freezers— could improve quality. In addition, processors could attempt to develop new products. Also, live crab (3 days to the market), fresh crab (7 days to market), and whole cooked crab production could increase in a rationalized fishery, in which processors can spend more time coordinating production and deliveries.

It is difficult or impossible to predict the direction that production will take in a rationalized fishery. The extra time and ability to coordinate activities in a rationalized fishery, however, will provide industry with the ability to improve production practices and improve product quality.

3.12 The effects of the crab vessel buyback program

Background

Much of the following background information on the crab buyback program is taken from a draft EA/RIR/IRFA developed to implement the buyback program. While the background information will not change, the actual structure of the program is still under development. Therefore, some changes in the information presented here could take place before the crab rationalization amendment is finalized.

There are several important aspects to remember in analyzing the program. First, the program is statutorily mandated. Second, participation is voluntary. Third, before the program is actually implemented, a referendum of all holders of LLP crab licenses must be approved by a two-thirds majority of persons who actually cast ballots.

The program would be financed through a \$100 million loan from the Federal government which is currently attached as a rider to a defense bill. Those funds would be used to purchase vessels and catch history from the following area/species endorsements:

1. Pribilof red king and Pribilof blue king
2. BSAI *C. opilio* and *C. bairdi*
3. St. Matthew blue king
4. Aleutian Islands brown king
5. Aleutian Islands red king
6. Bristol Bay red king

This fishing capacity reduction program seeks to obtain the maximum sustained reduction in fishing capacity at the least cost by establishing a bidding procedure that would remove vessels considered to have the highest value per dollar bid to remove them. A bid is valued by dividing it by the total value of the crab caught aboard the vessel that is offered for buyback. The resulting bids are then ranked from smallest to largest, so that the effect is to remove vessels with the greatest fishing history.

In order to submit a bid to participate in this fishing capacity reduction program, the bidder(s) must hold three separate elements: (1) a fully-transferable, post-Amendment 10 License Limitation Crab License; (2) the vessel; and (3) the vessel's crab fishing history. This last element may not be necessary if the regulation states that the history of a vessel that is bought back cannot be counted in any future allocation programs.

NMFS will publish a Federal Register notice inviting eligible bidders to offer fishing capacity for reduction. Each invitation to bid constitutes the entire terms and conditions of a reduction contract. After the winning

bids are announced, NMFS will then conduct a post bidding referendum to determine whether eligible voters authorize an industry fee system. The referendum is deemed successful if at least two-thirds of the qualified ballots are cast in favor of the industry fee system.

NMFS is expected to permanently revoke all fishery licenses, fishery permits, area and species endorsements, and any other fishery privileges, for all fisheries. NMFS will also ensure that the Secretary of Transportation is notified of each vessel for which a reduction permit is surrendered and revoked, with a request that the Secretary of Transportation permanently revoke the fishery endorsement of each such vessel and refuse permission to allow the transfer of any such vessel to a foreign flag.

The loan would be repaid by a fee on all BSAI crab landings in the amount of delivery value of that crab multiplied by the fee rate. The fee rate would be established by NMFS but may not exceed 5 percent of the delivery value.

Impacts of the buyback on the status quo fishery

Under any circumstance, the buyback will remove vessels and LLPs from the fishery.⁶² Theoretically, this should slow the race to fish under current management. The effectiveness of the program in slowing that race depends on voluntary bids of persons eligible to participate in the fisheries and the number of vessels purchased by the program. As noted, the number of vessels that would be removed from the fisheries by buyback cannot be predicted. Consequently, the actual effect of the buyback on the current fishery is uncertain.

Impacts of the buyback on the proposed rationalization programs

It is not possible to project the impacts of the buyback program quantitatively. Several assumptions regarding which vessels would be bought out would be required, many of which could prove to be untrue. Instead, a general discussion will be provided regarding the impacts the program may have on allocations under the proposed alternatives.

We are assuming that the buyback program will retire the catch history as well as the vessels used to harvest crab. If the catch history were not retired, persons could sell their vessel and never use it to fish again, but they could still be allocated quota. The quota could then be used on a different vessel. Under an IFQ or cooperative system, persons paying for the loan would get little benefit from the buyback program. Fewer vessels would be fishing, but the remaining vessels would be unable to harvest a larger percentage of the crab unless they purchased the rights to do so. Therefore, vessel owners wishing to participate in the buyback program could be selling directly to the government (and indirectly to remaining crab vessel owners) their excess capacity that may have little value under a quota program. The value of those vessels would be low if they would have been retired under a rational crab fishery (since it is possible that more efficient vessels could be used to harvest their allocation) and they had little opportunity to participate in other fisheries because of the licenses they hold as well as their history in other fisheries.

If we assume that the catch history that would have resulted in either IFQ or cooperative shares being issued is retired under the buyback program, the persons funding the buyback would be allocated a larger percentage of the GHL. Since we do not know how much catch will be retired, we cannot determine the magnitude of the increase. However, if participants do not believe that the increase will cover the cost of the loan program then it is unlikely that the buyback would receive enough votes (two-thirds of those who cast ballots) to ratify

⁶² The EA/RIR/RFA prepared by NMFS considers scenarios of 30 to 90 vessels removed from the fleet. A range of scenarios was considered because the voluntary nature of the program is a barrier to the precise estimation of the number of vessels removed.

the program. In other words, if participants do not believe that benefits of the program will exceed its costs they are unlikely to approve the program.

Another confounding influence on determining the impacts of the buyback program is the years that would be used to calculate the winning bids and the years that would be used to qualify for the rationalization program. The catch history used by the buyback program will be the most recent 5 years between 1990 to 1999 that each fishery was open. The catch history years for the rationalization program have not yet been determined, however, many of the options for qualifying years do not match the buyback years exactly.⁶³ If the years for calculating the buyback are not included in the years used to determine IFQ or cooperative allocations⁶⁴, then the buyback program could be purchasing history that would not count towards rationalization. This could result in less qualifying history being bought back than could have been if the same years were used for both programs. Again, because of the uncertainties surrounding the vessels that would be bought back and the years that would be used to determine history under the rationalization program, it is not possible to calculate the amount of history that would be bought back that is outside the rationalization program. Therefore, it may be prudent to consider the years used for the buyback program when determining rationalization years, to minimize buying back history that would not count under the rationalization program.

In addition, it is unclear how buyback will affect a vessel's participation in other fisheries. If buyback removes catch history and license eligibility for other, non-crab fisheries, the buyback prices could be inflated for vessels with history and eligibility in other fisheries. Vessels with eligibility and history in other fisheries (for example AFA catcher vessels) will be less likely to submit acceptable bids, since they may place a substantial value on their eligibility and history in other fisheries. If history in other fisheries is unaffected by the buyback, this problem could be mitigated.

The buyback program could also impact processors under rationalization. Under the Plurality Assignment cooperative program, if a disproportionate number of vessels were bought-back that had a majority of their deliveries to a given processor, that processor would lose the opportunity to access the crab that would have been allocated to that vessel. Therefore, if the Plurality Assignment cooperative program is implemented processors would be worse-off if vessels that delivered a majority of their catch to them were bought out. Processors that had fewer pounds delivered to them, during the qualifying years, by vessels that were bought back would benefit from the buyback. They would have a greater percentage of the total catch associated with their cooperative because of the buyback (assuming the same vessels remaining in the fishery would join the cooperative with or without the buyback). This would occur because the vessels associated with their cooperative would receive allocation increases large enough to make up for any vessel's catch history that would have been eligible for their cooperative but was bought back.

Another impact on processors is that the buyback program only applies to catch history, not processing history. Therefore, when catch is bought back the remaining harvesters would realize an increase in their allocation proportional to the history that was bought back. Catcher/processors that remain in the fishery would also realize this increase in their harvest allocation. The question then arises about how their processing allocation should be treated under a program where they are granted processing rights? Two alternatives are provided below. The first would increase a catcher/processors processing allocation to match

⁶³ Option 3A for the Bering Sea *C. opilio* fishery, Option 1A for the Bristol Bay red king crab, Option 1A for the Bering Sea *C. bairdi* fishery, Option 2A for the Pribilof red king crab fishery, and Option 2A for the St. Matthew blue king crab fishery match the buyback years. No options for the Pribilof blue king crab fishery or for the Aleutian Islands golden king crab fishery match the buyback years.

⁶⁴ Either because the Council selected years prior to or after the buyback years used to determine quota allocations.

their harvest allocations resulting from their own catch. This would tend to advantage the catcher/processor sector over other processors. The second option would allow the buyback to increase a catcher/processors harvest allocation but their processing allotment would still be based on their processing history relative to all other processors.

If their processing allocation is guaranteed to at least equal their harvest allocation, then in some cases a catcher/processor's processing allocation must be increased beyond what they traditionally processed. This increase comes at the expense of the other processors (shorebased and floating) that operate in those fisheries. The magnitude of the impact cannot be determined until the amount of history being bought back is determined. Once the amount of crab being bought back in each fishery is known, that percent of the overall catch history could be multiplied by the percent of harvest allocated to the catcher/processors to determine the approximate magnitude of the impact.⁶⁵

If the catcher/processors are not automatically allocated enough processing quota to cover their harvest allocation (earned as a result of their own harvests), then they may be required to sell some of their harvest quota or acquire processing quota from another processor. This would result in cases where a catcher/processor did not take sufficient deliveries from catcher vessels to increase processing histories to a level equal to their harvest histories. Acquiring additional processing history may be difficult for catcher/processors. Some of the alternatives under consideration would not allowed the use of non-catcher/processor processing shares on catcher/processors. Therefore their only source of processing history would be from initial allocations made to other catcher/processors, which is likely to be in demand by other similarly situated catcher/processors. Catcher/processors unable to purchase catcher/processor processing shares from other catcher/processors would be required to either sell some of their harvesting rights or make deliveries of harvests to shorebased or floating facilities.

3.13 Stranded capital in the processing sector and the potential for a processor buyback

Some participants in the BSAI crab fisheries have suggested that a processor buyback (similar to the vessel buyback) could be undertaken to address potential problems of stranded capital in the processing sector. The section briefly discusses the potential for such a program to address excess processing capital.

Drawing parallels between the harvest and processing sector for purposes of developing a buyback program is difficult. The BSAI crab harvest sector is currently regulated by the LLP, a direct regulatory limitation on entry. No similar direct limit on entry exists for the processing sector. Buyback of processing facilities will have limited effect unless processors that are bought out are removed from the fishery without replacement. The development of limits on processor entry would therefore seem to be important to a processor buyback. Limits on entry, however, could be detrimental to harvesters, who benefit from competition among processors. These difficulties make development of a processor buyback program problematic.

The problem of stranded capital in the processing sector is difficult to assess. Season length changes in a rationalized fishery suggest that less processing equipment will be necessary for crab. Crab processing equipment is generally used only for processing crab, limiting its use for other processing. Other facilities that support crab processing (such as cold storage, floor space, and housing), however, can and do support other processing activities. So, although fewer crab lines will be required under rationalization, some of the facilities that become excess might be usable for other processing activity. Processors, however, report that few additional opportunities exist for using facilities removed from crab fisheries under rationalization. In recent years some crab processing facilities have been removed from service and are currently idle. This suggests that crab rationalization (and the current low stocks) have and could strand processor capital.

⁶⁵It is only approximate because the amount of quota assigned to the open access fishery could also impact the calculation.

Attributing the stranding of capital solely to crab fishery declines and crab rationalization, however, is somewhat problematic. Since support facilities are often developed for use in multiple fisheries, it changes in crab fisheries might not be the sole cause of stranded capital. Declines in crab fisheries, however, are certainly a contributor to stranded capital in the processing sector. In addition, the extent to which facilities have been and can be used in other fisheries may vary across processors. Processors that have more opportunities in other fisheries will have less stranded capital.

3.14 Foreign ownership

Since the extension of U.S. territorial waters to the 200 mile limit in 1976, efforts have been under way to reduce foreign participation in U.S. fisheries. To date, these efforts have focused on the harvest sector, in which a progression of laws and regulations have gradually contracted foreign participation. This section of the analysis is intended to provide the Council with general information concerning foreign participation in both sectors in the BSAI crab fisheries.

3.14.1 Foreign ownership of vessels

One of the primary goals of the AFA was to increase U.S. ownership of vessels participating in fisheries in U.S. territorial waters. To accomplish this end, the AFA increased the U.S. ownership requirement to 75 percent for vessels participating in fisheries in U.S. waters. These new ownership standards went into place on October 1, 2001. Vessels not in compliance with the standards were entitled to petition for exemption under any applicable laws, regulations, or treaties. Record of the Maritime Administration of the Department of Transportation (who administers the ownership requirements) show three vessels that participate in the BSAI crab fisheries have applied for these exemptions.⁶⁶ Because of the lack of availability of ownership information concerning vessels participating in the fisheries, no further information on foreign ownership of vessels can be provided.

3.14.2 Foreign ownership of processors

The processing sector is not subject to limitations on foreign ownership. Consequently, several of the larger processors participating in the BSAI crab fisheries are foreign owned. Table 3.14-1 shows foreign ownership of processors that are likely to receive allocations of processor shares, if the Council selects a program that includes allocation of those shares to processors. Although some of the other processors have some foreign ownership, in all other cases foreign ownership is thought to be less than 5 percent.

⁶⁶ Because only three vessels are foreign owned, confidentiality restrictions prohibit the release of information concerning the allocations to these vessels.

Table 3.14-1 BSAI crab processors with 10 percent or more foreign ownership.

Processor	Foreign owner	Percent foreign owned
Unisea	Nippon suisan kaisha ltd. Of japan	100
Peter pan seafoods	Nichiro corporation of japan	100
Stellar seafoods	Nichiro corporation of japan	25 (10 percent through peter pan seafoods and 15 percent directly)
Alyeska seafoods	Maruha corporation of japan and marubeni inc. of japan	56 (50 percent maruha And 6 percent marubeni)
Westward seafoods	Maruha corporation of japan	100

source: analysis of afa processor sideboard limits for groundfishand excessive share caps for bsai pollock, 2000

Categorizing each of these processors as “foreign owned”, the portion of the PQS initially allocated to foreign owned processors can be determined. Table 3.14-2 shows the estimated percentage of PQS that would be initially allocated to these five processors based on the options for making initial allocations to processors. The estimates presented assume that catcher/processors receive catcher/processor shares rather than allocations of processing shares. Because of restrictions intended to protect confidentiality, allocations in the Aleutian Islands golden king crab fishery cannot be disclosed. If catcher/processors are allocated catcher/processor shares, the allocations to foreign owned companies range from highs of approximately 49 percent in the Bristol Bay red king crab fishery to approximately 37 percent in the Pribilof blue king crab fishery. If catcher/processors are allocated processing shares the allocation of processing shares to foreign owned companies is slightly less, in most fisheries, except in the Western Aleutian Islands (Adak) red king crab fishery, where the allocation drops from approximately 47 percent to less than 30 percent.

3.15 Custom processing

In the current fishery custom processing has allowed processors to maintain or expand links with harvesters even when it was not feasible or rational for the processor to process crab. Tables 3.15-1 and 3.15-2 show the amount of custom processing by species and by year from 1995 to 2000.⁶⁷ The tables show that approximately 8.5 percent of red king crab and approximately 6.5 percent of *C. opilio* was custom processed during that period. In each year for which data can be shown, in excess of 8 percent of all crab has been custom processed.

⁶⁷ Numbers in these tables may not be consistent with those in other sections of this document for a few reasons. First, these data are from a different data source. Second, the data are for species, not by fishery. Third, the data are by area and are not restricted to BSAI fisheries.

Table 3.14-2 Number of “foreign owned” processors receiving an initial allocation of processing shares and the percent of the total allocation to those processors (assumes that catcher/processors are issued catcher/processor shares).

<i>Fishery/Option</i>	<i>Allocation with catcher/processors receiving catcher/processor shares</i>		<i>Allocation with catcher/processors receiving processing shares</i>	
	<i>Number of foreign owned processors receiving allocations</i>	<i>Percent of total allocation to foreign owned processors</i>	<i>Number of foreign owned processors receiving allocations</i>	<i>Percent of total allocation to foreign owned processors</i>
Bering Sea Opilio				
Option 1 - 1997 - 1999 (Three year average)	5	38.9	5	36.2
Option 2 - 1996 - 2000 (Best 4 seasons)	5	38.7	5	35.8
Bristol Bay Red King Crab				
Option 1 -1997 - 1999 (Three year average)	5	49.3	5	46.8
Option 2 - 1996 - 2000 (Best 4 seasons)	5	48.5	5	46.3
Bering Sea Bairdi (EBS Tanner Crab)				
Option 1 - 1997 - 1999 (50/50 combination of BBRKC and opilio)	5	44.1	5	41.5
Pribilof Red King Crab				
Option 1 -1996 - 1998 (Three year average)	5	37.2	5	37.2
Pribilof Blue King Crab				
Option 1 -1996 - 1998 (Three year average)	5	46.7	5	46.7
St. Matthew Blue King Crab				
Option 1 - 1996 - 1998 (Three year average)	5	42.7	5	42.2
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab				
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	3	*	3	*
Option 2 - 1996/1997 - 2000/2001 (Best 4 seasons)	3	*	3	*
Western Aleutian Islands (Adak) Golden King Crab				
Option 1 - 1996/1997, 1997/1998, & 1998/1999 (Three year average)	3	*	3	*
Option 2 - 1996/1997 - 2000/2001 (Best 4 seasons)	3	*	3	*
Western Aleutian Islands (Adak) Red King Crab				
Option 1 -1992/3 - 1995/1996 (Four season average)	4	46.0	4	29.6

Source: NPFMC Crab Database 2001 - Version 1

Table 3.15-1 Custom processing by species (1995-2000)

<i>Species</i>	<i>Total number of processors</i>	<i>Number of processors that custom processed crab</i>	<i>Number of entities that contracted for custom processing</i>	<i>Total processed pounds</i>	<i>Custom processed pounds</i>	<i>Percent of total pounds custom processed</i>
Blue king crab	22	2	2	9,754,285	*	*
Golden king crab	21	2	3	22,142,630	*	*
Red king crab	40	7	12	34,252,575	2,947,991	8.6
Scarlet king crab	4	0	0	45,596	0	0.0
C. bairdi	34	3	3	4,442,722	*	*
C. opilio	48	5	8	541,421,131	36,077,792	6.7
Tanneri	10	1	2	2,146,801	*	*

Source: Commercial Operators Annual Reports for districts K to Z (from Kodiak west) 1995-2000.

Table 3.15-2 Custom processing by year (1995-2000)

Year	Total number of processors	Number of processors that custom processed crab	Number of entities that contracted for custom processing	Total processed pounds	Custom processed pounds	Percent of total pounds custom processed
1995	46	5	6	57,475,576	4,638,354	8.1
1996	32	4	6	48,004,779	4,738,236	9.9
1997	22	2	3	192,116,418	*	*
1998	27	3	5	164,647,270	*	*
1999	27	6	10	119,079,273	11,115,063	9.3
2000	25	5	6	32,882,424	3,525,982	10.7

Source: Commercial Operators Annual Reports for districts K to Z (from Kodiak west) 1995-2000.

If processing rights are assigned in a rationalized fishery, custom processing could create an opportunity for persons to buy crab processing rights without having a plant to actually process crab. These processing share owners could then be allowed to “lease” the rights to process crab to processors with the physical capacity to do so through a custom processing arrangement. In the past, the Council has expressed concerns over this type of activity in the harvesting sector because of the possibility of “absentee landlords” purchasing a significant share of a fishery. If the “absentee landlord” issue is considered a potential problem in crab processing, limits on the amount of custom processing could be adopted. For example, a processor may only be allowed to have another processor physically process a given percentage of crab each year. This would ensure that persons holding the quota at least have the capacity to process some amount of crab and are active during the year. Hardship circumstances could be accommodated by calculating the percentages over two or more years. For example, if the Council determined that a processor must process 50 percent of the crab it buys over two years circumstances preventing a processor from processing any crab in one year could be made up for by processing all of its allotment in the following year.

Harvesters could also use custom processing to enhance their market power by purchasing processing rights. Harvesters that own processing rights would be in a position to bargain with both harvests and accompanying processing rights. The extent of these arrangements to effectively empower harvesters, however, has been questioned by some participants. Whether harvesters could purchase processing shares would depend both on the market for processing shares and the ability of harvesters to obtain funding for those purchase of processing shares. If the processing shares are concentrated with few processors or an open market for shares does not develop, harvesters may have difficulty purchasing processing shares.

Notwithstanding issues concerning the purchase of processing shares by harvesters, custom processing could facilitate a more active processing market. If custom processing leads to entry to the processing sector, harvesters could have a broader market for selling their crab. Whether custom processing will facilitate a broader processing market cannot be predicted.

If leasing of processing quota is not allowed or limited, custom processing could serve a valuable function for the processing section. As seen from the above tables, custom processing has been a regular activity in the crab fishery over recent years.

Custom processing could also solve hardship problems that might be associated with a “use-it-or-lose-it” provision on IPQ. If a processor was unable to utilize all of their quota because of a breakdown or some other problem they could have it custom processed to ensure that it was used that year.

3.16 Economic effects

This section assesses several different potential economic effects that may be associated with the proposed crab rationalization program. While effects will vary, depending on the specific rationalization program adopted by the Council, the discussion here highlights several issues for consideration by discussing rationalization in general, and the particular differences in the alternatives that are deemed most pertinent to these effects.

This section is intended to assist the Council in assessing the potential or probable changes in net benefits accruing from these crab fisheries to the Nation, and anticipated distributional effects arising as a result of the proposed rationalization program alternatives. The section begins with an assessment of the effects of the proposed rationalization programs on the net benefits derived from these fisheries. As an introduction to the discussion of the effects of rationalization, the works of economists that have analyzed the potential distributional and efficiency implications of rationalization programs in the North Pacific are reviewed. The section then briefly summarizes some of the economic and socioeconomic consequences of rationalization that can be drawn from those studies and the application of principles from those studies to the BSAI crab fisheries. The section concludes with analyses of opportunities for entry to the fisheries and a discussion of the differential impacts of rationalization on different classes of vessels.

3.16.1 Changes in net benefits arising from rationalization

The implications of rationalization for the net benefits derived from the fisheries can be separated into four related types of benefits and costs. First, rationalization could change the benefits derived by producers, including both harvesters and processors. Second, rationalization could influence the benefits derived by consumers (particularly U.S. consumers) of BSAI crab. Third, rationalization could influence the cost and effectiveness of monitoring and managing the fisheries. Fourth, the combined effects of responses of producers, consumers, and management to rationalization will determine the effects of fishing on the physical environment. Beyond considerations of such things as impacts (positive or negative) on productivity of the marine environment (e.g., impacts on the abundance of commercial stocks of fish) attributable to the rationalization program, there may be net benefit impacts (either positive or negative) associated with what has been variously referred to as non-use, passive-use, or existence value from environmental effects of this action. Environmental effects are considered after these other effects, because attributable changes (if any) arise, in largest part, as a result of the combined effects of these other impacts. To fully understand the environmental impacts, requires that the aggregate affects of these different impacts on the environment be considered.

The effects of rationalization cannot be quantified, given our current level of knowledge and available data. Quantitative estimation of the effects of rationalization on producers (in both the harvest and processing sectors) requires knowledge of the operational and economic structure of the participants in each of these two sectors, and their 'likely' response to the structural changes that will accompany a rationalization program. The necessary empirical data to adequately model the current status of these sectors is unavailable to analysts. Furthermore, the potential structural changes which may be anticipated with adoption of any of the rationalization options currently under consideration by the Council, make it very likely that even the participants, themselves, are uncertain of how they will alter their economic and operational strategies and practices.

Specifically, a number of programmatic factors limit the predictability of the impacts of rationalization on these fisheries. Several program aspects of the alternatives are unique. For example, no two pie IFQ programs have been implemented in any fishery in the world, to date. Although some insight into the operation of the program can be developed, from which the general implications of the program can be hypothesized,

quantification of those hypothetical influences is not possible. As previously noted, BSAI commercial crab stocks are highly volatile. The impacts of rationalization could be either amplified or dampened by any fluctuations in crab stock abundance, further limiting the extent to which those effects can be quantified, *a priori*.

Changes in net benefits to producers

Rationalization of the crab fisheries has the potential to provide efficiency gains to both the harvesting and processing sectors.⁶⁸ Under current LLP management of these fisheries, harvesters increase revenues primarily by increasing their harvest rates. In the well know outcome of “managed open access”, the competitive fishery that has developed results in each fisherman perceiving a private economic incentive to increase inputs, ultimately, to the point where the increase in revenues derived from those inputs equals the cost of those inputs. In the race for fish, the ever increasing intensification of the use of technologies that increase harvest rates, is, at least in the short run, rewarded. In a rationalized fishery, fixed allocations of harvest shares eliminates (or, at the very least, substantially reduces) these incentives.

In the short run, the change from a competitive fishery to a rationalized fishery could lead to changes in the level of use of, and therefore expenditures on, variable inputs (e.g., fuel, labor) . With fixed harvest shares and no race for fish, harvesters are likely to shift emphasis from inputs that increase harvest rates per unit effort, to inputs that reduce harvest costs per unit effort. Although seasons will still be limited, to protect crab during molting and mating and possibly to facilitate management and oversight, harvest time is unlikely to constrain fishermen. For example, relaxing pot limits could permit harvesters to use more pots and, perhaps, fish in ways in which fewer pots would be lost. They may also find it economically advantageous to reduce crew size in a rationalized fishery. These changes could reduce harvest costs and improve efficiency.⁶⁹ The reduction in incentives to maintain high harvest rates could also improve safety in the fisheries, since fishermen would have less incentive to take risks in the fishery. For example, a vessel captain might decide to remain in port, until the weather and sea conditions improve, instead of fishing in inclement conditions with the hope of maximizing harvests.

In the long run, reductions in capital employed in the fisheries should reduce the cost of fixed inputs. Less efficient vessels are likely to be removed from the fleet and harvest shares are likely to be consolidated on fewer vessels, as seasons lengthen. These reductions in capital will tend, over time, to result in removal of less efficient and higher cost capacity from the fishery and thereby reduce the aggregate cost of maintenance and replacement.

Attempts are likely to be made to improve product quality by the harvest sector. Clean shell crab is known to bring a higher price in the product market than dirty or brown shell crab. Some harvest improvement is likely to be made because of the (effective) absence of time constraints on harvesters. Fishermen that retrieve pots with relatively high proportions of dirty shell crab are likely to move to other areas in search of higher value catch. Any improvement in quality of catch is likely to increase the benefits derived by the harvest sector, since the price difference for the two grades of crab in many product markets can be substantial.⁷⁰

⁶⁸ The distribution of rents arising from these efficiency gains between the harvesting and processing sectors are considered in the subsection 3.16.2 and are disregard here except to the extent that they might affect net benefits.

⁶⁹Clearly, any reduction in crew sizes will have distributional impacts, but these reductions could result in a reduction of costs to harvesters.

⁷⁰Costs associated with harvesting clean shell crab could be greater if the vessel realizes high search costs to find the areas with relatively more clean shell crab, or they high grade extensively. Presumably, the former behavior would only be observed if the price differential between grades was sufficient to compensate the fisherman for the increased cost. If it was not, the latter behavior may

To the extent that efforts of the harvest sector to increase quality of catch increase discard mortality, these efforts could reduce the net benefits derived from the fishery, in the long run. Harm to stocks from high grading could decrease future harvests and associated total revenues realized from the fishery. Issuance of fixed harvest allocations that extend several years into the future are argued, by some, to reduce the incentive for detrimental high grading. Depending on the rate at which the operator discounts future revenues, this effect would arise if QS holders believe that wasteful fishing practices in the present, reduce future allowable catch. If fishermen do not believe that their individual harvest practices have a substantial effect on future crab stocks, they might try to maximize their current income, perhaps at the expense of future stocks. The outcome of these competing effects cannot be predicted, *a priori*.

The processing sector is likely to undergo changes similar to those in the harvest sector. In the short run, processors are likely to shift from input use levels that allow them to process large quantities of crab, very quickly, in a race for fish operating mode, to input use levels that increase the operational and economic efficiency of processing under slower paced, smaller and more temporally dispersed delivery patterns. The extent of these changes, however, are difficult to predict, for a few reasons. First, for processors to effectively realize efficiency gains will require scheduling of inputs. Having crews on hand, standing by to process crab deliveries, can be costly. To the extent that processors are able to control the timing of deliveries, through use of ex-vessel pricing incentives, delivery contracts, processing shares, or some combination of these mechanisms, efficiencies are likely to be gained by the processing sector.

Second, the ability of processors to make changes in processing inputs to realize efficiencies has been questioned by some processors. Crab processing is known to be labor intensive, limiting the ability of processors to realize gains through altering processing technologies. In the long run, processors are likely to reduce capital employed in the fisheries, as the industry moves toward a new, sustainable equilibrium. Similar to the removal of vessels by harvesters, less efficient processing lines are likely to be removed from operation, reducing capital costs in the sector. The ability of processors to realize these efficiencies could be impeded by regionalization, since that program could require an inefficient distribution of processing activity. The expected benefits to communities must be weighed against these costs in determining the potential ‘net’ effect of adoption of a regionalization program.

Processors have the potential to realize efficiencies, and thus increased revenues, through the development of new products, as they are able to increase product recovery from processing of crab. The removal of (or, at the very least, substantial reduction in) time pressures, confronted in the current competitive fishery, is likely to enable processors to focus efforts on increasing the value of product outputs. Increases in product quality could stimulate an increase in demand, further increasing the net benefits derived from the fishery.

Fluctuations in allowable catch, which crab stocks are notable for, are likely to complicate capital entry/exit and investment decisions of participants in both the harvesting and processing sectors. In both sectors, it is likely that some capital will not be fully utilized at times of low allowable catch. This extra capital, however, is likely to be needed in seasons of high allowable catch. Because of this uncertainty, it is probable that some surplus capital capacity will remain in the fisheries, as an economic hedge against large changes in TACs. This will have the affect of diminishing the net improvement in efficiency, attributable to rationalization, from it theoretical maximum. The difference between these two results will be dependant upon the level of risk aversion or risk preference engendered within each sector.

It is also possible that both sectors will improve methods of accommodating substantial, periodic changes in allowable catch, with capital that is more malleable (or by developing other uses for capital that would be idle during periods of low use in the crab fisheries).

be induced by the (insufficient) price differential. This is largely an empirical question.

Both commercial sectors are likely to realize efficiencies and increases in net benefits, as a result of rationalization. Specific, individual program elements, however, would be expected to affect the realization of net benefits in production and the level of benefits realized by the different sectors. For example, a harvester only IFQ program would provide the harvest sector with the greatest flexibility for maximizing net benefits.

The two-pie IFQ program would, relative to IFQs, provide processors with greater leverage for determining the timing of deliveries that could help that sector to realize efficiencies. Harvest sector efficiency gains, however, are likely to be constrained by the delivery requirements of the two-pie program. Particularly in its early years, the two-pie program also could have higher transaction costs, if harvesters and processors have difficulty coordinating deliveries among shareholders. Notwithstanding these different efficiency effects of these different program elements, any of the rationalization programs under consideration is likely to increase net benefits of production.

Changes to net benefits of consumers

The rationalization of crab fisheries will likely also affect the net benefits realized by consumers. A substantial portion of the crab produced and marketed from these fisheries is destined for export. Based upon OMB policy and guidance, any benefits (or, for that matter, costs) which accrue to other than U.S. entities, are irrelevant to the benefit/cost assessment of a proposed action. Therefore, the treatment of potential net welfare changes to consumers, associated with rationalization of the BSAI crab fisheries is confined to U.S. consumers. Assessing the overall impact of rationalization on U.S. consumers, is difficult, since a few different influences of a rationalization program have competing effects, and very little empirical data exist for measuring those effects.

Improved product quality, increased variety of products, and increased product recovery are likely to benefit U.S. consumers. If experience from other fisheries which have come under rationalization is any indicator (e.g., Pacific halibut IFQ), these benefits may be expected to take the form of increased supply of product in the marketplace, perhaps more fresh product, or at least product which has been in cold storage for a minimal period, a wider variety of product forms, perhaps entering new market niches, and improved retail prices for a given quality of product. Since Bering Sea crab is traded on a world market, prices in the U.S. will be influenced by a number of exogenous factors, such as currency exchange rates, supply from and demand in other major crab producing and consuming countries, any or all of which may dampen or amplify expected domestic consumer impacts.

Some product development is likely to occur in a rationalized fishery. Absent the pressures of a race to fish, processors will have time (and an economic incentive) to develop new products, increasing the variety of crab products in the market. As noted, these developments are likely to broaden the market for BSAI crab, extending benefits to new consumers, some of whom are likely to be U.S. consumers.

Changes in costs of management

The change in the cost of management from rationalization of the fisheries is difficult to predict. The cost of any management changes will depend greatly on the specific program adopted. Implementation of any rationalization program will require the distribution of share allocations in each fishery. Rationalization will also entail development of specific ongoing management measures, including annual harvest allocations based on shareholdings and the tracking of the harvest of these allocations. Inclusion of processor shares in the program would require similar implementation and ongoing management of processing allocations. Development of a cooperative program, under which allocations are made to harvest cooperatives, instead of individual participants, could reduce some of these costs, depending on the level of cooperative activity

in the fishery. Any of these allocations will likely build on experiences from, and systems used in, other rationalized fisheries, reducing the costs of implementation and administration.

Monitoring requirements and costs are likely to increase in a rationalized fishery. Port sampling and observer requirements (and, thus, costs) are likely to increase as extended seasons will require equivalently extended monitoring. . Also, monitoring will likely increase to ensure that individual quotas are being harvested at the appropriate levels. Sound management could also require increased scientific monitoring and research to determine the impacts of potential management changes, such as the effects of increased soak times on selectivity and sorting and the potential for seasons to extend into molting and mating periods. In addition, vessel monitoring systems that provide real time data to managers might also be necessary for monitoring participants in the fishery.

The costs of implementing a rationalized fishery is likely to exceed the current cost of monitoring inseason harvests. In the current competitive fishery, fishermen are on the grounds for a limited time, reducing the period during which managers must monitor fishing. Monitoring costs are minimized by the abbreviated, intense seasons. In addition, harvests are monitored in the aggregate by collecting harvest information from a sample of participants during the season. This aggregate method of monitoring harvests is significantly less costly than monitoring the harvests and activities of each vessel (cooperative or processor) during a protracted season.

Some management measures in the current fishery are likely to be avoided. Tank inspections that are conducted at the beginning of each season are less critical in a rationalized fishery. In addition, the in-season monitoring of fleet harvests used to monitor harvest of the GHF will no longer be necessary. These avoided costs are likely to be quite small, particularly in comparison to the costs of monitoring and tracking harvests of each vessel. Cooperative management could reduce the number of allocations that require monitoring, however, monitoring these allocations is likely to be more costly than monitoring of aggregate harvests in the current fisheries. Although some elements of current management are likely to be unnecessary in a rationalized fishery, new management requirements are likely to result in an increase in the total cost of management under rationalization.

Changes in net benefits to the environment

Improvements in environmental conditions are valued by the public at large. For example, preservation of endangered species is often considered to have significant value to the public. Although crab populations could be of less concern to the public than highly visible species, such as bald eagles, it is likely that the public values preservation of these stocks, at minimum, as an important component and indicator of a healthy and intact BSAI marine ecosystem. The value of knowing that a stock is well maintained in its natural habitat is commonly referred to as a non-use value. No known studies of the non-use value of crab stocks have been conducted to date, preventing any quantitative estimates of the value of stock preservation. Yet, to the extent that the public values the existence of these stocks, any benefits to stocks through rationalization is likely to increase the net benefits to the Nation.⁷¹

Environmental benefits of rationalization could stem from both improved fishing practices and from improved management of stocks. Changes in the fisheries under rationalization and their effects on stocks, however, cannot be fully predicted. Increased soak times are anticipated in a rationalized fishery. These increases could lead to improved sorting of harvests by gear, reducing the amount and handling of discards in the fishery. A

⁷¹ A more complete discussion of the environmental implications of rationalization appears in Section 3.2. An extended treatment of potential non-use, and non-market, values accruing from improvements in management of BSAI marine habitat is contained in the Appendix III - Regulatory Impact Review, of the 2003 EFH EIS.

reduction of discards is likely to reduce mortality, to the benefit of stocks. If fishermen are able to fish with greater care in a rationalized fishery, they also may be able to reduce the number of pots that are lost on the grounds each year. Reducing the number of pots lost each year would help reduce crab mortality caused by “ghost fishing”⁷².

Additional benefits could also arise from other effects of rationalization. Improving the timing of deliveries to processors may reduce queuing times, which can be as high as 36 hours in some of the current fisheries. Reducing the amount of time crab spend in a vessel’s tanks should decrease the number of crab that die during the wait to offload. Since crab must be processed live, crab that die in the tank (deadloss) have no market value. If deadloss were to be decreased it would reduce the amount of crab harvested that is not utilized.⁷³

In a rationalized fishery, catch is likely to be managed more precisely than under the status quo . Under the status quo, harvests are monitored through voluntary in-season reports from participants. In the race for fish, these estimates can, for a variety of reasons, be imprecise, leading to harvests in excess of the GHL. For example, in the Bering Sea *C. opilio* fishery the harvest exceeded the GHL in every year from 1995 to 2000. In a rationalized fishery, with no permitted overages or underages and adequate monitoring provisions, overharvests could be minimized, because the catch of each vessel is strictly limited by share holdings.⁷⁴ Penalties will be instituted to ensure that the limits are not exceeded.

A competing effect could arise if harvesters perceive a benefit to high grading. High grading is likely to occur if the increase in revenues from discarding low value, barnacled, or brown shell crab and harvesting high value, clean shell crab, exceeds the increase in cost of making those discards and harvests. To the extent that efforts of the harvest sector to increase quality of catch increase discard mortality, these efforts could reduce the net benefits derived from the fishery in the long run, assuming discard mortality associated with high grading has any perceptible effect on stock abundance. If it does, harm to stocks from high grading could decrease future harvests and, thus, total revenues realized from the fishery. Issuance of fixed harvest allocations that extend several years into the future are argued, by some, to reduce the incentive for detrimental high grading, if fishermen perceive a future cost to high grading. This, in turn, will be influenced by their individual rate of time preference, as well as relative risk aversion.

The extent and effects of any high grading problem cannot presently be predicted. Both harvest strategy modifications and improved monitoring could be used to mitigate the effects of high grading.

Improvements in the precision of management of the crab fisheries should result in an increase in net benefits under rationalization. Although certain incentives in a rationalized fishery could result in environmentally harmful fishing practices, careful monitoring can be used to minimize harmful practices. With a well-tailored monitoring program, rationalization could lead to improved environmental conditions and an increase in the net benefits to the environment.

⁷² Ghost fishing is a term used to describe pots that are lost, but a still in a condition to continue catching crab or other fish. The crab become trapped in the pots and die, effectively rebaiting the trap. Depending on how long it takes for the twine on the escape mechanism in a pot to decompose, a lost pot may continue ghost fishing for several months.

⁷³ Reductions in deadloss would also increase the net benefits for harvesters, since deadloss will be counted against the IFQ holders allocation under the proposed program.

⁷⁴ Underharvesting,, which may occur in a rationalized fishery, can be limited by liberal share transfer rights.

Conclusion

The dominant change in the net benefits to the Nation attributable to adoption of a crab rationalization program for the BSAI will arise from improvements in production efficiencies of both the harvest and processing sectors. In a rationalized fishery, both sectors will have greater ability, and economic incentives, to focus input choices to minimize costs of production and to improve and increase product outputs. U.S. consumers should also benefit from rationalization, as producers are able to improve product quality and recovery rates. Although management costs may rise under rationalization, environmental and production benefits that arise out of improved management should fully offset those costs.

3.16.2 Distributional consequences of rationalization

This section begins with brief reviews of analyses of rationalization in the North Pacific. The section then examines the distributional consequences of rationalization, based in part on the reviewed analyses.

Reviews of Analyses

Matulich, Mittelhammer, and Reberte, "Toward a More Complete Model of Individual Transferable Fishing Quotas," *Journal of Environmental Economics and Management* (1996).

This article examines the potential for rent redistribution between the harvesting and processing sectors that may occur during rationalization of a fishery with a harvester only IFQ program. The analysis focuses on the transition from the pre-IFQ equilibrium,¹ to the IFQ equilibrium. The authors believe that examination of the transition from a race to fish, to a rationalized fishery is important because it is during the transition that most gains and losses will be realized. The analysis assumes fully competitive harvesting and processing sectors.² Both the harvesting and processing sectors are assumed to have excess capacity. Season elongation, often observed after rationalization of fishery, (and, in the case of BSAI crab fisheries, one of the most desirable and anticipated outcomes of rationalization) drives many of the results.

The IFQ fishery provides harvesters with a protected interest in quota, allowing them to determine the most efficient rate of harvest of their shares. The extended IFQ seasons allow more efficient harvesters to realize efficiencies by purchasing shares from less efficient harvesters. The exiting, less efficient harvesters are argued to be fully compensated when exiting by the voluntary sale of quota to the more efficient harvesters.

In the harvester only IFQ program, processors are allocated no specific processing privilege, and can only control inputs through changing the ex-vessel price they pay. Processors that desire to increase inputs of raw fish can do so only by increasing the ex-vessel price that they pay to harvesters. Processors that are less efficient are argued to be less able to pay for these inputs and will, ultimately, lose any price competition to more efficient processors. Processors in a harvester only IFQ program are argued to have no mechanism for compensation for any capital that is removed from the fishery. The authors find that, if processing capital is non malleable (or not useable for other purposes), quasi-rents³ will be transferred from the processing sector to the harvesting sector during the transition from an open access equilibrium to a harvester only IFQ equilibrium. The authors rely on the status quo equilibrium (or equilibrium in the race to fish) as the baseline for assessing the redistribution of quasi rents. In the model, a portion of the pre-IFQ processing quasi rents are capitalized into the harvesting quota share privileges. The transfer of rents is found to be a decreasing function of the malleability of processing capital. In the special case of perfectly malleable processing capital, no transfer of quasi-rents would occur. The authors come to no conclusion concerning whether processors remaining in the fishery in the long run will lose or gain quasi rents. Processors that survive in the long run will realize efficiency gains and market share, but could lose some ex-vessel price concessions, leaving their overall position indeterminate.

Matulich and Sever, "Reconsidering the Initial Allocation of ITQs," *Land Economics* (1999).

¹ Equilibrium refers to the time when forces in an economic system reach a balance such that there is no tendency for change. In a very general sense, the post-IFQ equilibrium would be reached when no harvesters or processors would have an incentive to remove or add vessels or processing lines from operation.

² A competitive market is one in which each participant individually has no influence on the price. If an individual attempts to influence the price by withholding outputs (or not purchasing inputs) another individual would be willing to undertake the transaction.

³ The authors define quasi rents as the difference between revenues and variable costs.

In this article the authors examine and compare the distribution of rents under a harvester only IFQ program and a, so called, two pie IFQ program. The authors contend that efficiency gains will occur under either allocation, but distribution of rents change depending on the program adopted and the market power (or distribution of bargaining strength) of the harvesting and processing sectors. The objective of the authors is to find an outcome that would not make any member of either sector worse off in the rationalized fishery than under the status quo derby fishery (which the authors' define as a "Pareto safe" allocation).

If both sectors are competitive, the authors assert that fishermen will form a bargaining cooperative that will extract all rents under either a harvester only IFQ or a two pie allocation. Similarly, it is asserted that in a bilateral monopoly,⁴ a harvester only IFQ would not be "Pareto safe", because harvesters would extract all rents through their bargaining association, coupled with the control over the resource granted by the IFQ allocation. The authors, however, assert that a two pie IFQ allocation, under bilateral monopoly, is Pareto safe (or equivalently would make no participant worse off). This outcome is derived from an assumption that the representatives of both sectors adopt bargaining positions that maximize joint profits and make no members worse off.

The cooperation of the harvesters in a bargaining unit seems to be critical to the conclusions reached. The bilateral monopoly is justified on the grounds that the harvesters will cooperate in a bargaining unit as is permitted by law. This cooperation benefits not only harvesters, by creating monopoly power, but also provides processors with price information (conveyed by the bargaining unit) that permits processors to act as a monopsony (without direct collaboration). Processors gain harvest information through negotiations with the harvesters, enabling processors to act in a manner that resembles cooperative action. The authors argue that the result of this bilateral monopoly, together with allocation of corresponding harvest and processing shares, is offsetting market power that results in no participant being made worse off.

The authors caution that transaction costs can inhibit efficiency. Specifically, they point out that thin harvesting or processing share markets (or markets with few participants or share holders) could reduce efficiency gains in both sectors. Limited numbers of participants would limit the ability of participants to purchase the number of shares necessary to operate efficiently. Vertical integration is argued to have the potential to contribute to these efficiency losses.

Matulich and Clark, "Efficiency and Equity Choices in Fishery Rationalization Policy Design," Regional Information Report for the State of Alaska Department of Fish and Game.

This article is an empirical study of the distributional impacts of the halibut and sablefish IFQ program on processors. The authors arithmetically estimate the quasi-rents of processors in the pre-IFQ and post-IFQ fisheries. The authors conclude that a significant number of processors suffered a loss of quasi rents in both fisheries. The authors caution that the findings do not show causality and, therefore, the loss of rents cannot be attributed to the IFQ program, but could have arisen from other influences. The authors also caution that the results are robust only to the extent that the collected data are representative of the industry as a whole. The authors collected data from processors of between one-half and two-thirds of the halibut and sablefish catch in the time periods examined. Applicability of this study to crab fisheries, however, might be questioned because of the differences in the market conduct of processors participating in the halibut and sablefish fisheries and the BSAI crab fisheries. For example, pricing practices and market opportunities available to processors and fishermen in these fisheries differ and could result in different impacts.

⁴ A bilateral monopoly occurs when the harvest sector has monopoly power and the processing sector has monopsony power. A monopoly occurs when a single seller of a product exists. This single seller can influence prices by withholding outputs. Similarly, a monopsony exists when a single buyer of a product exists. This buyer can influence price by refraining from purchases.

Halvorsen, Khalil, and Lawarrée, “Inshore Sector Catcher Vessel Cooperatives in the BSAI Pollock Fisheries,” Discussion Paper for the North Pacific Fishery Management Council.

This article examines the bargaining strength of the processing and harvesting sectors under the AFA, with and without cooperatives, to assess the distributional impacts of the change in management brought about by the AFA cooperatives.

The authors first examine the race for fish that would occur without cooperatives, and assert that processors have some important advantages. The authors assert that the high costs of entry to processing is an effective barrier to entry during the race for fish. Competition among processors is also argued to be limited, because short term gains from competition are thought to yield little in terms of long term profits. In addition, the authors assert that vertical integration of processors reduces their dependence on the harvest sector supply of inputs. Vertical integration also provides processors with better information concerning harvest sector costs, which can be used in price negotiations.

The authors go on to examine the fishery when managed with cooperatives, ending the race to fish. They assert that the change in allocation percentages to each sector under the AFA is likely to benefit independent catcher vessels, but that one cannot conclude that the overall effect will be positive. Under cooperatives, the authors assert that longer seasons will increase effective processing capacity, creating opportunity for greater competition in the processing sector. Vertical integration is thought to continue to dampen this tendency toward greater competition. Several factors are asserted to contribute to the potential for negative effects on the independent catcher vessels, including concentration in the processing sector, which would limit competition; the amount and importance of vertical integration, which also would limit competition and provide information to processors; the amount of excess harvest capacity, which would increase harvest sector competition; and the difficulty in entering long term price contracts, which would reduce price certainty. The authors also examined the AFA transfer limit rule, under which a cooperative can deliver up to 10 percent of its harvests to processors with which it is not affiliated. Processors would be expected to pay more for these incremental supplies of fish, but the extent to which processors would compete aggressively for these fish could not be determined. The authors, however, assert that independent harvest vessels could realize significant benefits from increasing the transfer limit above 10 percent, if processors compete aggressively for the transferable portion of the allocation.

Milon, Walter and Steve Hamilton, “A Comparative Analysis of Alternative Rationalization Models for the Bering Sea/Aleutian Islands Crab Fisheries,” Discussion Paper for the North Pacific Fishery Management Council.

This article examines harvester only IFQ, two pie IFQ, and cooperative regulatory structures for BSAI crab fisheries. The authors assume that the harvesting sector is competitive and that the processing sector is an oligopsony.⁵ Using a game theoretic framework, the authors assert that a harvester only IFQ would realize any possible efficiency gains and would leave both harvesters and processors better off. In the harvest sector, the allocation of quota shares provides harvesters with a windfall allocation of the resource. Harvesters can realize efficiencies by slowing harvest rates and removing excess harvest capital from the fishery. The authors find that no change in the ex vessel prices would occur. In the short run, the authors find that there could be some excess processing capacity. The potential for processors to reduce costs by improved scheduling of deliveries and reduced storage costs, and the absence of a change in ex vessel prices, result in processors being better off. In the long run, processors are asserted to realize additional benefits through plant resizing and technology improvements. The authors assume that entry for processors is limited by the cost of entry.

⁵ An oligopsony is characterized by the presence in the market of a limited number of buyers of a product. These buyers can influence ex vessel prices by refraining from purchases.

The authors also examine regionalization alternatives. They assert that any regionalization program will segment the market for harvesters' deliveries, limiting their negotiating power with processors. The regionalization of delivery requirements creates an incentive for processors to consolidate shares in a region to maximize bargaining strength in a segmented portion of the market.

The authors also assert that a two pie allocation would limit competition in the processing sector, providing each processor with a guaranteed supply of inputs. Processing shares together with a regionalization program could allow processors to capture efficiency gains realized by the harvesting sector, since harvesters would be required to deliver harvests to processors holding processing shares.

The article also examines the two different cooperative alternatives. The authors state that, generally, cooperatives could limit efficiency gains in the harvesting sector, if they have the effect of protecting less efficient vessels of its members. The authors specifically conclude that a voluntary cooperative within in a two pie IFQ framework could increase the market power of harvesters by providing a mechanism for collective action. In the other cooperative framework (cooperatives that are each linked to a single processor) the impact on harvesters would depend on the delivery commitment of the cooperative. Under this cooperative framework, the link to a single processor could allow rents to be captured by processors if harvest vessels have limited ability to deliver harvests to other processors.

Summary of literature on distributional effects

The opinions presented in these analyses differ greatly from one another. There are a few general conclusions, however, that could be drawn from these analyses. At present, the time constraint on offloading harvests, after the derby fishery, reduces competition among processors. Under a harvester only IFQ, it is likely that the processing side of this industry would be a more competitive environment. Under that regulatory framework, harvesters would receive a fixed allocation, while processors could primarily influence their market shares through ex vessel pricing strategies.

Season elongation under rationalization could complicate processing sector activities. Timing is important for processors, who require lines to be serviceable and crews to be on hand and available for processing of crab. Within limits, processor shares would enable processors to affect the timing of deliveries. In this way, they could contribute to the realization of efficiencies in that sector.

In a two pie IFQ framework (relative to a harvester only IFQ program), market power will shift from the harvest sector to the processing sector as the share of the fishery allocated as processing shares increases. If class A and class B harvesting shares are issued, two prices for crab in the market will likely emerge. A lower price will be paid for crab harvested with class A shares, which must be delivered to a processor holding IPQs. Crab harvested with class B shares, which can be delivered to any processor, will likely face increased competition from processors and bring a greater price. Alternatively, harvesters may bundle class A and class B crab in single transactions, which will receive an overall price that is higher than the price for crab harvested with class A shares and lower than the price for crab harvested with class B shares. These price differences are also likely to be reflected in the prices of quota shares and IFQs. Class B shares are likely to sell for more than class A shares, because of the greater competition and higher price paid for crab harvested with class B shares.

Harvest allocations to vertically integrated processors would improve their position, relative to processors that are not vertically integrated (particularly in a harvester only IFQ program). These processors will have both better information concerning harvest sector costs and at least some amount of guaranteed deliveries. In addition, processor holdings of harvest shares (particularly class B open delivery shares) would increase the market power of that sector.

For both sectors, the availability of other opportunities (malleability of capital and labor) will have a considerable effect on any transitional impacts. The more access to other opportunities in a sector, the less likely that sector is to suffer from losses resulting from removal of excess capital. For example, if a harvest vessel or a processing facility could be put to use in another fishery, transferring the vessel or facility to that use will mitigate (in whole or in part) loss from not using that capital in the crab fisheries. The distribution of these impacts is likely to differ among participants within each sector. The issuance of processor shares is likely to have a significant effect on the relative market power of the harvesting and processing sectors. To the extent that the allocation of processing shares is intended only to address potential losses to processors caused by non-malleable capital, the Council could consider phasing out any allocation of processing shares over a period of years. In the long run, the distribution of rents is likely to be less dependent on the capitalization of a sector and more dependent on balance of market power determined, substantially, by the portion of the fishery allocated as class B open delivery shares and the extent of vertical integration.

The change in incentive structure, together with the rules governing the initial allocation, will determine the distribution of rents of each sector among its participants. The allocation rules under consideration by the Council reward those participants that have had the greatest activity in the current competitive fishery. Recipients of large allocations are the relative winners in their sectors in a rationalization program. Other participants, however, can realize gains through other means. Under rationalization, participants able to minimize costs of production are likely to be the most active participants in the fishery. As activity consolidates, these more efficient entities will accumulate shares to the extent that they can do so without sacrificing efficiency (and subject to rules limiting consolidation). In the harvest sector, consolidation will likely occur through the transfer of shares. In the processing sector, consolidation will occur through price competition for unallocated processing and share transfers for allocated processing, depending on the extent of any share issuance in that sector. The extent of consolidation in both sectors could be diminished if shareholders speculate that share prices do not reflect of future market values. This speculation would also reduce the extent of any efficiency gains realized in a rationalized fishery. The large fluctuations historically observed in these crab stocks could impact the level of speculation, by increasing the risk premium necessarily associated with speculative futures investment.

Regionalization is likely to limit competition in the processing sector. Regionalization will reduce the size of the market to which a harvester can deliver crab harvested with shares that are subject to the regional designation. Regionalization, however, could serve other important objectives that justify the imposition on the free market caused by the program. Concerns about competition could also be addressed through applying ownership and use caps on a regional basis. In regions with small allocations, ownership and use caps could reduce efficiency in the processing sector. The use of ownership caps to facilitate competition must be balanced against the possible efficiency losses in choosing the appropriate level for ownership and use caps.

The ability of the harvest sector to act cooperatively has likely influenced the balance of market power in current fisheries, particularly the Bristol Bay red king crab and the Bering Sea *C. opilio* fisheries. Through the Alaska Marketing Association (AMA), a large portion of the harvest sector has collectively negotiated ex- vessel prices with processors in recent years. The market power of the harvest sector has been limited to some degree, since catcher/processors have not observed strikes by harvesters. If harvesters can use the AMA, or a similar organization, to negotiate prices, they could increase their market power in a rationalized fishery. Longer seasons, however, could make the AMA (or similar collective negotiators) less effective in price negotiations. In the short derby fishery, all fishermen and processors are active at the same time, simplifying cooperative activity by the harvest sector. In fisheries with longer seasons, such as the Aleutian Islands golden king crab, the AMA has had little or no role in pricing, and attempts by harvesters to organize have had limited success. Longer seasons, expected in a rationalized fishery, could make the coordination necessary for cooperative activity of harvesters more difficult to achieve. Preseason negotiations (or a binding arbitration agreement) could be effective in setting a starting price in the fishery. Inseason price changes,

however, could be justified because of changes in product markets. If a substantial portion of the harvest has been made, the ability of the AMA (or a similar negotiator) to exert pressure on processors could be limited. A binding arbitration agreement could be more effective for this purpose, but such a provision would need to be carefully crafted to ensure its effectiveness.⁶ Binding arbitration (and collective action on the part of harvesters) might be less important in a harvester only IFQ program, since processors would find it necessary to compete for deliveries.

Quality distinctions could also become more important in determining ex-vessel prices in a rationalized fishery. These distinctions could be viewed by some as subjective, further complicating price negotiations. In addition, a binding arbitration agreement might not be useful for addressing quality disputes, which could arise with little forewarning. Although binding arbitration could be used to balance market power between the harvest and processing sectors in a rationalized fishery, these complications, together with those discussed in the section on binding arbitration, increase the importance of other program elements (such as open delivery shares, share caps, and limits on vertical integration) in achieving a reasonable balance of market power.

Skippers and crews will also be affected by rationalization. A decrease in the number of vessels in the fleet will decrease the number of skippers and crew. This change, as well as the general slowing of the fishery, could affect the bargaining power of skippers and crew, relative to vessel owners. The extent of this effect could be influenced by the choice of measures to protect skipper and crew interests. The novelty of rationalization, the dearth of cost information, and the breadth of measures to protect skippers and crews make specific predictions of the distributional impacts of rationalization on skippers and crews very difficult to predict.

Some communities could also be affected by rationalization. In the current derby fishery, processing activity is likely to be located to facilitate success in the race to fish. In a slower, rationalized fishery, processing activity could relocate to different communities to realize cost efficiencies. Communities that increase processing under rationalization will benefit from the program. Communities that lose processing activity would realize less benefits in a rationalized fishery. The regionalization alternatives are intended to prevent some of the redistribution of processing activity, as a means to protect communities that have benefitted from and come to depend upon the distribution of processing in the current race to fish. The extent of the impacts of rationalization on communities depends on whether these regionalization alternatives are adopted and whether they succeed in achieving their goals.

3.16.3 Entry to the fishery

Entry into the crab fisheries is costly in any instance. Under current LLP management, entry into the fishery requires the purchase of an LLP permit and a vessel from which to fish. Permit prices are not publicly available, and vary in cost depending on the endorsements attached to the license. Anecdotal reports, however, suggest that permit prices vary substantially, primarily because of the variation in catch history on the vessel that created the LLP qualification. Most participants anticipate that the value of an LLP license is primarily determined by the accompanying catch history. In addition, vessels are expensive, typically costing in excess of \$1 million. Entry into the Aleutian Islands golden king crab fishery is even more expensive, as vessels require additional specialized gear,⁷ unique to those fisheries. Estimates of the cost of vessel modifications and gear for this fishery are approximately \$500,000 to \$750,000.

⁶ Binding arbitration is discussed more fully in Section 3.7.

⁷ This is primarily gear that is specific to longlining pots. Pots are set and retrieved individually in other crab fisheries.

In the past, entry into the fishery has occurred in a few different ways. Crewmembers have worked their way up, to become skippers, and used the substantial crew shares these fisheries are known for, to purchase interests in vessels. Alternatively, persons have entered the fishery as an investment. These persons typically use capital from other sources to purchase vessel interests in the fishery. The substantial cost to enter the BSAI crab fisheries has limited the ownership interests of fishermen actively participating in the fishery.

Entry into a rationalized fishery is difficult to predict. Entry, however, could occur through the purchase of quota shares, without ownership of a vessel. IFQs could then be fished from a vessel on which the quota share owner crews, or by leasing the IFQs to a vessel owner. This would allow for gradual entry into the fishery by both crews and investors. The cost of entry is determined, in part, by quota share prices, which will depend on the rationalization alternative adopted, and could vary substantially among the different program alternatives. Entry into the fishery could be facilitated by alternatives that are intended to protect skipper and crew interests. Programs that set aside shares for skippers and crew, specifically the initial allocation of crew shares, creation of a crew first right of refusal, and owner on board requirements all have the potential to facilitate entry into the fishery, by reducing the costs of share purchases. Shares subject to any of these provisions are likely to sell at a discounted price, as compared to unrestricted shares available to anyone. This should further facilitate entry into the fishery by skippers and crew.

The low interest loan program proposed to aid crew in the purchase of shares is also likely to facilitate entry to the fishery and could alleviate financing difficulties. The willingness of private markets to finance share purchases could be limited, since volatility of crab stocks could make shares a risky asset.

Under any of these programs, entry requires that shares be placed for sale in the market. The development of the market for shares cannot be fully predicted. Participants in the current fishery believe that rationalization will create an opportunity for the removal of substantial capital from the fishery. If an effective buyback program precedes the implementation of rationalization, fewer transfers might occur in the first few years of the program. In addition, concentration of ownership (the extent of which is not known, because ownership data are unavailable) could reduce the need for share transfers for the removal of capital from the fisheries. In the long run, however, a market is likely to develop that will facilitate regular entry to and exit from the fishery under any of these programs. The extent to which that entry is perpetuated depends on the requirements for holding and using crew shares, such as requirements that share holders be on board the vessel fishing the shares. More stringent requirements are likely to increase entry by limiting the potential for inactive fishermen to retain shares and by reducing the value of quota shares in the market.

Entry into the fishery, in the absence of the development of an exclusive crew QS, is difficult to predict. Anecdotal evidence from other rationalized fisheries suggest that crew income as a share of the boat's earnings declined after rationalization. These declines might be expected, since the removal of vessels from the fishery is expected to be accompanied by a decrease in the total number of crew employed in the fisheries. In addition, removing the race for fish is likely to reduce individual vessel crew size, as participants will be able to fish at a slower pace. Decreased demand for crew and set quota levels could result in decreased incomes to those employed as crew members in these fisheries. Declining incomes would limit the resources available to crew members to purchase interests in the fisheries, making entry more difficult. Entry under the voluntary cooperative program is likely to be similar to that under a program of harvest quotas. Cooperative relationships among participants, however, could make entry more difficult if markets for the trading of shares are less well developed.

Entry to the processing sector could also be affected by the choice of rationalization programs. The ability of processors to enter the fishery will be determined by the ex-vessel price of crab and the market price of processing shares, if a program is chosen that allocates processing shares. A harvester only IFQ program would allow free entry of processors, willing to pay the market price for crab under that program. Under a

two-pie IFQ program, if the entire fishery is allocated through processing shares, processor entry would require the purchase of processing shares. Processing shares in this program would create a regulatory barrier to entry. The extent of the barrier would depend on the market price of processing shares, which cannot be predicted. The relatively small number of processors in the crab fisheries could lead to a limited market for processing shares, which would complicate entry to the processing sector. Crab, in a fishery with fully allocated processing privileges, however, would command a lower ex-vessel price.

If a portion of the harvest quota is designated as open delivery, new processors could enter the industry either by purchasing crab from that open delivery portion of the market, or by purchasing processing shares and crab harvested with Class A shares, designated for delivery to holders of processing shares. The unallocated processing would ensure an opportunity for entry of processors, regardless of the market for processing shares. Crab harvested with open delivery shares, however, is likely to sell for a higher price than crab harvested with shares that require delivery to a processor holding processing quota. Because of these two competing effects, processors might choose to enter with or without purchasing processing shares, depending on their business objectives. A system that does not allocate the entire fishery in processing shares would simplify short term entry by processors that wish to experiment in crab markets, without taking the risk of purchasing a processing share that is a longer term asset. Leasing of processing shares could facilitate short term entry, however, the development of that market could be hampered if processing share holders choose not to lease shares in an attempt to protect long term interests in the fishery. By leaving a portion of the fishery unallocated to processors (i.e., making a portion of the harvest allocation open delivery), entry opportunities in that sector are likely to be enhanced.⁸ To determine the appropriate level of unallocated processing shares, requires balancing the interest in facilitating entry against the interest in protecting existing processors from the consequences of changing to a rationalized fishery.

3.16.4 Effects of rationalization on different vessel classes

Under the current LLP management, license endorsements are distinguished by vessel length. Currently, between approximately two-thirds and three-fourths of the licenses with endorsements for the BSAI crab fisheries under consideration for rationalization are for vessels between 60 feet and 125 feet in length. The remainder are primarily for vessels that are in excess of 125 feet in length, although a few licenses are for vessels of less than 60 feet.⁹

The differences in the effects of rationalization on vessels of different lengths is very difficult to predict. To estimate the differential impacts of rationalization on different vessel classes would require detailed information concerning the cost structures and operational strategies of different vessel sizes. A few general comments can be made concerning some changes that might be expected in the transition to a rationalized fishery. Rationalization will change the profitability of different fishing practices. In regulated open access fisheries, harvest rates are critical, with those able to harvest fish the fastest receiving the greatest revenues. To the extent that vessel capacity constraints have slowed harvest rates, small vessels could be disadvantaged in a race for fish fishery. Similarly, since maintaining a high harvest rate is critical to success in the race for fish, vessels that are less able to fish in rough weather could be at a disadvantage. In a rationalized fishery, minimizing harvest costs for fixed allocations will be more important to a fisherman's profits than maintaining a high harvest rate. Vessels that are able to reduce harvest costs will be the most successful in a rationalized fishery. Fishermen are likely to consolidate harvest shares for use on these vessels, to realize

⁸ Note that entry to the harvest sector cannot be accomplished through leaving a portion of that sector unallocated since that would lead to a race for fish in the unallocated portion of the fishery. Instead, the harvest sector must rely on other means, such as crew shares and loan programs, to enhance entry opportunities.

⁹ A table showing the number of LLP licenses by vessel length appears in Section 2.2.

the efficiency gains permitted by rationalization. Unfortunately, these efficient vessels cannot be identified at present, because of the lack of available cost data and the vessels' historic participation in only status quo managed crab fisheries. If vessel length is important to the efficiency of harvests, the class of vessels that is most efficient should be most active, with less efficient vessels being removed from the fishery.

3.17 Data collection program

In June 2001, the Council expressed its interest in receiving input regarding ways to objectively measure the success of the crab rationalization program, and asked the Scientific and Statistical Committee (SSC) to identify objective measures. In October, the SSC presented a tentative list of such measures, identified the types of data that would need to be collected to construct those measures, stated the need to have mandatory reporting requirements, and briefly addressed the current data collection programs.

In February 2002, the SSC restated the need for mandatory data reporting as follows:

A critical part of the Council's ability to understand the social and economic consequences of implementation of rationalization measures is mandatory reporting of socioeconomic data. For example, harvest and production costs, expenditure patterns, vessel ownership data including identifiers (name and address files), employment, and earnings data are absolutely necessary to determine the magnitude and distribution of net benefits that arise from the granting of an entitlement to a public resource. If these data had been required as a component of the plan amendments authorizing IFQs in the halibut/sablefish fisheries and co-operatives in the pollock fishery, analysts would be in a much better position to identify the likely economic consequences of the rationalization alternatives currently under consideration for the crab fishery. The SSC recommends that provision of the data listed above be made mandatory. This action is necessary to fulfill the Council's stated desire to have the economic performance of the rationalized crab fishery evaluated.

The draft report prepared by the Inter-Agency Economic Data Collection Workgroup includes a detailed discussion of the need for mandatory data collection programs. That report was presented to the Council in February 2002, and appears as section 1 in Appendix 3-6. A discussion paper that identifies objective measures that can be used to monitor the success of the crab rationalization program, identifies the data required to support those objective measures, and briefly discuss several issues associated with implementing mandatory reporting requirements for these data was prepared for the Council in March. The information prepared by the SSC in October 2001, and additional information provided by SSC economists in March 2002, are used extensively in the discussion paper. The discussion paper was revised in August to focus on the objective measures and the data needed to use them. The revised discussion paper appears as section 2 in Appendix 3-6. The part of the initial discussion paper that addressed several issues associated with implementing mandatory reporting requirements is in section 3 of Appendix 3-6.

The types of measures identified in the discussion paper are intended to allow the Council to monitor the success of the crab rationalization program in terms of addressing the five problems currently facing the fishery. Those problems are identified in the BSAI crab rationalization problem statement, as amended by the Council in June 2002. Those five problems and the summary of the problems facing the Council are as follows:

Problems facing the fishery include:

- i. Resource conservation, utilization and management problems;
- ii. Bycatch and its associated mortalities, and potential landing deadloss;

- iii. Excess harvesting and processing capacity, as well as low economic returns;
- iv. Lack of economic stability for harvesters, processors, and coastal communities; and
- v. High levels of occupational loss of life and injury.

The problem facing the Council, in the continuing process of comprehensive rationalization, is to develop a management program which slows the race for fish, reduces bycatch and its associated mortalities, provides for conservation to increase the efficacy of crab rebuilding strategies, addresses the social and economic concerns of communities, maintains healthy harvesting and processing sectors and promotes efficiency and safety in the harvesting sector. Any such system should seek to achieve equity between the harvesting and processing sectors, including healthy, stable, and competitive markets.

Between the April and June 2002 Council meetings, informal discussions were held with members of the agencies involved in crab management and the fishing industry regarding the collection of economic data. While these meetings did not define a complete program to collect economic data for the BSAI crab fisheries, they did provide insights into the types of data that would be required and some of the concerns members of industry have with providing the data. These issues are discussed in more detail in section 4 of Appendix 3-6.

The following Council motion, made in June 2002, is a response to the SSC's recommendation, the information in the draft report and discussion paper, and comments from the fishing industry and other participants in the Council process.

14. The North Pacific Fishery Management Council and the National Marine Fisheries Service shall have the authority to implement a mandatory data collection program of cost, revenue, ownership and employment data upon members of the BSAI crab fishing industry harvesting or processing fish under the Council's authority. Data collected under this authority will be maintained in a confidential manner and may not be released to any party other than staffs of federal and state agencies directly involved in the management of the fisheries under the Council's authority and their contractors.

A mandatory data collection program shall be developed and implemented as part of the crab rationalization program and continued through the life of the program. Cost, revenue, ownership and employment data will be collected on a periodic basis (based on scientific requirements) to provide the information necessary to study the impacts of the crab rationalization program as well as collecting data that could be used to analyze the economic and social impacts of future FMP amendments on industry, regions, and localities. This data collection effort is also required to fulfill the Council problem statement requiring a crab rationalization program that would achieve "equity between the harvesting and processing sectors" and to monitor the "...economic stability for harvesters, processors and coastal communities". Both statutory and regulatory language shall be developed to ensure the confidentiality of these data.

Any mandatory data collection program shall include: A comprehensive discussion of the enforcement of such a program, including enforcement actions that would be taken if inaccuracies in the data are found. The intent of this action would be to ensure that accurate data are collected without being overly burdensome on industry for unintended errors.

3.17.1 Data collection developments since the June Council meeting

Before the June Council meeting, the Council appointed a workgroup comprised of members of the crab harvesting and processing sectors to develop a proposal for collecting economic data. That workgroup has met five times with agency staff present and at least three times on their own since the June Council meeting and a sixth joint meeting is scheduled before the December Council meeting. The workgroup focused on what data should be collected, how it should be collected, the rules regarding access the data, and how the data will be used after it is collected. Minutes from each of the meetings where agency staff was present are attached as Section 5 of Appendix 3-6.

The purpose of forming the crab data collection committee was to bring together representatives from industry and the state and federal agencies to develop the structure of a mandatory data collection program. Given that existing data collection mechanisms compile very limited economic data, an expanded data collection program will provide the additional data required to analyze the effects of any crab rationalization program that is implemented and of future FMP amendments. The benefit of a collaborative approach between industry and agency staff is that it allows the committee to exploit the specific areas of expertise possessed by both groups.

The analysts are well aware of the measures that are best suited to address the questions posed by the Council and the data required to support such measures. The industry is best informed about the way in which records are typically kept, the frequency with which they are recorded, the difficulty involved in providing these records, and the likelihood of inaccuracies and reporting errors associated with certain types of information. Input by both parties is essential to developing a successful data collection program. For example, the data that economists perceive as the most desirable for constructing accurate and robust measures may be too burdensome for industry to provide. Similarly, the data that industry finds most convenient to provide may not allow the analysts to address the questions posed by the Council, or do so with a sufficient degree of confidence. Therefore, a mutual concerted effort should result in an ability to construct the most sound and informative measures at the least cost and inconvenience to fishery participants.

Before the initial committee meeting, representatives from the state and federal agencies met to discuss the Council's problem statement, objective measures to assess the effects of rationalization on those problems, and the data required to construct the measures. In drafting the specific data elements that would be needed, the agency participants began by first examining two "worksheets" developed by crab processing and harvesting industry members, respectively. These forms were thought to reflect the data that industry would prefer to have collected.¹⁰ Because the data offered in the worksheets was significantly less detailed than that necessary to address many of the Council's questions, state and federal analysts expanded the industry surveys to facilitate construction of the objective measures. The level of detail requested in the initial agency draft surveys would allow analysts to 1) summarize any changes in revenues and costs that occurred after rationalization; 2) explain the sources and causes of changes in revenues and costs, and separate the effects of rationalization from other sources (such as market or stock effects); and 3) predict how changes in regulations or market factors may affect the revenues, costs, and harvesting/processing decisions of industry participants.

This initial agency draft survey was presented to industry representatives at the first joint meeting of the crab data collection workgroup and agency staff¹¹. Agency representatives asked for feedback regarding data

¹⁰ The processor worksheet was part of a document prepared by Moss-Adams for the Council. The harvesting vessel worksheet was of a similar format, though less detailed.

¹¹See section 6 of Appendix 3-6 for the most recent versions of those surveys.

requests that were 1) too burdensome; 2) asked for at a frequency that differed from the way in which records are typically kept; 3) phrased unclearly; or 4) based upon costs that would be difficult to allocate solely to BSAI crab operations, or to the particular vessel or plant. Issues were identified by industry in all four categories, and all suggestions were noted and incorporated into the surveys. The March 2002 discussion paper was also distributed at the meeting. The focus of the paper was the objective measures that would likely need to be constructed to address the Council's stated issues of concern and the basic data requirements for doing so. An additional aim of the paper was to explain why the data elements included in the initial draft survey were being requested.

At the second joint meeting, the revised agency draft surveys were presented and discussed, and additional industry feedback was requested. Industry provided verbal suggestions on ways to improve the surveys and gave handouts detailing how their records are often kept.¹² Industry also requested more detail regarding how each requested data element would be used, and the specific measure that would be constructed. In preparation for the following meeting, all specific suggestions from the last meeting were incorporated, the changes were noted, and an additional discussion paper was prepared. The goal of this paper was to present each objective measure that could be constructed to address the Council's problem statement (and their five issues of greatest concern), and the specific data required for each. An appendix that attempted to explain the role of statistical inference, biases and problems that arise when aggregating over vessels or plants, and the need for a sufficient number of observations in economic models, was also included.

This document and the newly revised agency draft surveys were discussed in detail at the third joint meeting. All specific industry suggestions regarding the surveys were itemized for inclusion in the revised surveys.¹³ The remaining industry concerns that were voiced in the meeting essentially revolved around collecting data on four firm-level "fixed cost" elements that industry felt would be difficult to allocate or prorate to a single vessel or plant. In addition, harvesting vessel representatives posed an objection to requests for trip-level detail on landings, crew payments, pot losses, and average soak time. On this issue the agency staff requested additional time to consider the effects of dropping the items, and later agreed to do so. At the end of this meeting, it was suggested that industry get together in the absence of agency in order to discuss their specific concerns and desires regarding the data collection program.

After the first industry-only meeting, industry representatives distributed documents outlining the results of the meeting. The documents contained each industry group's¹⁴ proposal for the specific data that should be collected. Their proposals varied in the level of detail they indicated they would like to provide, but were much less detailed than the existing draft surveys.

The industry proposals were discussed at the fourth joint meeting. At that point in time, members of industry in general agreed to provide additional information on employment, revenue, variable costs and ownership¹⁵.

¹² Suggestions were also received via e-mail after the meeting. These suggestions were incorporated into the current draft surveys.

¹³ It is worth noting that up to this point in time, nearly every specific industry suggestion or request had been accommodated by agency personnel. This includes both altering the survey instruments and creating papers and documents to explain the role and needs of each type of data requested.

¹⁴ Three proposals were submitted at that meeting. One came from the processor sector. Two other proposals were provided by members of the catcher vessel sector. The catcher/processor sector provided oral comments on their position at the meeting, and those ideas are reflected in the minutes from that meeting. The three written comments are appended to the minutes.

¹⁵ See the position papers attached to the September 5 minutes of the workgroup (in section 5 of Appendix 3-6).

That information can be used by analysts to provide information for some of the Council's areas of interest. The information on costs that industry proposed to provide basically covered variable costs. These estimates of total expenditures can be used in conjunction with revenue data to monitor the quasi-rents generated in BSAI crab fisheries only, but do not allow one to discern whether cost changes are due to changes in the quantities of inputs used (due to, say, increased efficiency/productivity) or changes in input prices. Information on the input quantities used (or their prices) must also be provided with the cost data if analysts are to understand the reason for the cost change. Furthermore, the data proposed by industry at that time did not provide analysts with the information necessary to estimate profits or conduct community impact analyses.

In sum, the level of detail proposed by the industry prior to the October Council meeting would have allowed analysts to calculate a portion of the objective measures identified in the discussion papers mentioned earlier in this document, and to compare those measures in the pre- and post-rationalization periods. However, analysts would generally be unable to determine why costs have changed and if such changes were principally the result of the crab rationalization program. These limitations also make it unlikely that analysts would be able to make predictions regarding the effects of the program or effects of changes in the program design. Some fixed cost information will also be required to understand changes in variable costs (fixed costs related to capital equipment and salaried employees) or conduct community impact analyses. See Section 7 of Appendix 3-6 for a detailed list of objective measures of the effects of the crab rationalization program and the analysts' ability to construct those measures given the September proposals.

At the fifth joint meeting, the workgroup reviewed a staff paper describing the actions taken by the Council at their October meeting and focused on issues identified in the Council's October motion. The issues are: 1) the need and usefulness of fixed cost data; 2) the need and best way to collect information on location of purchases; 3) the usefulness of a third party data collection system and how it would function; 4) the costs of the program; 4) the need for arms length transaction data on prices; 5) the need for additional community data; 6) crew day estimates; 7) data verification and enforcement; and 8) providing additional protection for confidential data.

The sixth joint meeting of the workgroup was held in November. Committee members were provide a draft of the document that was being prepared for the December Council meeting. However, since they received the document just prior to the meeting they were unable to comment on its contents. The workgroup also received presentations from staff of the PSMFC, NOAA GC, and NMFS Enforcement. A major issue at this meeting was the aggregation of data before it is released to the analysts. This issue was not resolved and will be discussed at future meetings.

The seventh and final meeting was held on January 14, 2003. During that meeting members of the Workgroup finalized their positions on various issues. A position paper which defines the Workgroup's position on various data collection issues will be developed and presented to the Council in February. Consensus was not reached on all issues.

3.17.2 Analysis of the Council's October motion

Given concerns over the depth of analyses that could be performed with the data collection elements proposed by industry, prior to the October Council meeting, the Council identified three alternatives that would provide more complete information for analyzing the effects of rationalization and future FMP amendments. Each alternative essentially involves collecting varying degrees of the elements contained in the surveys developed by staff members at the Alaska Fisheries Science Center, other agencies staff, and the data collection workgroup appointed by the Council. Specifically, each alternative proposes mandatory collection of the variable cost data included in the surveys, but differs in the amount of fixed cost data that would be provided.

Each alternative also contains two sub-options that represent different methods of collecting disaggregated data on the location of various expenditures (which could be used to assess community impacts associated with rationalization and future FMP amendments). Both the alternatives and sub-options were developed to provide a broad range of options for the Council to consider in December. The language of the alternatives refer to the draft surveys dated 9/18/2001 in the Council's October notebook. The alternatives and sub-options, as included in the Council's motion, are presented below:

Alternative 1. Complete the analysis **with** the section on fixed costs (e.g., section 6.2 in the cost data surveys).

Alternative 2. Complete the analysis **without** the section on fixed costs (e.g., section 6.2 in the cost data surveys).

Alternative 3. Complete the analysis with a **subset** of the fixed cost data in section 6.2 in the cost data surveys.

Each alternative included the following two sub-options:

Sub-option 1. Utilize disaggregated expenditure and purchase data to measure impacts to communities acquired by mandatory data collection

Sub-option 2. Utilize disaggregated expenditure and purchase data to measure impacts to communities that are provided through a program analogous to the UAF-ADFG on-going opilio impact study.

Alternatives 1 through 3 will be addressed first in this discussion. The sub-options will be addressed later in the document. The paper is structured this way because the three primary alternatives focus on issues related to the collection of fixed cost data, while the sub-option address methods that could be used to collect data on the location of expenditures for use in community impact analyses.

The Council motion indicated that they preferred to focus on costs related to a firm's crab production. Given that understanding, the focus of this analysis will be on data elements related to the BSAI crab fisheries. However, the Council also indicated that they may consider expanding the scope of the program if it were needed to explain impacts of crab rationalization. It should be emphasized that the current alternatives (and draft surveys) do not elicit cost information for non-crab activities and therefore, would not allow analysts to evaluate the overall effect of crab rationalization on a firm's economic performance (i.e., quasi-rents and other measures of interest) if they participate in fisheries other than BSAI crab. Objective measures could simply be computed for the BSAI crab component of a firm's overall operation, and not for the firm as a whole. This means that the Council would continue to have a limited ability to monitor the overall economic performance of those participants in the BSAI crab fisheries that engage in other fisheries.

Therefore, if the Council wishes to facilitate a broader analysis, it will need to specify an alternative in which the variable cost data to be collected would be expanded to include non-crab activities. The fixed costs elements to be collected would be the same as those being considered in Alternatives 1 through 3, and would no longer need to be prorated between crab and non-crab activities.

Before discussing each alternative and the various fixed costs that would be collected within it, we will present a summary of the fixed cost variables contained in the draft surveys. Table 3.17.1 lists the categories of fixed cost variables under consideration and indicates the general type(s) of analysis for which each category of fixed costs is useful or necessary.

Alternative 1

Alternative 1 would mandate the collection of all the fixed costs listed in the 9/18/2002 surveys associated with the crab portion of a firm's operation. These categories are presented in Table 3.17.2 for each of the four sectors. The table reports a "YES" if the sector is asked to report the fixed cost, a "VC" if the cost is already included in the variable cost section of the survey¹⁶, an "N/A" if the cost is not relevant to that sector, and a "NO" if the information is not going to be collected. A similar table will be presented for alternative 3 (the "some fixed costs" alternative).

¹⁶The classification of insurance costs (fixed vs. variable) differs between vessels and plants because industry representatives indicated that vessel insurance costs can be quite variable depending on activity levels, while plant insurance costs are not as dependent on activity levels.

Table 3.17-1 Fixed cost data and its role in analyses

Fixed Cost Category	Types of Analysis for Which Data is Useful		
	Quasi-Rents	Community Impact Analyses	Assess Changes in Economic Health/ Profits
Insurance	No	Can be ¹⁷	Yes
Property Taxes	No	Yes	Yes
Principal Payments	No	Can be	Yes
Interest Payments	No	Can be	Yes
Capital Improvements	Yes	Can be	Yes
Repair and Maintenance	Yes	Can be	Yes
Salaries for Foremen, Managers, and Other Plant or Vessel Level Employees	Yes	Yes	Yes
Other Plant/Vessel Specific Costs	Can be	Can be	Can be

Table 3.17-2 Fixed data to be collected under Alternative 1.

Fixed Cost Category	Sectors for which Surveys are Being Developed			
	Processors	Catcher Vessels	Catcher/ Processors	Floating Processors
Insurance	Yes	VC	VC	VC
Property Taxes	Yes	N/A	N/A	N/A
Principal Payments	Yes	Yes	Yes	Yes
Interest Payments	Yes	Yes	Yes	Yes
Capital Improvements	Yes	Yes	Yes	Yes
Repair and Maintenance	Yes	Yes	Yes	Yes
Salaries for Foremen, Managers, and Other Plant/Vessel Level Employees	Yes	Yes	Yes	Yes
Other Plant/Vessel Specific Costs	Yes	Yes	Yes	Yes

More detailed descriptions of the fixed cost categories are presented below. Those descriptions provide information on the data that would be collected, a discussion of ways in which the data are useful, and concerns that have been raised by industry representatives over the collection and use of specific categories of fixed cost data. These summaries attempt to convey the discussions that have occurred within the data collection committee meanings, and therefore reflect the minutes from Section 5 in Appendix 3-6.

¹⁷ The fixed cost elements that “Can be” useful in community impact analyses are useful in situations where the expenditure occurs in a community under study. Property taxes and salaries were categorized as useful since there is little ambiguity that these expenditures serve as a flow of income to community inhabitants. For all other fixed cost elements, it is possible that such expenditures flow elsewhere and may not be used in community impact studies.

Insurance: This information would be used to track changes in insurance costs within a plant, and perhaps track the contribution of insurance payments to communities (if the money is spent in the communities that are being analyzed). Changes in insurance costs are particularly important if they are a result of the crab rationalization program. For example, heightened safety in rationalized fisheries may decrease the likelihood of an accident and bring about lower insurance costs for vessels. Insurance costs are required to estimate profits.

Members of industry have indicated that changes in the cost of insurance may arise for reasons other than crab rationalization. For example, a plant or vessel may change the level of insurance coverage they carry, change the deductible, or access different rates by changing the provider. Any of those changes could impact the amount a plant would pay for insurance, and attributing those factors to crab rationalization would yield misleading results. While it is true that analysts will be generally unable to identify the exact cause of changing insurance costs, ignoring the role of insurance costs altogether may present a more significant problem.

Property taxes: Property taxes are only relevant for plants that operate on shore. Vessels operating at-sea do not pay property taxes, so this category of fixed cost does not apply to them.

Property taxes may be important in understanding community impacts that result from structural changes in the crab fisheries. Taxes paid by seafood processors are likely an important component of some rural Alaskan communities' operating budgets. Property tax data are required to estimate profits. Note however, that if property taxes are not collected as part of the survey, they are part of the public record and could likely be obtained from other sources.

Members of industry workgroup did not raise specific concerns over the collection and use of property tax data.

Principal payments: Principal payments on loans are included for all sectors surveyed. Although these payments do not affect profits or quasi-rents, they can represent a substantial financial commitment for a firm. Therefore, these payments can be used in generating measures of economic health. One example is the ratio of principal payments to revenue. Boat payments are included in the annual cost data collected in the two mandatory economic data collection programs that NMFS implemented on the east coast.

Members of industry have expressed concern over how these data would be used. They indicated that debt load is only one of many indicators of economic health, that the value of principal payments made may not accurately reflect the underlying debt load, and even if it did, debt load could be misconstrued without information related to the equity of the firm. For example, a firm allocated IFQs may be in a better position to borrow money using their IFQs as collateral, or may make larger principal payments if it undertook more debt. Furthermore, it may also be difficult to allocate debt to the crab production of a firm if the firm is involved in other species.

Interest payments: Interest payments reflect the cost a firm incurs to borrow money. Members of each sector utilize short or long term loans to finance their operations. The cost of borrowing that money is reflected by the interest payments.

Interest payments provide information in two important areas. First, interest payments, in many cases, represent a significant portion of a firm's costs. Second, the interest payments provide an indication of the underlying debt load, which is an indicator of the well-being of the firm. Because interest payments can represent a significant cost to firms, this information is also useful for conducting net benefit analyses (such

costs are included in the producer surplus calculations¹⁸). Interest payments could also be included in community impact analysis, depending on the location of the institution granting the loan.

Members of industry noted that it would be difficult to attribute interest payments to the crab portion of a firm's business. In some cases, banks will ask for collateral that is not related to where the loan is being used. For example, a firm may use an asset for collateral that is part of their crab operation, but the money obtained from the loan would be used for another fishery. Situations such as this will be difficult to reconcile and could be subject to misinterpretation if the loan is not tied directly to crab operations. For this reason, analysts request that data on interest expenditures be provided only when it is actually crab related.

Capital improvements: Capital improvements are the annual costs associated with purchasing new equipment or upgrading the plants and vessels involved in the crab fishery. Capital expenditures often have effects on the quantity of variable inputs one must use in harvesting or processing, and thus they help analysts understand changes that have occurred in variable input costs. For example, if a firm reduces labor costs by purchasing new equipment, without information for those fixed costs the analyst would overstate the cost efficiencies afforded by crab rationalization. If the post-rationalization gains in quasi-rents (or decreases in variable costs) are to be analyzed, analysts will need to be cognizant of the primary factors that affect them.

In general, members of industry agreed that collecting information on these costs that are related to crab fisheries are necessary for the analysts to understand changes in variable costs. Because the Council's current focus appears to be only those costs associated with crab production, only capital expenditures related to crab would be collected. Capital improvement costs that are only related to the production of other species would not be collected, and any that relate to both crab and other species would be prorated.

Repair and maintenance: Repair and maintenance (R&M) costs are the annual costs associated with keeping existing plants, vessels, and equipment in proper working order. These costs do not include any improvements made to the facilities/vessels.

As with capital improvement costs, only the costs related to crab fisheries would be collected. Costs that are incurred in the production of other species would not be collected, while costs that are incurred in the production of crab and other species would be collected and prorated.

R&M costs are an important element of a crab operation, and changes in those costs may occur post-rationalization due to consolidation. For example, if a crab harvester purchases quota he is likely to expend more time and effort fishing with his boat, which would result in higher R&M costs. In addition, R&M expenditures represent an essential part of community impact analyses.

Members of industry have cautioned the analysts that there are normal fluctuations in R&M costs that should be considered when analyzing the effects of crab rationalization. For example, some repairs are on a one year cycle and some are on a two year cycle (or longer). Care must be taken when looking at variation from year to year, so that cyclical costs are accurately represented. In general, members of industry agreed with the need to collect R&M costs.

Members of industry have also noted that the distinction between capital improvements and R&M costs is not always clear. Therefore, it is important to collect *both* of these fixed cost categories.

¹⁸Total costs would exclude transfer payments (payments made where no goods or services are purchased) such as taxes.

Salaries for foremen, managers, and other plant or vessel level employees: These are the wages/salaries paid to persons who oversee or support the crab operations, but are not physically involved in the harvesting or direct processing of crab.

Agency staff requested this information to better understand the overall employment needed (and costs incurred) to conduct the BSAI crab fisheries. Estimating changes in the overall level of employment and the cost of employing these individuals would not be possible if these data on support staff were not collected. Furthermore, this information is useful in understanding changes in variable costs (and thus, quasi-rents) that may occur after rationalization. Industry has indicated that substitution is possible between direct processing labor (a “variable” cost) and salaried labor (a “fixed” cost), and the structure of employment may change after rationalization. Therefore, if expenditures for salaried employees are not accounted for, estimates of labor cost savings afforded by rationalization may be biased.

Members of industry are concerned that accurately assigning the time these people spend overseeing the crab operation will be difficult for processors. For example, some plant managers may have more than one operation underway simultaneously. In such cases, analysts would be required to allocate the cost of these employees among the activities being undertaken.

Other plant-specific costs: The workgroup did not identify any other major fixed cost categories, but included an “other” category just in case a firm has fixed costs that were overlooked.

Additional elements to be added to 9/18/2002 surveys:

Assessed Plant Value, Insured Plant or Vessel Value: While these values are not “fixed costs”, agency staff request that information on both the assessed and insured value for plants, and insured value for vessels (as they are not assessed regularly), be provided. Plant information could be used as an indicator of the value of the plant, and thus, help to determine the “sunk costs” of a crab plant. It has been argued in the past that these facilities have no (or very limited) other use(s). Information on the plant value could therefore help members of the public understand the level of unrecoverable investment if processing was no longer viable at a specific location. Furthermore, the value of the plant can be used as an indicator of the capital stock when measuring capacity and capacity utilization. Currently, analysts have no other means of quantifying the capital stock, which will make it difficult to determine whether any substantial differences in variable costs (and thus, quasi-rents) among plants are due to advantages in efficiency or productivity, or due to unaccounted differences in the amount of capital equipment they employ.

Insured vessel value could be used for similar purposes, although basing value estimates solely on insured values could be problematic. The insured value of a vessel reflects not only the underlying value of that vessel (or a replacement vessel), but other factors related to the risk preferences of the vessel owner.

Industry has indicated that assessed values would be much more reliable than insured values, which they consider to be too confounded to convey an accurate representation of the value of the vessel. Therefore, in cases where a recent survey has been conducted (for use in a loan or vessel assistance program), such information would be preferred. However, analysts should be aware that assessed plant values often reflect more than just the processing facilities, and therefore may not be comparable across plants. Furthermore, there may also be difficulties in prorating the value of the plant and equipment to crab when a firm engages in multiple processing activities.

Alternative 1 conclusions: Collecting information on all of the fixed cost categories listed in the surveys would allow analysts to compute estimates of the profits earned solely in the crab portions of their operations.

This would require analysts to prorate¹⁹ any fixed costs that are not solely crab-related expenditures, which would likely vary according to the method used to prorate the costs. However, ignoring these fixed costs (i.e., assuming that they are zero, or do not differ among firms or over time) would probably introduce larger inaccuracies. Given that crab processors typically engage in multiple operations, and harvesters tend to focus primarily on crab, the prorating problems are likely to be a more significant concern when analyzing processing operations.

Information on all of the fixed cost categories is not necessary to conduct an analysis of quasi-rents. However, three components (capital improvements, repair and maintenance, and payments to salaried employees) are important factors in the determination of quasi-rents, and would markedly improve analysts' understanding and assessment of changes in quasi-rents (and capacity utilization) for both harvesters and processors.

All of the fixed costs, except property taxes and principal payments, would be needed to conduct a net benefit analysis. Conducting a net-benefit analysis of the BSAI crab fisheries would require prorating any fixed costs that are shared between crab and non-crab operations. Given the potential problems associated with allocating the fixed costs that are not solely crab related, industry representatives have indicated that they would be suspect of such numbers. As evidence, some industry members claimed that they do not allocate such costs in their internal calculations due to these concerns.

Community impact analyses would likely utilize all of the fixed cost data (except principal payments), in cases where the expenditures occurred in the region of interest. Although it is possible to collect the property tax information from other sources, that would increase the cost of collecting that data.

Alternative 2: With Alternative 2, none of the fixed cost data (listed in the tables shown under Alternatives 1 and 3) would be collected. The only cost data to be collected would be the variable costs listed in the other sections of the surveys.

Alternative 2 conclusions: This alternative would not allow the analysts to have access to data that would help explain the source of observed changes in variable costs. Without accounting for expenditures on the capital inputs (new purchases and repairs) used in crab operations, analysts will be unable to understand if changes in variable costs occur due to rationalization or due to increased investment in capital. Without accounting for both the variable and fixed (salaried) costs of labor used in crab harvesting and processing, biased estimates of labor cost savings may be generated. Omission of these fixed cost elements will likely lead to less than satisfactory quasi-rent analyses. This alternative would limit the ability of analysts to estimate community impacts and prevent them from estimating profits (even in the BSAI crab portion of their operations). A majority of the objectives for the crab data collection program would not be met with this alternative.

Most members of the industry workgroup have indicated that they understand the importance of collecting data that would help explain changes in variable costs (and thus, quasi-rents) and that would allow a more complete assessment of community impacts. Members of industry have often said that they want staff to be able to conduct accurate and meaningful analyses, and support the collection of data are useful to achieving that goal.

¹⁹The need to allocate fixed costs is not unique to the crab fisheries. Fixed costs are typically prorated using one of several methods, including purchased pounds, finished pounds, days of operation, or gross revenue. Because the prorated costs can differ according to the method selected, it is preferable to record the total expenditures and have the analysts prorate with more than one method. The extent to which the fixed costs differ by prorating method gives an indication of the reliability of the prorated costs.

Alternative 3: Alternative 3 would collect some of the fixed costs listed in the survey. Given that the surveys will allow calculation of quasi-rents in crab operations, in this discussion we will assume that “some” fixed costs refer to those needed to conduct a quasi-rent analysis.

To conduct a quasi-rent analysis, the three categories that would help explain changes in variable costs are “capital improvements”, “repair and maintenance”, and “salaries for foremen, managers, and other plant/vessel employees.” Those three categories were discussed under Alternative 1, and are shown as “YES” in Table 3.17.3. Both agency staff and industry representatives have, in general, agreed that data should be collected for those data elements that provide a basis for understanding changes in variable costs. Furthermore, these three “fixed” costs represent important elements for conducting community impact analyses.

Alternative 3 conclusions: Alternative 3 provides analysts the ability to compute quasi-rent estimates, investigate whether any observed changes should be attributed to the crab rationalization program, and account for many of the expenditures that affect fishing communities. However, if the Council wishes to conduct a formal community impact analysis, or assess changes in profits from crab activities, additional information will need to be collected. The former could be done on periodic mandatory surveys that focus on the detail location of all expenditures. A further discussion is provided in the analysis of the sub-options.

Table 3.17-3 Fixed data to be collected under Alternative 3.

Fixed Cost Category	Sectors for which Surveys are Being Developed			
	Processors	Catcher Vessels	Catcher/ Processors	Floating Processors
Insurance	No	VC	VC	VC
Property Taxes	No	N/A	N/A	N/A
Principal Payments	No	No	No	No
Interest Payments	No	No	No	No
Capital Improvements	Yes	Yes	Yes	Yes
Repair and Maintenance	Yes	Yes	Yes	Yes
Salaries for Foremen, Managers, and Other Plant or Vessel Level Employees	Yes	Yes	Yes	Yes
Other Plant or Vessel Specific Costs	Yes	Yes	Yes	Yes

In summary, the three alternatives discussed above provide various levels of detail on “fixed” costs incurred in the harvesting and processing of crab. In an attempt to show more specifically the objective measures that can be computed to address the issues the Council has expressed interest in, we provide Table 3.17.4. This table lists each of the objective measures identified by the SSC and agency economists (to assess the effects of crab rationalization) along with the corresponding confidence in the measures that could be obtained under each of the alternatives:

Table 3.17-4 Objective measures and confidence of estimates under each alternative²⁰

Measures	Confidence in Estimate Under Alternative 1	Confidence in Estimate Under Alternative 2	Confidence in Estimate Under Alternative 3
<i>Issue: Excess Harvesting and Processing Capacity and Low Economic Returns</i>			
Harvesting capacity and capacity utilization (CU)	Good estimates can be made.	Standard CU measures cannot be adequately constructed.	Good estimates can be made.
Processing capacity and capacity utilization	Good estimates can be made.	Standard CU measures cannot be adequately constructed.	Good estimates can be made.
Harvesting sector profit for BSAI crab only (total revenue - total cost)	Estimates can be made; confidence depends on the number of fixed costs prorated between crab and other activities.	No estimates can be made.	No estimates can be made.
Harvesting sector quasi rent for BSAI crab only (total revenue - total variable cost)	Good estimates can be made.	Estimates can be made, but the source of changes cannot be adequately explained.	Good estimates can be made.
Processing sector profit for BSAI crab only	Estimates can be made; confidence depends on the number of fixed costs prorated between crab and other activities.	No estimates can be made.	No estimates can be made.
Processing sector quasi rent for BSAI crab only	Good estimates can be made.	Estimates can be made, but the source of changes cannot be adequately explained.	Good estimates can be made.
Harvesting sector productivity and efficiency	Good estimates can be made.	Estimates will be biased without data on capital inputs and salaried employees (when applicable).	Good estimates can be made.
Processing sector productivity and efficiency	Good estimates can be made.	Estimates will be biased without data on capital inputs and salaried employees.	Good estimates can be made.
Management costs	Good estimates can be provided by agencies.	Good estimates can be provided by agencies.	Good estimates can be provided by agencies.
<i>Issue: Lack of Economic Stability for Harvesters, Processors and Coastal Communities</i>			

²⁰Because alternative 3 specifies “some fixed costs”, and all permutations could not be included in this table, it is assumed that the fixed costs to be collected under that alternative would be those that would allow analysts to understand the source of changes in variable costs. Specifically, “capital purchases”, “repair and maintenance”, and “salaries for plant or vessel employees” are included.

Measures	Confidence in Estimate Under Alternative 1	Confidence in Estimate Under Alternative 2	Confidence in Estimate Under Alternative 3
Distribution of catch and ex-vessel revenue by vessel class (e.g., length class and type), port of landing, and residence	Good estimates can be made.	Good estimates can be made.	Good estimates can be made.
Distribution of processed product revenue by community and processor or processor category (size, ownership, location)	Good estimates can be made.	Good estimates can be made.	Good estimates can be made.
Distribution of profits and quasi rents within and between the harvesting and processing sectors	Confidence of profit estimates (for BSAI crab <i>only</i>) depends on the number of fixed costs prorated between crab and other activities. Good estimates of quasi rents (for BSAI crab <i>only</i>) can be made.	Estimates of profit cannot be made. Estimates of quasi rents (for BSAI crab <i>only</i>) can be made, but the source of changes cannot be adequately explained.	Estimates of profits cannot be made. Good estimates of quasi rents (for BSAI crab <i>only</i>) can be made.
Distribution of harvester use rights by vessel class	Good estimates can be made.	Good estimates can be made.	Good estimates can be made.
Distributions of harvester and processor use rights by processor or processor category	Good estimates can be made.	Good estimates can be made.	Good estimates can be made.
Seasonality of catch and ex-vessel revenue by vessel class, port of landing, and residence	Good estimates can be made.	Good estimates can be made.	Good estimates can be made.
Processor ownership interest in BSAI crab catcher vessels and harvester QS/catch history	Good estimates can be made.	Good estimates can be made.	Good estimates can be made.
Catcher vessel ownership interest in BSAI crab processors and processing QS/catch history	Good estimates can be made.	Good estimates can be made.	Good estimates can be made.
Concentration of domestic and foreign ownership in the BSAI crab harvesting and processing sectors	Good estimates can be made if sufficient ownership data is collected (which is not affected by the choice of alternatives).	Good estimates can be made if sufficient ownership data is collected (which is not affected by the choice of alternatives).	Good estimates can be made if sufficient ownership data is collected (which is not affected by the choice of alternatives).

Table 3.17-4(Cont.) Objective measures and confidence of estimates under each alternative

Measures	Confidence in Estimate Under Alternative 1	Confidence in Estimate Under Alternative 2	Confidence in Estimate Under Alternative 3
Level and distribution of harvesting and processing sector employment and payments to labor (number of individuals, hours/days worked, and income)	Good estimates can be made.	Partial estimates can be made, but employees other than crew and direct processing labor (e.g., salaried employees, foremen, managers, other plant employees) would not be accounted for.	Good estimates can be made.
Degree of involvement of BSAI crab harvesters and processors in other AK fisheries	Good estimates can be made.	Good estimates can be made.	Good estimates can be made.
Value of use right	Reasonable estimates could be made if RAM tracks the value of transfers.	Reasonable estimates could be made if RAM tracks the value of transfers.	Reasonable estimates could be made if RAM tracks the value of transfers.
Regional economic impacts (employment and income) of the BSAI crab fisheries	Under sub-option 1, good estimates can be made. Under sub-option 2, the necessary data is unlikely to be available.	Under sub-option 1, rough estimates can be made (as none of the "fixed" expenditures would be accounted for). Under sub-option 2, the necessary data is unlikely to be available.	Under sub-option 1, estimates can be made (as some "fixed" expenditures would be accounted for). Under sub-option 2, the necessary data is unlikely to be available.
<i>Issue: High Levels of Loss of Life and Injury</i>			
Number of days at sea by weather risk level	Difficult to estimate because we cannot determine the specific days at sea.	Difficult to estimate because we cannot determine the specific days at sea.	Difficult to estimate because we cannot determine the specific days at sea.
Pots carried or fished per trip by vessel class	Cannot estimate the number of pots fished.	Cannot estimate the number of pots fished.	Cannot estimate the number of pots fished.

Analysis of sub-options: Two sub-options were included under each of the three alternatives discussed above. The sub-options identify two alternative methods of collecting data on the location of purchase for expenditures related to the crab industry. The purpose of these sub-options is to identify the best method to collect the economic data needed to conduct community impact analyses.

Sub-option 1: The first sub-option would acquire disaggregated expenditure and purchase data through the mandatory data collection program in order to measure community impacts. To collect the information necessary for a satisfactory community impact analysis, the Council would need to select Alternative 1 from the three fixed cost collection alternatives above. Agency staff would then be allowed to collect all fixed cost data that are needed to conduct community impact analyses. Note that the current surveys would then need to be expanded to collect information on the purchase location for the fixed costs (as they presently elicit the location of expenditure for variable costs only).

The additional information could be collected from all harvesters and processors as part of the overall annual crab survey. Alternatively, it could be collected less frequently and perhaps from a sample of harvesters and processors. With the latter approach, additional questions would be added to the overall annual crab survey, but not every year and perhaps not for all of the participants in the BSAI crab fisheries. The latter approach would decrease the reporting burden for industry, but provide less complete and less timely information. With either approach, staff would rely on small focus groups to provide contextual information that would be difficult to elicit in a more general, annual survey.

Sub-option 2: The second sub-option would utilize disaggregated expenditure and purchase data to measure impacts to communities that are provided through a program analogous to the UAF-ADFG on-going opilio impact study. That study is a voluntary program designed to collect information specific to the community impacts that result from the BSAI *C. opilio* fishery.

If the Council wishes to collect this information, it would be better to do so under a mandatory program. A mandatory program would help ensure compliance by the entire industry and would allow for the collection of consistent time series data. Given the lack of success of voluntary data collection programs in the past, collection of these data could only be guaranteed under a mandatory program. Furthermore, the MSA provides additional protection for confidential data collected under mandatory programs.

Should the Council select Sub-option 2, they are indicating their intent to see these data collected in the future. However, this choice would not involve the implementation of any regulations at this time.

Other issues raised in the Council motion:

Confidentiality: Keeping these data confidential is a very important issue to industry members and agency staff. Several methods are being considered to ensure that the data collected under this program will be held in confidence. The methods being explored to keep the data confidential include:

1. Legislation could be requested that provides strict protections for these data when the MSA is amended or when Congress amends the current laws that conflict with the Council's preferred alternative;
2. Regulations could be implemented as part of the program that protect these data and define the penalties for misuse of the data;
3. Data sharing agreements²¹ between agencies with access to these data could spell out the terms and conditions under which these data may be used; and
4. Data use agreements within agencies could be developed that outline how an agency's staff are allowed to use the data.

It has been discussed that legislation and regulations may help protect the data from Freedom of Information Act (FOIA) requests. However, a method of protecting the data from court orders has yet to be identified, and may not be possible. Simply put, the best method of protecting the data cannot be determined until Congress acts. Once Congress does act, the agencies will be aware of the legislative confidentiality protections, and can design additional measures if they are needed.

²¹NOAA GC and State AG staff are aware of this need. Staff from both agencies are collecting background information and when the program is more fully developed will be ready address this issue. They have indicated that they feel the agreement can be in place as soon as the agencies are ready to begin collecting data.

Third party data collection: An option the Council may wish to considered is employing a third party to collect the economic data. The costs associated with using a third party, as well as the efficiencies of using a third party, need to be analyzed relative to other options. To simplify the following discussion, it is assumed that third party collecting the data will be the Pacific States Marine Fisheries Commission (PSMFC). Identifying the PSMFC as the third party allows for a more precise discussion of how the third party system would work and the costs that it would impose.

The cost of using PSMFC to collect the data is likely to be no greater than if NMFS collected the data. NMFS would likely need to add at least one more person to their staff to oversee collection, computer entry, and distribution of the data (to the appropriate analysts). Some of the tasks, such as data entry, may be done more cost effectively and efficiently by staff hired (and trained) specifically for that purpose. The PSMFC may be in a better position to hire staff to complete those tasks. The PSMFC hiring procedure is likely to be less cumbersome because they are not bound by Federal hiring guidelines that can limit the number of permanent and temporary positions. Freedom to hire employees as needed would ensure that sufficient staff are available to support the data collection program.

The Council's workgroup indicated that they would expect the third party to develop "blind" data sets that combine the mandatory data collection elements with existing sources such as fish tickets, COAR reports, and CFEC vessel files. Those complete files would contain a unique numerical identifier for each plant or vessel, and would not contain the name of the underlying entities. Structuring the database in such a way would allow the approved state and federal analysts to conduct analyses without having to request PSMFC to combine and deliver specific data sets each time an analysis is undertaken (or different variables are included in a particular analysis). That would greatly reduce staff concerns about timely access to the data sets. PSMFC is also in a very good position to link these data sets, because their AKFIN project has all the data and expertise required to successfully complete such a task.

It should be noted that the use of a "blind" identifier does not provide complete protection for anonymity, in that an analyst could purposely determine the identity of a firm, if they so desired. They would simply need to match other fields on the original fish ticket file, for example, with the modified file to determine the identity of the plant or vessel. Therefore, this system will not conceal the identity of a firm from an analyst who undertakes such efforts – an exercise we hope would not occur and that could be prohibited by policy or regulations.

The use of "blind" data sets would require an analyst to go through PSMFC if they have questions regarding the data. This would likely help protect industry from superfluous data inquiries and would help ensure that changes/corrections to the data are directly incorporated into the master data set. However, separating the analysts from industry would reduce an analysts' ability to ask questions that would help them to better understand an issue. It would also place a greater burden on PSMFC, since they would need to track all of these issues to ensure they are resolved.

Finally, even if a third party is used to collect data and provide it to analysts in a "blind" format, NOAA GC and NMFS enforcement have indicated they would need access to the raw data with the company identified. Without access to the raw data, those agencies have indicated that it is unlikely the program could be enforced. Under such conditions, it is unlikely the program would be approved by the SOC.

Agency staff believe that having PSMFC run the data collection program would be a logical choice, regardless of whether the development of "blind" data is selected as the preferred alternative. PSMFC's access to all other data sets, knowledge of relational data base design, and role as a "neutral" party could all benefit the process.

Crew days: The Council asked the workgroup to consider whether good estimates of crew days can be developed using fish tickets combined with crew license identifiers collected under this mandatory program. The workgroup felt that fairly reliable estimates could be made under an open access system using the season start date and the landing date on the fish ticket. However, under a rationalized fishery with extended seasons, additional information would be needed to estimate the number of crew days by vessel. This information could be collected on the survey along with the other crew information that is requested.

Ownership data: Ownership data will be collected at a level necessary to determine whether a company is within the ownership and use caps included in the program. This information will be collected from harvesters, processors and others who own Qs. Ownership data will also be broad enough in scope to allow changes in vertical integration to be studied.

Arm's length transaction data: There has been some interest in collecting revenue information separately for sales made to firms owned by the same company and those made to a completely unrelated entity. The current surveys ask for revenue information broken out in this manner. However, the usefulness of that data breakdown is still a matter of debate between the members of the data collection workgroup.

Data verification: Regulations need to be developed in order to ensure the accuracy of data being provided and protect the suppliers of the data from fines or other penalties when good faith efforts are made to supply accurate data (even though errors may be found). To help protect both the providers of the data and the agency collecting the information, a review process could be established to ensure the data being submitted is accurate.

A verification protocol similar to that developed for the Pollock surveys would be used as the primary review process. Input from certified public accountants was solicited when NMFS and PSMFC were developing the pollock data collection program. That protocol involves using an accounting firm, agreed upon by the agency and industry, to conduct random review of the data provided. In addition to the random review, a survey may be selected for verification if the data in the survey appears to be incorrect. Such a process would provide industry with an incentive to supply accurate data, it would tend to increase the confidence that industry, management agencies, and other stakeholders would have in assessments based on that data; and it would help to prevent the abuse of the verification and enforcement authority.

Data for non-crab portion of operation: The Council requested that staff focus on collecting data for the firm's crab operations. However, they noted that if data from other aspects of a firm's operation are needed to explain the impacts of the crab rationalization program, they may consider including them in the mandatory data collection program. A brief discussion of the potential uses of also collecting data for non-crab activities was presented above, prior to the discussion of Alternative 1.

Aggregation of economic data: Although the Council did not request staff to evaluate the potential impacts of having access to only aggregated data for performing analyses, some industry members have suggested that they may ask the Council to consider this action. Those members of industry seeking to develop a system that would aggregate the data before being provided to the analysts are doing so to provide more protection for their confidential business information. They feel that it may be possible to develop a system that would allow analysts to adequately do their job while providing more protection for their data.

It is clear that aggregating the *results* of any analysis is a prudent and necessary step, and would in no way compromise the quality or types of analyses that could be performed. However, aggregating the *records* prior to analysis would give rise to several problems that would limit analysts' ability to conduct statistical analysis, verify the accuracy of the records, isolate various groups of interest for the Council, analyze the distribution of gains or losses within the predetermined groups, and in general, to understand the effects of

rationalization. Section 8 of Appendix 3-6 provides a thorough discussion of the effects of aggregation in economic analyses, cites over twenty books and papers that discuss aggregation bias, and presents an empirical example of how estimates of fishing capacity for the crab fleet differ when computed with aggregated versus disaggregated data.

Furthermore, aggregating economic data prior to analysis would provide no additional protection from FOIA requests or lawsuits, and would thus, only serve to limit the information made available to analysts and the way in which groups could be constructed and/or compared. Given that the primary purpose of collecting the data is to allow analysts to study the effects of rationalization, aggregating the data for the sole purpose of masking information or precluding comparisons that may be of interest to the Council appears to go against the purpose of the mandatory data collection program.

Anticipated enforcement of the data collection program The analysts anticipate that enforcement of the data collection program will be different from enforcement programs used to ensure that accurate landings are reported. It is critical that landings data are reported in an accurate and timely manner, especially under an IFQ system, to properly monitor catch and remaining quota. However, because it is unlikely that the economic data will be used for in-season management, it is anticipated that persons submitting the data will have an opportunity to correct omissions and errors²² before any enforcement action would be taken. Giving the person submitting data a chance to correct problems is considered important because of the complexities associated with generating these data. Only if the agency and the person submitting the data cannot reach a solution would the enforcement agency²³ be contacted. The intent of this program is to ensure that accurate data are collected without being overly burdensome on industry for unintended errors.

A discussion of four scenarios will be presented to reflect the analysts understanding of how the enforcement program would function. The four scenarios are 1) a case where no information is provided on a survey; 2) a case where partial information is provided; 3) a case where the agency has questions regarding the accuracy of the data that has been submitted; and 4) a case where a random “audit” to verify the data does not agree with data submitted in the survey.

In the first case, the person required to fill out the survey does not do so. In the second case, the person fills out some of the requested information, but the survey is incomplete. Under either case that person would be contacted by the agency collecting the data and asked to fulfill their obligation to provide the required information. If the problem is resolved and the requested data are provided, no other action would be taken. If that person does not comply with the request, the collecting agency would notify enforcement that the person is not complying with the requirement to provide the data. Enforcement would then use their discretion regarding the best method to achieve compliance. Those methods would likely include fines or loss of quota and could include criminal prosecution.

In the third case the person fills out all of the requested information, but the agency collecting the data, or the analysts using the data, have questions regarding some of the information provided. For example, this may occur when information provided by one company is much different than that provided by similar companies. These data would only be called into question when obvious differences are encountered. Should these cases arise, the agency collecting the data would request that the person providing the data double check the information. Any reporting errors could be corrected at that time. If the person submitting the data indicates

²²The intent of the program is to have enforcement actions triggered by the willful and intentional submission of incorrect data or noncompliance with the requirements to submit data.

²³The term enforcement agency in this case may or may not include the RAM Division and the Office of Administrative Appeals (in addition to NMFS Enforcement). Those details are still under discussion within NOAA.

that the data are accurate and the agency still has questions regarding the data, that firm's data could be "audited". It is anticipated that the review of data would be conducted by an accounting firm selected jointly by the agency and members of industry. Only when that firm refuses to comply with the collecting agencies attempts to verify the accuracy of the data would enforcement be contacted. Once contacted, enforcement would once again use their discretion on how to achieve compliance.

The fourth case would result when the "audit"²⁴ reports different information than the survey. The "audit" procedure being contemplated is a verification protocol similar to that which was envisioned for use in the pollock data collection program developed by NMFS and PSMFC. During the design of this process, input from certified public accountants was solicited in order to develop a verification process that is less costly and cumbersome than a typical "audit" procedure. That protocol involves using an accounting firm, agreed upon by the agency and industry, to conduct a random review of certain elements of the data provided²⁵.

Since some of the information requested in the surveys may not be maintained by companies and must be calculated, it is possible that differences between the "audited" data from financial statements and survey data may arise. In that case the person filling out the survey would be asked to show how their numbers were derived²⁶. If their explanation resolves the problem, there would be no further action needed. If questions remained, the agency would continue to work with the providers of the data. Only when an impasse is reached would enforcement be called upon to resolve the issue. It is hoped that this system would help to prevent abuse of the verification and enforcement authority.

In summary, members of the crab industry will be contacted and given the opportunity to explain and/or correct any problems with the data, that are not willful and intentional attempts to mislead, before enforcement actions are taken. Agency staff does not view enforcement of this program as they would a quota monitoring program. Because these data are not being collected in "real" time, there is the opportunity to resolve occasional problems as part of the data collection system. Development of a program that collects the best information possible to conduct analyses of the crab rationalization program, minimizes the burden on industry, and minimizes the need for enforcement actions are the goals of the data collection initiative.

Issues from the December 2002 Council meeting: The Council directed the Data Collection Workgroup to address several issues at the February Council meeting. Issues to be addressed were included in the Council's motion and are excerpted in the following italicized section.

"...In particular, the Council recommends that the Committee be directed to provide recommendations at the February Council meeting on the aggregation of data and its importance in protecting industry proprietary and confidential information. Recommendations should cover both data analyses that are presented to the Council and the public, and industry raw data that is provided to staff for purposes of analysis. The Committee should review Section 8 of Appendix 3-6, prepared by staff and presented to the public at this meeting, and provide recommendations on the issues raised by staff.

²⁴This "audit" could be the result of either the random review process that is contemplated or an "audit" triggered under scenario three.

²⁵However, in cases of non-compliance in which enforcement has to be notified, the data verification process is likely be more comprehensive.

²⁶Any time a number must be derived, the survey will provide direction on how the calculate the information requested. This direction should help minimize differences. However, when discrepancies do arise, the firm will be given an opportunity to show how they derived their figures, and correct the information if necessary.

The Council recommends:

- *both the binding arbitration committee and the data collection committee identify data needs associated with the binding arbitration process and the integration of these needs.*
- *the Committee consider the SSC recommendations concerning data aggregation.*
- *the Committee include C shares in the data collection program.”*

Members of the Workgroup have met and drafted a report for the Council’s February that is intended to address those issues.

3.18 Community and social impacts

This section presents two types of information on community and social impacts of the range of alternatives and options. First, in Section 3.18.1, general level community and social impact issues associated with the different features of the range of proposed alternatives and options is presented. This section draws from experience of earlier rationalization programs in the potentially impacted communities. Second, in Section 3.18.2, community impacts driven by specific sector allocation changes under the range of alternatives and options are discussed. These sections include quantitative output tables showing the range of outcomes by sector and area, where applicable. Detailed tables that capture existing trends of change over the period 1991-2000, as well as output tables showing specific allocations under the rationalization alternatives may be found in an attachment to the SIA Appendix. Community and social impacts likely to be associated with the specific features and combination of attributes of the preferred alternative are presented in Section 4.9.

3.18.1 Community experience with other contemporary fisheries rationalization programs

The communities that would potentially experience social impacts from the BSAI crab fishery proposed management alternatives have experienced impacts related to rationalization efforts in other commercial fisheries in recent years. While some of the experience will be useful in anticipating impacts of crab rationalization, there are distinct differences between existing fishery rationalization programs and the components of the BSAI crab rationalization alternatives in terms of likely social impacts. The applicability of the existing programs to the proposed program is presented in overview in this section. The crab rationalization program component approaches and their analogs are as follows:

- **IFQ approach.** IFQ management is now in place for area halibut and sablefish fisheries. The relevant parts of that experience are summarized below.
- **IFQ Plus Individual Processor Quota (IPQ) approach.** Assignment of processor quota shares alone or in combination with IFQs as proposed in the “two-pie” or the “three-pie” system is without precedent in local fisheries, so there is no analog experience from which to draw.
- **Cooperatives.** Co-ops are now used in the Bering Sea pollock fishery. The relevant parts of that experience are summarized below.
- **Regionalization.** Regionalization, or the third part of the three-pie system, is not a rationalization approach in and of itself, but it functions as part of a rationalization alternative in conjunction with what are effectively harvester and processor allocations (and co-op provisions). There is no good analog experience in local fisheries for looking at likely social impacts as a result of regionalization. There are, of course, programs in other fisheries that are intended to localize fisheries, through assigning quota to particular geographic areas and then restricting access or movement between areas, with the most restrictive of these being “super exclusive” areas where access is completely restricted to a set of harvesters committed to that area only for a particular fishery (with the typical goal of

effectively eliminating outside access to a localized fishery or serving to create or protect a local, small, or underdeveloped fishery set aside). In the proposed alternatives, however, the BSAI crab regionalization provision is structurally quite different from harvest restriction areas in that it is a geographically directed processing rather than harvesting initiative. In some ways, it is like the processing component of a two-pie or three-pie structure given that it is a processing lock-in for whatever entities are operating in the area. In other ways it functions like a CDQ structure (in terms of essentially guaranteeing a community or region a revenue stream based on exclusive access to a portion of the TAC/GHL) but on the processing rather than harvesting side of the fishery, and with the more-or-less ensured revenue being realized in the form of municipal revenues rather than as income of one form or another to the CDQ group.

The following subsections summarize the local IFQ and co-op experience relevant to potentially similar social impacts that could result from "two-pie," "three-pie," IFQ, or co-op approaches to rationalizing the BSAI crab fishery. Limitations of the applicability of the "lessons learned" are also noted.

IFQ Experience

The communities that would experience social impacts as a result of the selection of a rationalization approach for the management of the crab fishery have already experienced an IFQ rationalization of the halibut and sablefish fisheries. Some aspects of this experience are relevant in attempting to anticipate likely social impacts that could result from a similar style of crab fishery management, or an alternative that includes a component that is a functional equivalent of IFQs. However, there are limitations of what is actually known in terms of specific impacts from the transition of the halibut and sablefish fisheries to an IFQ system. In its comprehensive document *Sharing the Fish: Toward a National Policy on Individual Fishing Quotas*, the National Research Council, reviewing the Alaska halibut fishery came to the following conclusions regarding "Economic and Social Outcomes for the Fishery":

"Due to lack of studies and data it is not possible to quantify the net economic impact of the IFQ programs . . . Although the season length has increased from 5 days to 245 days per year for both species and landings are now broadly distributed throughout the season, it is uncertain how costs and revenues have been affected. . . . The effect of the IFQ programs on halibut ex-vessel price and on costs and revenues for processors, communities, and consumers are even less well understood. There is anecdotal evidence that an increasing number of halibut fishermen are bypassing traditional processors and marketing directly to wholesalers and retailers, but the magnitude and impact of this phenomena has not been documented" (National Research Council 1999:77).

One comment commonly received from processors in this and other work for the NPFMC/NMFS is that their profit margin on halibut has declined dramatically since IFQs, implying that fishermen are gaining more of the rent from the fish. The numbers involved have not been disclosed, nor is the systemic impact of this change in relative leverage documented, e.g., how much of this in turn goes to pay for (capitalize) the transfer of IFQs. Given this lack of solid information, it is difficult to generalize this experience to likely crab IFQ impacts, other than to note that the change in relative bargaining position would be a likely outcome.

One of the main differences between the halibut and IFQ sablefish experience and the likely crab experience under a rationalization program is the limitation on season lengths. Whereas the pursuit of halibut, a single species fishery, can be expanded to a large proportion of the year, the multispecies crab fisheries have shorter windows of opportunity, even under ideal biological conditions, which would tend to limit at least some of the theoretical community level gains made possible by slowing the fishery. The possibility of bypassing traditional processors in an IFQ system is an expressed concern of crab processors, but the National Research

Council found that at the community level at least for the higher volume ports, redirection of landings did not result in wholesale shifts between communities.

"The top five halibut ports have remained the same, with occasional reordering. . . The top sablefish ports have also been generally consistent . . . The quota share market has been active, with more than 3,800 permanent transfers in the halibut fishery and more than 1,100 in the sablefish fishery. These transfers have led to some consolidation. The number of quota holders declined by 24 percent in halibut and 18 percent in sablefish between January 1995 and August 1997. However, the number of quota shareholders still exceeds the annual maximum number of participants in the pre-IFQ fisheries. In both fisheries, the bulk of consolidation that has occurred has taken place in smaller holdings. There is anecdotal evidence that fishermen have reduced crew size and that quota shareholders are crewing for each other. However, since there are few data on pre-IFQ crewing practices, it is difficult to determine the magnitude of changes or the opportunity costs of crew who are no longer in these fisheries" (National Research Council 1999:77).

Looking at community-specific impacts, this same study noted that a lack of data prevented a definitive analysis. Under the heading "Economic and Social Outcomes for Fishery-Dependent Communities" the National Research Council concluded:

"The economic and social outcomes of the halibut and sablefish IFQ programs for dependent communities are largely anecdotal. Continued low prices for salmon have made halibut and sablefish catches increasingly important for regional fishing economies. The regional impacts of reduction in crew size are unknown because information on crew participation in the pre-IFQ fisheries, their residencies, demographics, and opportunity costs is limited and has not been compiled adequately" (National Research Council 1999:77).

More recent studies have looked at the broad trends of change that have occurred under the halibut and sablefish IFQ programs. A study conducted for the Food and Agriculture Organization of the United Nations (FAO) (Hartley and Fina 2001) noted that while capacity reduction in the halibut and sablefish fisheries had occurred, it had not occurred to the extent that many had predicted prior to the implementation of the program.

There are several reasons why capacity in the sablefish and halibut fisheries has not declined as much as theoretically possible. The primary reason is that the majority of participants has viewed the sablefish and halibut fisheries as a means of supplementing income from other major fisheries such as the salmon, crab, and groundfish fisheries, for which many of the vessels were built. These other fisheries are also seasonal, and participants are able to fish sablefish and halibut without disrupting their participation in the other fisheries. For most participants, the sablefish and halibut fisheries are two of several seasonal fisheries in which the vessels participate. A second, very important reason that large-scale fleet reductions have not occurred is that NPFMC, which designed the systems, wished to maintain the existing nature of the fisheries, and to that end, created restrictions that prevent excessive consolidation (Hartley and Fina 2001).

A different feature of the crab fishery in terms of consolidation is that there is currently a directed effort at fleet consolidation that is separate but parallel with the rationalization effort. This program is described below, but it is important to note at this point that likely consolidation within the crab fleet would occur not only because of consolidation incentives inherent in a functional equivalent of an IFQ system, but also because of a co-occurring program explicitly designed to remove excess capacity from the fleet. The FAO

study noted that within the halibut and sablefish fisheries the consolidation/reduction of quota share (QS) holders, vessels, and direct fishery participants (crew members) each happened at different rates. The number of halibut QS holders declined by 25 percent in the first 5 years of the IFQ program, and the number of sablefish QS holders declined slightly more than 10 percent. Fleet size change occurred at a different rate.

In the first year of the IFQ program, the number of vessels participating in the halibut fishery dropped by more than one-third. By the fifth season, the number of vessels had dropped to less than half of the pre-IFQ vessel participation. In the sablefish fishery, the number of vessels dropped by more than 50 percent in the first year of the program. Reduction in the sablefish fleet has occurred slowly since then, with fleet size remaining more than one-third of the pre-IFQ fleet size in the fifth season. This decline suggests that the concentration in the fleet has increased efficiency in the fishery, reducing overcapitalization from the pre-IFQ fishery. The decline in number of vessels is particularly notable, given the broadly inclusive method of the initial allocation. Despite the issuance of QS to all fishers who were active in the fisheries at any time during several years, the number of active vessels has declined every year since program implementation (including the program's first year) (Hartley and Fina 2001).

Crew participation also declined. However, there were apparently gains made by crew members who remained in the fishery.

Although there are no official counts of crewmembers who participate in sablefish and halibut trips, the willingness of QS holders to team with others is thought to reduce the number of active crewmembers in these fisheries. With IFQs and the resulting change from a "race for fish," the number of crewmembers on a typical trip is believed to have fallen from a range of 3 to 6 to a range of 2 to 4 (including the skipper) . . . This decline, however, has not necessarily reduced the returns to crewmembers active in the fisheries. It is in fact estimated that payments per individual crewmember have increased under the IFQ program (Hartley and Fina 2001).

Additionally, because of concerns regarding potential exclusions of long-time crew members from the fishery through fleet or quota consolidation, the halibut and sablefish IFQ programs have a condition that allows transfer only to holders of initial allocations or bona fide crew members. However, it is important to note that the restriction to bona fide crew members applies to crew members in any U.S. fishery, not just the halibut and sablefish fisheries. In fact, the number of crew members participating in the halibut fishery has declined sharply:

Combined with the decrease in the number of active vessels, estimates of the number of active crewmembers in the halibut fishery fell from 10,500 in 1994 to 3,200 in 1999. While the number of crewmembers has declined, if the number of trips per vessel is factored in, total halibut crewmember trips appear to be approximately equal for the two years, at about 15,500 (Hartley and Fina 2001).

Of potential relevance to processors under an IFQ type of system is the fact processors of different scales may be able to do well, whereas under a derby type of fishery, larger operations were necessarily in an advantageous position. As the FAO study notes, however, this reached its logical extreme in the halibut fishery with exceptionally short openings.

Before the IFQ program, processors wishing to be active in halibut and sablefish markets had to be able to handle large quantities of fish at a time. Fishers needed to bring their catch to

processors able to handle it. Since the rush of fish to processors was intense, fishers had little choice of processors. Since processors were in high demand due to the intensity of the processing immediately after the short season, fishers had little leverage for negotiating a price for their catch. This circumstance was a greater concern in the halibut fishery, where almost all of the vessels participating in the opening tried to offload their catch immediately after the 24-hour period (Hartley and Fina 2001).

In the halibut fishery in particular, subsequent to the implementation of IFQs, the halibut market changed in ways that changed the relative advantages of some communities over others. With the longer seasons, it is now possible to get fresh halibut to market for a good part of the year. The logistics of the fresh market favors landings in ports with easy accessibility to multi-modal transportation systems giving, for example, road-connected Homer a potential advantage over more isolated ports than was the case when halibut was by necessity more of a frozen product fishery. The direct applicability of this type of shift for BSAI crab fisheries managed under an alternative with IFQ-like features is less than clear, however, given that the halibut fishery has a very different geographic base, stretching from the Eastern Gulf of Alaska to the Bering Sea. As noted in the main body of this document, and as debated at NPFMC meetings during the alternative formulation process, there is currently no clear consensus of how applicable the effective decline of processor rents in the halibut and sablefish fisheries under the existing IFQ system in those fisheries would be to a crab rationalization context, and therefore the likely measure of consolidation or shifts between communities that would occur due to those circumstances is unclear.

In terms of regional differences, the IFQ experience of the halibut fishery suggests that different circumstances lead to different fleet consolidation outcomes. Table 3.18.1-1 provides information on the number of active halibut vessels by year by management area. As shown, in some areas proportionately larger reductions took place than in other areas.

Table 3.18.1-1 Number of active halibut vessels by management area, 1992-1999

Management Area	1992	1993	1994	1995*	1996	1997	1998	1999
Southeast	507	391	488	378	378	326	296	283
West Yakutat	266	196	249	228	218	218	176	162
Central Gulf	588	462	562	326	294	273	241	226
Western Gulf	103	29	19	86	81	79	66	63
Aleutian Islands	27	33	33	53	50	47	26	27
Bering Sea	72	40	31	55	49	41	28	20
Total (unique vessels)	1,123	915	1,139	517	503	504	449	433

* 1995 is the year the IFQ program was initiated.

Note: Cells in columns are not additive because some vessels fish more than one area.

Source: M. Fina, NPFMC

The Alaska Commercial Fisheries Entry Commission (CFEC), in a study on the changes seen under the halibut IFQ program (CFEC 1999), attempted to ascertain changes among different classes of quota holders. The distinction was drawn between (1) Alaska Rural Local, (2) Alaska Urban Local, (3) Alaska Rural Non-local, (3) Alaska Urban Non-local, and (4) Non-resident quota holders. When examined on an area-by-area basis, for each classification of quota holder, quota holdings were up on some areas and down in others. This same study looked at regional differences in halibut delivery patterns. For the Aleutians/Alaska Peninsula/Bering Sea area, for the 5 years before IFQ implementation (1990-1994), the percentage of total deliveries ranged from 12.0 percent in the low year to 16.8 percent in the high year. During the post-implementation years from 1995 through 1998, deliveries ranged from 11.8 percent to 16.1 percent of the total fishery per year with no clear directional trend of change. For the Kodiak Island Borough, annual

deliveries in the 1990-1994 period ranged from 21.2 percent to 26.0 percent of total fishery deliveries, while in the post-implementation 1995 through 1998 period, the annual figures ranged between 17.5 and 23.0 percent. As in the Aleutians/Alaska Peninsula/Bering Sea area, there has not been an unidirectional trend each year post-IFQ implementation in the Kodiak Island Borough, but for both areas 1998 (the most recent year covered by the study) was the lowest percentage delivery year of the reported 1990-1998 period.

Co-op Experience

There are a number of the communities likely to experience social impacts under a BSAI crab rationalization alternative that also have experience with a co-op type of rationalization approach in the form of the pollock fishery co-ops that were institutionalized under the auspices of the AFA. As with the halibut and sablefish IFQs, there are limits to the direct applicability of the pollock co-op experience to the potential crab co-op experience that would be a component of at least two of the alternatives. The factors that limit direct comparison include:

- The pollock fishery is a much more homogenous fishery, given that it focuses on a single species.
- The pollock seasons are longer and more flexible than individual crab seasons, simply given the biology of the species.
- There are many fewer vessels, processors, and communities involved in the pollock fishery than in the crab fisheries, and the increased complexity of the crab fisheries makes outcomes inherently less predictable.
- While data are not immediately available to make definitive quantitative statements, there is also an apparent greater proportion of vertical integration among participants in the pollock fishery than in the crab fishery. This could have broad implications for different types of outcomes in the two different co-op systems, influencing such diverse factors as relative leverage in price negotiations and decision making regarding consolidation.
- Pollock co-ops are plant specific for the shore processing sector, which makes them effectively community specific in terms of social impacts. Under the proposed BSAI crab co-ops, company level rather than plant level co-ops are contemplated. This means that shifts of landings and processing effort between communities could occur in a way (or to a significant degree) that they cannot under the pollock co-ops.
- The co-op systems being considered for crab under the rationalization alternatives are an integral part of a three-pie approach. There is no parallel for that system under the current pollock co-op system.

Given these caveats, however, there are aspects of the impacts seen under the pollock co-ops that may be used to anticipate social impacts under BSAI crab co-ops. In overview:

- Social or community level impacts of the co-ops and related fishery changes differ widely by community but have been generally positive. (One exception may be Sand Point, Alaska, as the plant level co-op system tended to effectively shift pollock away from the community.)
- Pollock co-op effects have been generally positive on an industry or sector basis, as was anticipated when the program was designed. There is some variability between sectors in this regard, with the gains seen in the pollock mothership sector perhaps not as large as those seen in other sectors.

- The AFA itself (rather than co-ops *per se*) has resulted in ownership changes within different sectors, and this has led to some shifts in ownership between communities and regions.
- A common observation among fishery participants is that pollock co-ops have had the beneficial impact of helping to mitigate negative impacts associated with the impacts of Steller sea lion-related protection measures, but this is difficult to quantify.
- The slowing of the race for fish, and the increased economic efficiency of the fishery have had impacts on fishery support service sector businesses. The co-op fishery slow-down may be related to a downturn in fishing support sectors in some communities, but this downturn is also part of (1) other fishery dynamics; (2) "rationalization" of the larger economies of the relevant communities; and (3) less sharp "peaks and valleys" in fishing seasons.
- The slowing of the race for fish and better utilization of the resource has long-term benefits for the fishery and thus the communities engaged in or dependent upon the fishery.

There are significant limitations regarding the data available for pollock co-op analysis, and this also serves to limit the conclusions regarding social impacts that may then, in turn, be generalized to anticipate potential impacts related to BSAI crab co-ops.

- A general level caveat is that the post-AFA co-op formation data that are available only cover a very short period. There has been only 1 full year under the onshore co-op system, and only 2 years under the offshore co-op system that are documented. This makes interpretations of changes apparently related to co-ops problematic, due to normally occurring year-to-year changes in the fishery as well as the fact that fishery participants are still working out strategies, adaptations, and responses to AFA and co-op-influenced fishery conditions.
- It is difficult to isolate the impacts of pollock co-ops in a dynamic environment. Other changes occurring at the same time in the same fishery complicate the picture, with the most notable of these changes associated with the ongoing Steller sea lion conservation-related management measures, and the shift of quota from offshore to onshore sectors.
- Change is still occurring as communities and local economic sectors are still in the process of adapting to the post-co-op formation environment.

As is anticipated with social impacts that may result from BSAI crab co-ops, pollock co-op impacts varied a great deal from community to community. Where local level detail may be generalized for applicability to BSAI crab co-op impact analysis, pollock co-op and AFA-specific impacts are discussed in some detail in the individual community profiles in the SIA Appendix.

Co-occurring crab fishing capacity reduction program

At the same time the NMFS is analyzing various alternative management approaches for the BSAI crab fisheries, a "Fishing Capacity Reduction Program for King and Tanner Crab Fisheries in the Bering Sea/Aleutian Islands" (also known as the "buyback" program) is working its way through the regulatory and management process. It is anticipated that this program could be completed in a matter of months, but much depends on a review, acceptance, and implementation process that is not entirely predictable.

Whatever its final form, the buyback program will have its own set of social impacts as well as contribute to impacts that are interactive or synergistic in nature as a result of being combined with impacts from the

specific management alternatives. An important distinction between the earlier implemented halibut and sablefish IFQ program and the proposed BSAI crab rationalization alternatives is that the fleet reductions that have occurred in the halibut and sablefish fisheries under that rationalization program were the result of decision making based on economic forces or incentives inherent in the rationalization program itself. With the crab rationalization alternatives, the fleet reduction in the short and/or medium term will result from a combination of factors resulting from a specific buyback program unlike any seen in the halibut and sablefish fisheries as well as the rationalization context itself.

In some ways, this situation is similar to the co-op oriented rationalization that took place in the Bering Sea pollock fishery under the AFA. In that fishery, there was a significant directed reduction in the offshore catcher-processor fleet at the inception of the program. No similar reduction took place among other harvesting or processing sectors, however, and subsequent consolidation among harvesters has been minimal during the 2 years the onshore-based co-ops have been operating. A further distinction is that at the time of the capacity reduction in the pollock fishery there was also a simultaneous redistribution of QS between sectors (the inshore/offshore split). Both the capital reduction and the quota shift have complicated the analysis of the social impacts of the co-ops themselves. A further caveat for applying this experience as an analogue for potential impacts in the crab fishery is that the capital reduction in the offshore fleet under AFA conditions was under a very different set of circumstances than that proposed under the buyback program in the crab fishery, with its market/bid-driven aspects and referendum features.

One of the challenges of trying to assess the likely social impacts of the BSAI crab rationalization is the fact that the size and timing of the reduction under the buyback program is unknown at this point. In other words, the "existing conditions" for the fleet are about to change in ways that are not yet predictable, other than the fact that the fleet will be reduced by some amount in the not-too-distant future. Current scenarios under the buyback program contemplate reductions of 30 to 90 vessels.

In terms of impacts likely to result from the crab vessel buyback program itself, NMFS is in the process of preparing an EA/RIR/IRFA (NMFS 2002) that outlines anticipated impacts. As contemplated, the "program would mostly produce socio-economic impacts upon the human environment. . . This proposed rule would not alter how the BSAI crab fisheries are managed. Only the number of participants may decrease." The document notes that "the fishermen remaining in the BSAI crab fisheries after the buyback would benefit. . . The licence holders whose bids [for buyback] were accepted would also benefit." Additional individuals and entities that would benefit from the program would be those who hold loans on marginally performing vessels that will either exit the fishery or will have a significant chance of improved performance , and those seeking new loans, and there will be higher collateral value and less potential for loss (NMFS 2002).

The buyback program itself would not, however, change the nature of the fishery, and, while overcapitalization difficulties may be mitigated to some degree, numerous other problematic aspects of a non-rationalized fishery would remain.

The BSAI crab fisheries currently operate where derby style rules reward those fishermen who are quickest to catch crab. This race to fish would not significantly change with the implementation of this program. Likewise, safety would most likely not be drastically compromised or improved. Although there would likely be fewer vessels harvesting the catch, each would probably be spending more time at sea (NMFS 2002).

In terms of distributional impacts between communities, the NMFS preliminary analysis draws the following conclusion about Seattle:

. . . Seattle is home port to half of the catcher vessels and catcher-processor vessels and would be impacted more than any other community by this program. The Seattle economy is extremely diversified though, and not dependent upon the fishing industry. . . Under a 60 vessel buyback scenario, the mid-point of the studied range, it appears Seattle would lose 30 vessels. This compares to an overall fleet size in excess of 700 commercial fishing vessels and represents a reduction of approximately four percent (NMFS 2002).

Presumably, demand for support services would increase for remaining vessels, and those services are provided primarily out of Seattle. Additionally, while the processing sector may see some shift of landings between Alaska communities, this would not be likely to significantly impact Seattle-based processing owners that together account for a great deal of the market share of the BSAI processing sector as a whole. In terms of the Alaska communities, the preliminary NMFS analysis contemplates that:

Overall, the economic impact to communities where BSAI crab are landed and processed would be marginal because the GHs would not be altered with the implementation of this proposed rule. The smaller communities . . . would most likely see very little change since the total landings of crab would remain at current levels. Some beneficial impacts may occur since this program would provide up to \$100 million to successful bidders . . . Crab processors should see little difference because this analysis assumes that the same amount of crab would be available regardless of the implementation of this program (NMFS 2002).

Presumably, some of the monies received by the successful bidders would be reinvested in the communities that had served as home ports for the removed vessels, although there is no way to anticipate differences in the patterns of distribution between communities or among the different sectors that might benefit from such reinvestment. As for crew, the preliminary NMFS analysis draws the conclusion that under the buyback program "Vessel crew may be marginally impacted. Crew generally work 2 months per year at most, supplementing their income with other activities" (NMFS 2002). This preliminary conclusion would appear overgeneralized, given that for some vessels and crew, crab is the central and far-and-away the most important fishery of the year in terms of income, despite the relatively short seasons. For crew on vessels that are bought out, replacing lost crab income will likely prove to be difficult. Impacts on communities from lost crew income would depend on the ultimate structure of the buyback program and the distribution of the vessels bought out.

The crab buyback program does have the potential to influence other fisheries, because not just crab licenses would be removed under the program.

Other fisheries will likely also benefit from this program since any non-crab species reduction permits must also be surrendered. For example, many of the non-interim LLP crab license holders also have groundfish LLP licenses. If they become successful bidders, they must relinquish all fishing licenses and permits. The reduced amount of license holders would benefit those remaining participants and the fishery itself (NMFS 2002).

Other Considerations

There are a number of other considerations that fall into the category of potential social impacts associated with the crab rationalization alternatives that do not necessarily lend themselves for inclusion in a regional or community-based discussion. These considerations and associated issues may be summarized as follows:

- **Skipper and crew issues.** As discussed in various sections in this document, rationalization has the potential to change the relationships between vessel owners, skippers, and crew. In general,

rationalization approaches are expected to reduce overall skipper and crew employment. Further, there is concern on the part of skippers and crew that the nature of their compensation would change. Traditionally, skipper and crew compensation has been based on a share system that distributed both risk and reward in a context of uncertainty of success in any particular season. With rationalization, such uncertainty may be largely reduced if not eliminated and, as a result, there are concerns that crew shares would similarly either be reduced or eliminated (in favor of a wage system). Beyond loss of employment and reduction of compensation, there are also concerns that rationalization will create a fishery where it will not be practical for the typical individual to work their way up from the deck to vessel ownership due to increased costs of quota purchase on top of vessel acquisition (although some argue just the opposite may be true - that incremental acquisition of quota share may, in fact, represent a practical path to operation ownership). These issues are discussed elsewhere and will not be recapitulated here, but it is important to note that they also have social impact dimensions. Similarly, as also discussed elsewhere, there is concern that with rationalization the crab fleet may come to be more dominated by "absentee" owners (as opposed to owner/operators who also function as the skipper). While this was a large concern with the rationalization of the halibut fleet under that IFQ program, this concern is not as pervasive in the crab fishery, due to baseline conditions that include a significant portion of the fleet already having absentee owners through multiple vessel ownership or individuals who have otherwise taken a less active role in running their vessels over time. Nevertheless, all things being equal, rationalization can be expected to foster or amplify a trend of increasing absentee ownership. If an approach including "owner on board" provisions is adopted, then the existing trend in the pattern of ownership may change due to multi-vessel owners having to divest themselves of vessels as would owners who no longer wish to take an active role in fishing operations (assuming all current ownership is not protected by grandfathering provisions).

- **Processing worker employment.** As noted in the SIA appendix, the number of processing workers specifically associated with crab operations varies widely from entity to entity, and from season to season. With rationalization in the pollock fishery under AFA co-op conditions, shore-based processing facilities have been able to more efficiently plan their workforce needs and, at least for the lower volume crab seasons that overlap with groundfish processing, have been able to incorporate crab processing in normal operations by adjusting product mix or timing in groundfish without having to bring in additional crab-dedicated crew. Under the proposed rationalization alternatives, plants will be all the more able to efficiently plan workforce needs and, as a result, overall employment may drop, although remaining positions are likely to last longer and result in higher overall compensation per position. Specifically how much processing employment would change is unknown at this point. In terms of social or community impacts, the effect of a reduction in overall processing employment would vary from community to community based on the nature of the local workforce. For example, as discussed in the relevant community profiles in the SIA Appendix, processing employment in Kodiak draws more heavily from the local labor pool than is the case in Unalaska. In some remote communities, virtually no processing jobs are filled from the local labor pool. A reduction in processing employment would be less directly felt in communities with a higher proportion of workers from outside the community than in communities with a lower proportion. Indirect impacts (such as retail business generated as a result of having workers present in the community) would, of course, still result from a decline in employment.
- **Changes in harvester and processor relationships.** As discussed at length in a number of sections of the main body of this document, the different components of the rationalization alternatives have the potential to change the economic and structural relationships between harvesting and processing entities. The degree to which these relationships would change is the subject of considerable debate. How the relative advantage gain of one sector over another would result in social impacts, in particular communities, and the specific nature of those impacts, is exceptionally difficult to forecast

given the lack of consensus among economic analysts as to the basic or direct economic outcomes of such potential shifts. Despite this lack of clarity, it is important to note that on the community level processing and harvesting entities are not evenly distributed, nor does ownership across the different sectors share a common geography. Some communities (such as Unalaska and Kodiak) have a locally based fleet, locally based processors, and local support service businesses, so it could be argued that (at least on the community level) losses in one area would be offset by gains in another (although this is complicated by the relative local dominance of participation in one sector over another, e.g., Kodiak participates in these fisheries predominantly through its fleet, while Unalaska does so predominately through its processors). Other communities, however, have fewer sectors present, so relative losses on the part of one sector would not necessarily be made up (on the community level) by relative gains on the part of another sector. Further, even for communities with multiple sectors present, the pattern of local versus distant ownership may vary between sectors, such that gains and losses are not a zero-sum situation on the local level in any event (keeping in mind, however, that other benefits, such as fish tax-derived municipal revenues, depend on the location of activity, and not the location of ownership). Beyond the economics involved, individuals and groups hold ideas about (and associated values regarding) the relationship between harvesters and processors, and if it is perceived that a rationalization approach would seemingly extend effective control of one sector over another, these ideas (and values) quickly surface in interviews. For example, it is apparent that whether or not harvesters are "independent" of processors is not a neutral issue for a number of individuals. These individuals view crab fishermen as an example (or an icon) of one version of a desired (or even idealized) Alaska lifestyle predicated on becoming a success through individual initiative, hard work, and taking advantage of the opportunities offered by Alaska's natural resources. For individuals holding these views, it is in some sense "wrong" to have harvesting become a corporate undertaking that would be part of a vertically integrated entity, regardless of the economic efficiencies involved. Some individuals interviewed expressed concerns that too large of a shift in economic power toward processors could result in "company town" conditions in Alaska coastal communities similar to those seen in the salmon fishery in Territorial days, while others interviewed discounted this possibility. Without clear results from economic modeling, it is difficult to judge the accuracy of the assumptions that form the basis of these concerns, but for the purposes of the social impact assessment, it is important to note that such concerns are held by individuals and groups in the communities engaged in the fishery.

- **Community preclusion issues.** To the degree that the crab fishery rationalization alternatives predicate continuing engagement in the fishery on an established history of participation in the fishery (i.e., they are inclusive of those entities participating during a qualifying period), they are also exclusive of those entities who did not participate during that period (at least in terms of initial allocations). While in theory potential new entrants to the fishery could obtain access in the future through the purchase and transfer of quota, in practical terms there are concerns over the ability of new entities to do so. This concern extends to processing operations under the "two-pie" or "three-pie" alternative approaches for communities that are not currently participating in landings and processing of crab (or, more precisely, communities where locally based processors did not qualify for quota or that do not have locally based processors), but desire to do so in the future. For example, the APICDA CDQ group has noted that although the communities of False Pass and Atka have never processed crab, both communities have recently seen significant investment in shoreside processing operations, and both are targeted for harbor improvement projects. APICDA has expressed concern that allocation of processing quota (or its functional equivalent) could effectively preclude these communities from ever having crab processing as a viable part of the local economic base. (APICDA has also expressed similar concerns about St. George, although that community does have some historical link to processing, albeit through floating processors rather than through shore-based facilities.) Concerns have also been expressed regarding the ability of Adak, recently converted to

a civilian community following closure of military facilities there, to have BSAI crab as a viable part of its commercial fisheries economic base unless some community-specific accommodations are made in the rationalization alternatives. Clearly, these issues cannot be addressed through an analysis of the current community participation in the fisheries or potential redistribution across communities within sectors and entities. This potential differential fluidity of movement and access to future entrance to the fishery within harvester and especially processor sectors is, however, a social impact concern shared by a number of communities.

- **Community divisiveness.** While it is not possible to quantify this type of social impact, the varying opinions on, and the public debate of, proposed crab rationalization approaches proved to be a divisive issue in at least some communities during the NPFMC alternative formulation process. This situation is, of course, not unique to the crab rationalization issue among the various fishery management issues that have been seen in the past few years. For example, the pollock fishery inshore/offshore allocation decision-making process was exceptionally contentious. While perhaps not having as high a profile as the inshore/offshore debates, crab rationalization is a subject of passionate debate and strongly held feelings and is to a degree divisive between communities as well as within some communities. Again, this is not a type of impact that can be quantified, but is nevertheless a type of social impact that is apparent in the relevant communities.

Summary

For a variety of reasons, including historical circumstances, the nature and intensity of involvement with the fishery, and varying socioeconomic foundations, different communities would likely experience quite different social impacts as a result of adoption of the individual rationalization management alternatives for the BSAI crab fishery. Some types of impacts may be anticipated based on the recent experiences of relevant communities with other fishery rationalization programs, but there are clear limits as to similarities between the circumstances of previous programs and the proposed BSAI crab rationalization alternatives.

In general, beyond initial allocations concerns, subsequent consolidation is a large social impact issue for the communities and regions. Absent regionalization or community specific protection provisions, it is not clear that two-pie or three-pie alternatives would substantially slow consolidation in comparison to alternatives that feature IFQ or cooperative systems to the exclusion of processor allocations. Movement of processing activity between communities with consolidation would be a zero sum change from one perspective (processing would not just “leave,” it would “go” somewhere) but from the perspective of some communities being more dependent upon crab related activity than others, it is possible that like sized movements may result in only incremental positive or negative impacts in some places but very large positive or negative consequences in others.

3.18.2 Community and social impacts by sector and alternative

3.18.2.1 Impact of alternatives: harvest sector

The next series of tables provides information on harvester qualification and allocations under the various alternatives and options. Table 3.18.2-1 provides information on the distribution of BSAI harvest vessels (catcher vessels plus catcher processors) that would be allocated BSAI crab quotas under each of the listed alternatives, by community of ownership of the vessels. For comparison purposes, the average annual number of vessels participating in each fishery category in the period 1991-2000 is provided (calculated using the open years during this period for each fishery). This figure does not correspond to qualifying years, but provides a consistent basis for comparison on the community level. Data by year during this period (rather than annual averages) for this table series are provided in the SIA Appendix. As shown, for the large majority

of cases, an equal or greater number of vessels will qualify for quota allocation than fished on an average annual basis during 1991-2000. For the King Cove/Sand Point Fleet, one vessel less than the annual historical average would qualify under each alternative in the Bering Sea Tanner and the Bering Sea opilio fisheries (except Alternative 4A, where the historical average number would qualify). For the Kodiak fleet, one vessel less than the historical annual average would qualify in the Bristol Bay red king crab fishery under each alternative. For Washington ports outside of the Seattle-Tacoma area, one vessel less than the 1991-2000 annual average would qualify in the Bristol Bay red king crab fishery and the Pribilof red king crab fishery, and one or two (depending on the alternative and option) less than the historical average would qualify in the Bering Sea opilio fishery. For Oregon ports outside of Newport, one vessel less than the 1991-2000 annual average would qualify in the Bering Sea Tanner fishery under each alternative. Under Alternative 3A, one vessel less than the 1991-2000 annual average would qualify in the Bristol Bay red king crab fishery from Homer, King Cove/Sand Point, and Oregon ports outside of Newport. For all other communities, fisheries, and alternatives and options, the annual average number of vessels (or greater) would qualify for allocations.

Table 3.18.2-2 provides information by community of the percentage volume of each individual PMA²⁷ crab fishery that would be allocated under each listed alternative to vessels owned by residents of that community. In addition, for comparison purposes, it provides the historical volume and value for the harvest of each individual PMA crab fishery taken by the vessels owned by residents of each named community. A significant number of cells have been suppressed in this table due to data confidentiality restrictions. This table allows a quick comparison of how total fishery percentage allocations would shift between communities under the alternatives listed. It is also easy to see how the different alternatives and options would impact community fleet allocations, and which would result in larger or smaller allocations in each fishery.

²⁷ In this section, as in Section 2.6, "PMA crab" is used in data tables as an abbreviated reference to relevant BSAI crab species that are being considered for inclusion in the proposed management alternatives covered by this RIR.

Table 3.18.2-1 Count of vessels allocated PMA crab, by community and fishery, by alternative and option

State	Community	Fishery	Average Number of Harvest Vessels	Option							
			1991-2000	1A	1B	2A	2B	3A	3B	4A	
Alaska	Anchorage	ADK_BRN	1*	2*	2*	1*	1*	1*	1*	1*	
		ADK_RED	0*	1*	1*						
		BB_RED	5	6	6	6	6	6			
		BS_OPIE	6	6		6		6	6	6	
		BS_TANN	5	6	6	6					
		COM_BRN	.*	2*	2*	1*	1*	1*	1*	1*	
		DUT_BRN	1*	1*	1*	1*	1*	1*	1*	1*	
		PRB_BLU	1*	1*		1*	1*				
		PRB_RED	2*	1*		1*	1*				
		STM_BLU	2*	3*		2*	2*				
		Homer	BB_RED	8	8	8	8	8	7		
			BS_OPIE	8	8		8		8	8	8
			BS_TANN	8	8	8	8				
			PRB_BLU	5	7		7	7			
	PRB_RED		5	7		7	7				
	STM_BLU		2*	2*		2*	2*				
	King Cove/Sand Point	BB_RED	6	6	6	6	6	5			
		BS_OPIE	5	4		4		4	4	5	
		BS_TANN	6	5	5	5					
		PRB_BLU	2*	3*		3*	3*				
		PRB_RED	3*	5		5	5				
		STM_BLU	3*	4		4	4				
	Kodiak	ADK_BRN	2*	3*	3*	3*	3*	2*	2*	2*	
		ADK_RED	2*	5	5						
		BB_RED	36	35	35	35	35	35			
		BS_OPIE	32	34		34		32	32	35	
		BS_TANN	35	35	35	35					
COM_BRN		.*	3*	3*	3*	3*	2*	2*	2*		
DUT_BRN		1*	1*	1*	1*	1*	1*	1*	2*		
PRB_BLU		6	11		11	11					
PRB_RED		7	14		14	14					
STM_BLU		18	22		21	21					
Other Alaska		ADK_BRN	1*								
		ADK_RED	0*								
		BB_RED	12	13	13	13	13	12			
	BS_OPIE	12	13		13		13	13	13		
	BS_TANN	10	13	13	13						
	DUT_BRN	1*									
	PRB_BLU	4	7		7	7					
PRB_RED	5	8		7	7						

Table 3.18.2-1(Cont.) Count of vessels allocated PMA crab, by community and fishery, by alternative and option

State	Community	Fishery	Average Number of Harvest Vessels	Option						
			1991-2000	1A	1B	2A	2B	3A	3B	4A
Washington	Seattle-Tacoma CMSA	STM_BLU	4	6		5	5			
		ADK_BRN	6	16	16	9	9	6	6	7
		ADK_RED	4	17	17					
		BB_RED	134	172	172	172	172	161		
		BS_OPIE	126	158		161		155	155	152
		BS_TANN	125	169	169	170				
		COM_BRN		17	17	9	9	8	8	8
		DUT_BRN	6	15	15	9	9	8	8	8
		PRB_BLU	22	43		43	43			
		PRB_RED	31	72		61	61			
		STM_BLU	56	93		91	91			
Other Washington		ADK_BRN	0*							
		ADK_RED	1*	2*	2*					
		BB_RED	10	9	9	9	9	9		
		BS_OPIE	10	8		9		8	8	8
		BS_TANN	9	9	9	9				
		DUT_BRN	0*							
		PRB_BLU	1*	1*		1*	1*			
		PRB_RED	3*	2*		2*	2*			
		STM_BLU	3*	3*		3*	3*			
Oregon	Newport	ADK_BRN	1*	2*	2*	2*	2*	1*	1*	1*
		ADK_RED	1*	2*	2*					
		BB_RED	9	11	11	11	11	11		
		BS_OPIE	8	12		12		10	10	11
		BS_TANN	8	12	12	12				
		COM_BRN	.*	2*	2*	2*	2*	1*	1*	1*
		DUT_BRN	1*	2*	2*	2*	2*	1*	1*	1*
		PRB_BLU	4	5		5	5			
		PRB_RED	4	5		5	5			
				STM_BLU	2*	3*		3*	3*	
Other Oregon		BB_RED	5	5	5	5	5	4		
		BS_OPIE	4	5		5		5	5	5
		BS_TANN	6	5	5	5				
		PRB_BLU	0*	1*		1*	1*			
		PRB_RED	1*	3*		2*	2*			
		STM_BLU	2*	3*		3*	3*			
				ADK_RED	0*	2*	2*			
Other States		BB_RED	3*	6	6	6	6	6		
		BS_OPIE	4	6		6		6	6	6
		BS_TANN	3*	6	6	6				

Table 3.18.2-1(Cont.) Count of vessels allocated PMA crab, by community and fishery, by alternative and option

State	Community	Fishery	Average Number of Harvest Vessels	Option						
			1991-2000	1A	1B	2A	2B	3A	3B	4A
		PRB_BLU	4	5		5	5			
		PRB_RED	4	5		5	5			
		STM_BLU	2*	5		5	5			

Notes: Not all communities with historical harvest (1991-2000) were issued allocations under the alternatives. Ownership information for allocations by alternative is based on ownership of vessel during most recent PMA crab activity. Ownership information for average harvest 1991-2000 is based on ownership of vessel during year of harvest. Average vessel numbers for individual fisheries calculated using only years each such fishery was open. "COM_BRN" represents a combined brown crab allocation category under some alternatives rather than a historic species fishery. Cells with values marked * are suppressed in subsequent harvest volume or value tables due to confidentiality restrictions.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1 and Allocation File

Table 3.18.2-2 Summary of allocations by community and fishery, by alternative and option

State	Community	Fishery	Percent of Total Fishery Harvest Value	Percent of Total Fishery Harvest Volume	Percent of Total Harvest Volume Quota Allocation by Alternative and Option						
			1991-2000	1991-2000	1A	1B	2A	2B	3A	3B	4A
Alaska	Anchorage	ADK_BRN	*	*	*	*	*	*	*	*	*
		ADK_RED	*	*	*	*					
		BB_RED	2.34%	2.29%	2.14%	2.19%	2.13%	2.15%	2.44%		
		BS_OPIE	2.00%	1.77%	2.13%		2.01%		2.21%	2.14%	2.43%
		BS_TANN	1.04%	0.96%	1.70%	1.68%	1.56%				
		COM_BRN	*	*	*	*	*	*	*	*	*
		DUT_BRN	*	*	*	*	*	*	*	*	*
		PRB_BLU	*	*	*		*	*			
		PRB_RED	*	*	*		*	*			
		STM_BLU	*	*	*		*	*			
	Homer	BB_RED	3.43%	3.32%	2.98%	2.93%	3.04%	2.99%	3.58%		
		BS_OPIE	2.93%	2.86%	2.70%		2.57%		2.81%	2.75%	3.02%
		BS_TANN	3.21%	3.04%	3.42%	3.30%	3.16%				
		PRB_BLU	11.94%	12.15%	13.74%		13.75%	13.74%			
		PRB_RED	5.39%	5.90%	8.72%		10.17%	9.88%			
		STM_BLU	*	*	*		*	*			
	King Cove/Sand Point	BB_RED	2.35%	2.34%	1.44%	1.48%	1.50%	1.52%	1.67%		
		BS_OPIE	2.12%	2.10%	1.11%		1.06%		1.12%	1.14%	1.09%
		BS_TANN	2.32%	2.19%	1.05%	1.07%	1.17%				
		PRB_BLU	*	*	*		*	*			
PRB_RED		*	*	2.32%		2.33%	2.37%				
STM_BLU		*	*	2.19%		2.01%	2.13%				
Kodiak	ADK_BRN	*	*	*	*	*	*	*	*	*	
	ADK_RED	*	*	47.66%	41.34%						
		BB_RED	13.65%	13.45%	12.10%	11.90%	12.26%	12.15%	12.52%		

Table 3.18.2-2(Cont.) Summary of allocations by community and fishery, by alternative and option

State	Community	Fishery	Percent of Total Fishery Harvest Value	Percent of Total Fishery Harvest Volume	Percent of Total Harvest Volume Quota Allocation by Alternative and Option						
			1991-2000	1991-2000	1A	1B	2A	2B	3A	3B	4A
		BS_OPIE	13.16%	13.22%	12.49%		12.00%		12.54%	12.58%	13.16%
		BS_TANN	15.82%	15.95%	14.48%	14.25%	14.05%				
		COM_BRN	*	*	*	*	*	*	*	*	*
		DUT_BRN	*	*	*	*	*	*	*	*	*
		PRB_BLU	9.60%	9.56%	12.66%		12.66%	12.66%			
		PRB_RED	8.51%	8.26%	8.99%		9.27%	9.28%			
		STM_BLU	18.75%	19.12%	16.94%		17.71%	17.27%			
	Other Alaska	ADK_BRN	*	*							
		ADK_RED	*	*							
		BB_RED	3.62%	3.64%	2.95%	2.99%	3.09%	3.11%	3.29%		
		BS_OPIE	4.15%	4.23%	3.92%		3.94%		4.07%	3.99%	4.21%
		BS_TANN	3.41%	3.49%	2.71%	2.71%	2.80%				
		COM_BRN	*	*							
		DUT_BRN	*	*							
		PRB_BLU	6.92%	6.86%	6.18%		6.18%	6.18%			
		PRB_RED	7.41%	7.29%	7.71%		7.65%	7.68%			
		STM_BLU	2.73%	2.66%	3.41%		3.82%	3.63%			
Washington	Seattle-Tacoma CMSA	ADK_BRN	36.63%	36.76%	35.08%	36.32%	23.65%	25.15%	15.11%	18.63%	24.00%
		ADK_RED	21.07%	21.67%	13.19%	16.10%					
		BB_RED	63.22%	63.36%	66.11%	66.27%	66.18%	66.28%	64.67%		
		BS_OPIE	64.16%	64.78%	64.84%		65.88%		64.21%	64.51%	63.28%
		BS_TANN	63.51%	64.23%	64.58%	64.86%	65.43%				
		COM_BRN			44.84%	45.70%	43.76%	43.41%	39.69%	39.83%	43.17%
		DUT_BRN	54.11%	54.79%	54.59%	55.09%	63.87%	61.68%	64.27%	61.04%	62.34%
		PRB_BLU	50.82%	50.24%	49.38%		49.38%	49.38%			

Table 3.18.2-2(Cont.) Summary of allocations by community and fishery, by alternative and option

State	Community	Fishery	Percent of Total Fishery Harvest Value	Percent of Total Fishery Harvest Volume	Percent of Total Harvest Volume Quota Allocation by Alternative and Option						
			1991-2000	1991-2000	1A	1B	2A	2B	3A	3B	4A
		PRB_RED	56.25%	56.08%	54.27%		51.57%	51.71%			
		STM_BLU	64.26%	63.26%	64.90%		62.88%	64.03%			
	Other Washington	ADK_BRN	*	*							
		ADK_RED	*	*	*	*					
		BB_RED	4.05%	4.12%	3.80%	3.84%	3.71%	3.72%	3.83%		
		BS_OPIE	4.43%	4.35%	3.79%		3.83%		3.93%	3.82%	3.85%
		BS_TANN	3.63%	3.71%	3.15%	3.20%	3.12%				
		COM_BRN									
		DUT_BRN	*	*							
		PRB_BLU	*	*	*		*	*			
		PRB_RED	*	*	*		*	*			
		STM_BLU	*	*	*		*	*			
Oregon	Newport	ADK_BRN	*	*	*	*	*	*	*	*	*
		ADK_RED	*	*	*	*					
		BB_RED	4.33%	4.50%	4.85%	4.81%	4.58%	4.54%	4.44%		
		BS_OPIE	3.66%	3.46%	4.06%		4.12%		4.03%	3.99%	4.06%
		BS_TANN	3.44%	2.95%	4.44%	4.39%	4.41%				
		COM_BRN	*	*	*	*	*	*	*	*	*
		DUT_BRN	*	*	*	*	*	*	*	*	*
		PRB_BLU	9.13%	9.25%	10.86%		10.86%	10.86%			
		PRB_RED	6.68%	7.01%	7.82%		8.12%	8.11%			
		STM_BLU	*	*	*		*	*			
	Other Oregon	BB_RED	1.75%	1.76%	1.60%	1.57%	1.58%	1.55%	1.55%		
		BS_OPIE	1.83%	1.79%	2.08%		1.94%		2.13%	2.09%	1.96%
		BS_TANN	2.65%	2.60%	2.22%	2.17%	2.08%				

Table 3.18.2-2(Cont.) Summary of allocations by community and fishery, by alternative and option

State	Community	Fishery	Percent of Total Fishery Harvest Value	Percent of Total Fishery Harvest Volume	Percent of Total Harvest Volume Quota Allocation by Alternative and Option							
			1991-2000	1991-2000	1A	1B	2A	2B	3A	3B	4A	
		PRB_BLU	*	*	*			*	*			
		PRB_RED	*	*	*			*	*			
		STM_BLU	*	*	*			*	*			
Other States		ADK_RED	*	*	*		*					
		BB_RED	*	*	2.03%	2.02%	1.94%	1.98%	2.02%			
		BS_OPIE	1.56%	1.44%	2.87%		2.63%		2.96%	2.98%	2.94%	
		BS_TANN	*	*	2.25%	2.38%	2.23%					
		PRB_BLU	6.32%	6.81%	5.06%		5.06%	5.06%				
		PRB_RED	2.79%	3.16%	4.29%		4.48%	4.45%				
		STM_BLU	*	*	2.52%		2.36%	2.50%				

Notes: Not all communities with historical harvest (1991-2000) were issued allocations under the alternatives.
 Ownership information for allocations by alternative is based on ownership of vessel during the most recent PMA crab fishery activity.
 Ownership information for average harvest 1991-2000 is based on ownership of vessel during year of harvest.
 1991-2000 averages based on 10 years, even for those fisheries not open all 10 years.
 "COM_BRN" represents a combined brown crab allocation category under some alternatives rather than a historic species fishery.
 * = cell values suppressed due to confidentiality.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1 and Allocation File

Table 3.18.2-3 provides information similar to that shown in Table 3.18.2-2, but expressed in terms of percentage change from the 1991-2000 average for each individual community. Where communities harvest a relatively small percentage of any particular fishery, a small shift may make a relatively large difference in the total harvest for community-owned vessels, as shown in this table. As can be seen in the table, the percentage change varies considerably from place to place and from fishery to fishery. This table also shows, within the confines of confidentiality restrictions, patterns of change between communities. For example, the King Cove/Sand Point fleet, under all alternatives, would receive a quota share amount less than their 1991-2000 annual average harvest amount. Newport, on the other hand, would see an increase over historical share in all fisheries for all alternatives and options (except for a 1 percent decrease in Bristol Bay red king crab under Alternative 3A). Other communities show a more complex pattern of increases and decreases from the 1991-2000 averages.

The next group of tables also presents information on the allocation of harvester PMA species, by fishery and community of residence of vessel owner, for the proposed range of alternatives. This is the same information as presented in preceding tables, only rearranged with fishery as the main category rather than community to facilitate comparison of distribution within each fishery. Tables are:

- Table 3.18.2-4 enumerates the number of harvest vessels in each PMA crab fishery owned by residents of each named community that would be allocated PMAs under each alternative. In addition, the average number of vessels in each category owned by residents of each named community for the period 1991-2000 is presented as a baseline measure. The average, of course, includes some vessels with only non-qualified PMA crab landings, while all vessels that would receive PMA allocations are by definition “qualified.” Also, since for some PMA fisheries PMA allocations are based on participation in PMA fisheries other than the one for which the allocation is received, and because consistency of participation patterns varies from fishery to fishery, “baseline” averages can be less than the number of vessels receiving allocations in any given fishery. This table also serves to identify confidentiality concerns for the next two tables.
- Table 3.18.2-5 aggregates the proposed PMA allocations by alternative for each PMA fishery and ownership from named communities. In addition, average harvest (in terms of both pounds and value) for vessels owned by residents of each named community for the period 1991-2000 is presented as a baseline measure.
- Table 3.18.2-6 presents the change between the historical harvest baseline measure (average percent of the total individual PMA crab fishery harvested 1991-2000) compared to the allocations for each alternative for each PMA crab fishery and named community. The change is presented in terms of percent change from the historical baseline measure.

Table 3.18.2-3 Summary of allocations by community and fishery, by alternative and option percent change from average annual pounds harvested, 1991-2000

State	Community	Fishery	Percent of Total Fishery Harvest Value	Percent of Total Fishery Harvest Volume	Percent Change in Harvest Volume between 1991-2000 Annual Average and Quota Allocation by Alternative and Option						
			1991-2000	1991-2000	1A	1B	2A	2B	3A	3B	4A
Alaska	Anchorage	ADK_BRN	*	*	*	*	*	*	*	*	*
		ADK_RED	*	*	*	*					
		BB_RED	2.09%	2.29%	-6.33%	-4.24%	-6.99%	-5.86%	6.60%		
		BS_OPIE	13.08%	1.77%	20.15%		13.67%		25.10%	20.80%	37.09%
		BS_TANN	8.86%	0.96%	78.42%	75.39%	62.86%				
		COM_BRN	*	*	NA	NA	NA	NA	NA	NA	NA
		DUT_BRN	*	*	*	*	*	*	*	*	*
		PRB_BLU	*	*	*		*	*			
		PRB_RED	*	*	*		*	*			
	STM_BLU	*	*	*		*	*				
	Homer	BB_RED	3.16%	3.32%	-10.44%	-11.87%	-8.47%	-10.02%	7.81%		
		BS_OPIE	2.29%	2.86%	-5.63%		-10.22%		-1.94%	-3.97%	5.50%
		BS_TANN	5.53%	3.04%	12.63%	8.61%	3.95%				
		PRB_BLU	-1.68%	12.15%	13.16%		13.17%	13.16%			
		PRB_RED	-8.52%	5.90%	47.83%		72.44%	67.61%			
		STM_BLU	*	*	*		*	*			
	King Cove/ Sand Point	BB_RED	0.31%	2.34%	-38.38%	-36.86%	-35.91%	-34.82%	-28.78%		
		BS_OPIE	0.90%	2.10%	-47.01%		-49.25%		-46.56%	-45.80%	-47.97%
		BS_TANN	5.90%	2.19%	-51.77%	-50.88%	-46.45%				
		PRB_BLU	*	*	*		*	*			
		PRB_RED	*	*	-40.83%		-40.39%	-39.37%			
		STM_BLU	*	*	-15.46%		-22.36%	-17.68%			
	Kodiak	ADK_BRN	*	*	*	*	*	*	*	*	*
		ADK_RED	*	*	-11.97%	-23.64%					
		BB_RED	13.65%	13.45%	-10.03%	-11.49%	-8.85%	-9.64%	-6.94%		

State	Community	Fishery	Percent of Total Fishery Harvest Value	Percent of Total Fishery Harvest Volume	Percent Change in Harvest Volume between 1991-2000 Annual Average and Quota Allocation by Alternative and Option						
			1991-2000	1991-2000	1A	1B	2A	2B	3A	3B	4A
		BS_OPIE	13.16%	13.22%	-5.54%		-9.24%		-5.18%	-4.81%	-0.46%
		BS_TANN	15.82%	15.95%	-9.22%	-10.67%	-11.89%				
		COM_BRN	*	*	NA	NA	NA	NA	NA	NA	NA
		DUT_BRN	*	*	*	*	*	*	*	*	*
		PRB_BLU	9.60%	9.56%	32.35%		32.35%	32.35%			
		PRB_RED	8.51%	8.26%	8.83%		12.31%	12.35%			
		STM_BLU	18.75%	19.12%	-11.38%		-7.39%	-9.67%			
	Other Alaska	ADK_BRN	*	*							
		ADK_RED	*	*							
		BB_RED	3.62%	3.64%	-18.85%	-17.70%	-15.15%	-14.51%	-9.63%		
		BS_OPIE	4.15%	4.23%	-7.21%		-6.75%		-3.85%	-5.65%	-0.50%
		BS_TANN	3.41%	3.49%	-22.32%	-22.15%	-19.57%				
		COM_BRN	*	*							
		DUT_BRN	*	*							
		PRB_BLU	6.92%	6.86%	-9.86%		-9.88%	-9.86%			
		PRB_RED	7.41%	7.29%	5.78%		4.94%	5.39%			
		STM_BLU	2.73%	2.66%	28.31%		43.91%	36.78%			
		Washington	Seattle-Tacoma CMSA	ADK_BRN	36.63%	36.76%	-4.57%	-1.21%	-35.67%	-31.59%	-58.90%
ADK_RED	21.07%			21.67%	-39.12%	-25.68%					
BB_RED	63.22%			63.36%	4.34%	4.60%	4.45%	4.61%	2.07%		
BS_OPIE	64.16%			64.78%	0.09%		1.69%		-0.89%	-0.41%	-2.31%
BS_TANN	63.51%			64.23%	0.54%	0.97%	1.86%				
COM_BRN					NA	NA	NA	NA	NA	NA	NA

Table 3.18.2-3(Cont.) Summary of allocations by community and fishery, by alternative and option percent change from average annual pounds harvested, 1991-2000

State	Community	Fishery	Percent of Total Fishery Harvest Value	Percent of Total Fishery Harvest Volume	Percent Change in Harvest Volume between 1991-2000 Annual Average and Quota Allocation by Alternative and Option						
			1991-2000	1991-2000	1A	1B	2A	2B	3A	3B	4A
		DUT_BRN	54.11%	54.79%	-0.35%	0.55%	16.57%	12.58%	17.31%	11.41%	13.78%
		PRB_BLU	50.82%	50.24%	-1.71%		-1.70%	-1.71%			
		PRB_RED	56.25%	56.08%	-3.22%		-8.05%	-7.80%			
		STM_BLU	64.26%	63.26%	2.60%		-0.60%	1.23%			
	Other Washington	ADK_BRN	*	*							
		ADK_RED	*	*	*	*					
		BB_RED	4.05%	4.12%	-7.77%	-6.89%	-10.09%	-9.79%	-7.16%		
		BS_OPIE	4.43%	4.35%	-12.85%		-11.83%		-9.66%	-12.12%	-11.49%
		BS_TANN	3.63%	3.71%	-15.27%	-13.95%	-15.87%				
			COM_BRN								
			DUT_BRN	*	*						
			PRB_BLU	*	*	*		*	*		
			PRB_RED	*	*	*		*	*		
			STM_BLU	*	*	*		*	*		
Oregon	Newport	ADK_BRN	*	*	*	*	*	*	*	*	*
		ADK_RED	*	*	*	*					
		BB_RED	4.33%	4.50%	7.83%	7.00%	1.92%	1.02%	-1.22%		
		BS_OPIE	3.66%	3.46%	17.52%		19.20%		16.61%	15.51%	17.45%
		BS_TANN	3.44%	2.95%	50.51%	48.89%	49.54%				
		COM_BRN	*	*	NA	NA	NA	NA	NA	NA	NA
		DUT_BRN	*	*	*	*	*	*	*	*	*
		PRB_BLU	9.13%	9.25%	17.40%		17.38%	17.40%			

Table 3.18.2-3(Cont.) Summary of allocations by community and fishery, by alternative and option percent change from average annual pounds harvested, 1991-2000

State	Community	Fishery	Percent of Total Fishery Harvest Value	Percent of Total Fishery Harvest Volume	Percent Change in Harvest Volume between 1991-2000 Annual Average and Quota Allocation by Alternative and Option						
			1991-2000	1991-2000	1A	1B	2A	2B	3A	3B	4A
		PRB_RED	6.68%	7.01%	11.48%		15.78%	15.65%			
		STM_BLU	*	*	*		*	*			
	Other Oregon	BB_RED	1.75%	1.76%	-9.24%	-11.05%	-10.39%	-11.96%	-12.00%		
		BS_OPIE	1.83%	1.79%	16.45%		8.89%		19.53%	17.03%	9.63%
		BS_TANN	2.65%	2.60%	-14.31%	-16.34%	-20.04%				
		PRB_BLU	*	*	NA		NA	NA			
		PRB_RED	*	*	*		*	*			
		STM_BLU	*	*	*		*	*			
Other States		ADK_RED	*	*	NA	NA					
		BB_RED	*	*	65.73%	64.62%	58.21%	61.38%	64.71%		
		BS_OPIE	1.56%	1.44%	98.72%		82.20%		104.55%	106.34%	103.67%
		BS_TANN	*	*	151.05%	165.50%	148.72%				
		PRB_BLU	6.32%	6.81%	-25.71%		-25.72%	-25.71%			
		PRB_RED	2.79%	3.16%	35.80%		41.92%	41.04%			
		STM BLU	*	*	87.76%		75.70%	86.26%			

Notes: Not all communities with historical harvest (1991-2000) were issued allocations under the alternatives.
 Ownership information for allocations by alternative is based on ownership of vessel during the most recent PMA crab fishery activity.
 Ownership information for average harvest 1991-2000 is based on ownership of vessel during year of harvest.
 1991-2000 averages based on 10 years, even for those fisheries not open all 10 years
 * = cell values suppressed due to confidentiality.
 "COM_BRN" represents a combined brown crab allocation category under some alternatives rather than a historic species fishery.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1 and Allocation File

Table 3.18.2-4 Count of vessels allocated PMA crab by fishery and community by alternative and option

Fishery	State	City	Average Har Ves 1991-2000*	Number of Qualifying Vessels by Option						
				1A	1B	2A	2B	3A	3B	4A
ADK_BRN	Alaska	Anchorage	1	2	2	1	1	1	1	1
		Kodiak	2	3	3	3	3	2	2	2
		Other Alaska	1							
	Oregon	Newport	1	2	2	2	2	1	1	1
	Washington	Other Washington	0							
		S-T CMSA	6	16	16	9	9	6	6	7
ADK_BRN Total			9	23	23	15	15	10	10	11
ADK_RED	Alaska	Anchorage	0	1	1					
		Kodiak	2	5	5					
		Other Alaska	0							
	Oregon	Newport	1	2	2					
	Other States	Other States	0	2	2					
	Washington	Other Washington	1	2	2					
		S-T CMSA	4	17	17					
ADK_RED Total			8	29	29					
BB_RED	Alaska	Anchorage	5	6	6	6	6	6		
		Homer	8	8	8	8	8	7		
		King Cove/Sand Point	6	6	6	6	6	5		
		Kodiak	36	35	35	35	35	35		
		Other Alaska	12	13	13	13	13	12		
	Oregon	Newport	9	11	11	11	11	11		
		Other Oregon	5	5	5	5	5	4		
	Other States	Other States	3	6	6	6	6	6		
	Washington	Other Washington	10	9	9	9	9	9		
			S-T CMSA	134	172	172	172	172	161	
BB_RED Total			227	271	271	271	271	256		
BS_OPIE	Alaska	Anchorage	6	6		6		6	6	6

Table 3.18.2-4(Cont.) Count of vessels allocated PMA crab by fishery and community by alternative and option

Fishery	State	City	Average Har Ves 1991-2000*	Number of Qualifying Vessels by Option						
				1A	1B	2A	2B	3A	3B	4A
		Homer	8	8		8		8	8	8
		King Cove/Sand Point	5	4		4		4	4	5
		Kodiak	32	34		34		32	32	35
		Other Alaska	12	13		13		13	13	13
	Oregon	Newport	8	12		12		10	10	11
		Other Oregon	4	5		5		5	5	5
	Other States	Other States	4	6		6		6	6	6
	Washington	Other Washington	10	8		9		8	8	8
		S-T CMSA	126	158		161		155	155	152
BS_OPIE Total			213	254		258		247	247	249
BS_TANN	Alaska	Anchorage	5	6	6	6				
		Homer	8	8	8	8				
		King Cove/Sand Point	6	5	5	5				
		Kodiak	35	35	35	35				
		Other Alaska	10	13	13	13				
	Oregon	Newport	8	12	12	12				
		Other Oregon	6	5	5	5				
	Other States	Other States	3	6	6	6				
	Washington	Other Washington	9	9	9	9				
		S-T CMSA	125	169	169	170				
BS_TANN Total			214	268	268	269				
COM_BRN	Alaska	Anchorage		2	2	1	1	1	1	1
		Kodiak		3	3	3	3	2	2	2
	Oregon	Newport		2	2	2	2	1	1	1
	Washington	S-T CMSA		17	17	9	9	8	8	8
COM_BRN Total				24	24	15	15	12	12	12

Table 3.18.2-4(Cont.) Count of vessels allocated PMA crab by fishery and community by alternative and option

Fishery	State	City	Average Har Ves 1991-2000*	Number of Qualifying Vessels by Option						
				1A	1B	2A	2B	3A	3B	4A
DUT_BRN	Alaska	Anchorage	1	1	1	1	1	1	1	1
		Kodiak	1	1	1	1	1	1	1	2
		Other Alaska	1							
	Oregon	Newport	1	2	2	2	2	1	1	1
	Washington	Other Washington	0							
		S-T CMSA	6	15	15	9	9	8	8	8
DUT_BRN Total			9	19	19	13	13	11	11	12
PRB_BLU	Alaska	Anchorage	1	1		1	1			
		Homer	5	7		7	7			
		King Cove/Sand Point	2	3		3	3			
		Kodiak	6	11		11	11			
		Other Alaska	4	7		7	7			
	Oregon	Newport	4	5		5	5			
		Other Oregon	0	1		1	1			
	Other States	Other States	4	5		5	5			
	Washington	Other Washington	1	1		1	1			
		S-T CMSA	22	43		43	43			
PRB_BLU Total			49	84		84	84			
PRB_RED	Alaska	Anchorage	2	1		1	1			
		Homer	5	7		7	7			
		King Cove/Sand Point	3	5		5	5			
		Kodiak	7	14		14	14			
	Other Alaska	5	8		7	7				
	Oregon	Newport	4	5		5	5			
		Other Oregon	1	3		2	2			
	Other States	Other States	4	5		5	5			

Table 3.18.2-4(Cont.) Count of vessels allocated PMA crab by fishery and community by alternative and option

Fishery	State	City	Average Har Ves 1991-2000*	Number of Qualifying Vessels by Option						
				1A	1B	2A	2B	3A	3B	4A
	Washington	Other Washington	3	2		2	2			
		S-T CMSA	31	72		61	61			
PRB_RED Total			63	122		109	109			
STM_BLU	Alaska	Anchorage	2	3		2	2			
		Homer	2	2		2	2			
		King Cove/Sand Point	3	4		4	4			
		Kodiak	18	22		21	21			
		Other Alaska	4	6		5	5			
	Oregon	Newport	2	3		3	3			
		Other Oregon	2	3		3	3			
	Other States	Other States	2	5		5	5			
	Washington	Other Washington	3	3		3	3			
		S-T CMSA	56	93		91	91			
STM_BLU Total			93	144		139	139			

Notes: Not all communities with historical harvest (1991-2000) were issued allocations under the alternatives
 Ownership information for allocations by alternative based on ownership of vessel during most recent PMA activity
 Ownership information for average harvest 1991-2000 based on ownership of vessel during year of harvest
 Average vessel numbers for individual fisheries calculated using only years each such fishery was open.
 Shaded cells are suppressed in harvest tables due to confidentiality

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1 and Allocation File

Table 3.18.2-5 Summary of allocations by fishery and community, by alternative and option

Fishery	State	City	Percent Har Lbs 1991-2000	Percent Har \$ 1991-2000	Percent of Harvest Allocation by Option						
					1A	1B	2A	2B	3A	3B	4A
ADK_BRN	Alaska	Anchorage	*	*	*	*	*	*	*	*	*
		Kodiak	*	*	*	*	*	*	*	*	*
		Other Alaska	*	*							
	Oregon	Newport	*	*	*	*	*	*	*	*	*
	Washington	Other Washington	*	*							
		S-T CMSA	36.76%	36.63%	35.08%	36.32%	23.65%	25.15%	15.11%	18.63%	24.00%
ADK_BRN Total			100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
ADK_RED	Alaska	Anchorage	*	*	*	*					
		Kodiak	*	*	47.66%	41.34%					
		Other Alaska	*	*							
	Oregon	Newport	*	*	*	*					
	Other States	Other States	*	*	*	*					
	Washington	Other Washington	*	*	*	*					
		S-T CMSA	21.67%	21.07%	13.19%	16.10%					
ADK_RED Total			100.00%	100.00%	100.00%	100.00%					
BB_RED	Alaska	Anchorage	2.29%	2.34%	2.14%	2.19%	2.13%	2.15%	2.44%		
		Homer	3.32%	3.43%	2.98%	2.93%	3.04%	2.99%	3.58%		
		King Cove/ Sand Point	2.34%	2.35%	1.44%	1.48%	1.50%	1.52%	1.67%		
		Kodiak	13.45%	13.65%	12.10%	11.90%	12.26%	12.15%	12.52%		
		Other Alaska	3.64%	3.62%	2.95%	2.99%	3.09%	3.11%	3.29%		
	Oregon	Newport	4.50%	4.33%	4.85%	4.81%	4.58%	4.54%	4.44%		
		Other Oregon	*	1.75%	1.60%	1.57%	1.58%	1.55%	1.55%		
	Other States	Other States	*	1.28%	2.03%	2.02%	1.94%	1.98%	2.02%		
	Washington	Other Washington	4.12%	4.05%	3.80%	3.84%	3.71%	3.72%	3.83%		
		S-T CMSA	63.36%	63.22%	66.11%	66.27%	66.18%	66.28%	64.67%		
BB_RED Total			100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%		
BS_OPIE	Alaska	Anchorage	1.77%	2.00%	2.13%		2.01%		2.21%	2.14%	2.43%
		Homer	2.86%	2.93%	2.70%		2.57%		2.81%	2.75%	3.02%

Table 3.18.2-5(Cont.) Summary of allocations by fishery and community, by alternative and option

Fishery	State	City	Percent Har Lbs 1991-2000	Percent Har \$ 1991-2000	Percent of Harvest Allocation by Option						
					1A	1B	2A	2B	3A	3B	4A
		King Cove/ Sand Point	2.10%	2.12%	1.11%		1.06%		1.12%	1.14%	1.09%
		Kodiak	13.22%	13.16%	12.49%		12.00%		12.54%	12.58%	13.16%
		Other Alaska	4.23%	4.15%	3.92%		3.94%		4.07%	3.99%	4.21%
	Oregon	Newport	3.46%	3.66%	4.06%		4.12%		4.03%	3.99%	4.06%
		Other Oregon	1.79%	1.83%	2.08%		1.94%		2.13%	2.09%	1.96%
	Other States	Other States	1.44%	1.56%	2.87%		2.63%		2.96%	2.98%	2.94%
	Washington	Other Washington	4.35%	4.43%	3.79%		3.83%		3.93%	3.82%	3.85%
		S-T CMSA	64.78%	64.16%	64.84%		65.88%		64.21%	64.51%	63.28%
BS_OPIE Total			100.00%	100.00%	100.00%		100.00%		100.00%	100.00%	100.00%
BS_TANN	Alaska	Anchorage	0.96%	1.04%	1.70%	1.68%	1.56%				
		Homer	3.04%	3.21%	3.42%	3.30%	3.16%				
		King Cove/ Sand Point	2.19%	2.32%	1.05%	1.07%	1.17%				
		Kodiak	15.95%	15.82%	14.48%	14.25%	14.05%				
		Other Alaska	3.49%	3.41%	2.71%	2.71%	2.80%				
	Oregon	Newport	2.95%	3.44%	4.44%	4.39%	4.41%				
		Other Oregon	*	2.65%	2.22%	2.17%	2.08%				
	Other States	Other States	*	0.97%	2.25%	2.38%	2.23%				
	Washington	Other Washington	3.71%	3.63%	3.15%	3.20%	3.12%				
		S-T CMSA	64.23%	63.51%	64.58%	64.86%	65.43%				
BS_TANN Total			100.00%	100.00%	100.00%	100.00%	100.00%				
COM_BRN	Alaska	Anchorage			*	*	*	*	*	*	*
		Kodiak			*	*	*	*	*	*	*
	Oregon	Newport			*	*	*	*	*	*	*
	Washington	S-T CMSA			44.84%	45.70%	43.76%	43.41%	39.69%	39.83%	43.17%
COM_BRN Total					100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
DUT_BRN	Alaska	Anchorage	*	*	*	*	*	*	*	*	*
		Kodiak	*	*	*	*	*	*	*	*	*
		Other Alaska	*	*							
	Oregon	Newport	*	*	*	*	*	*	*	*	*

Table 3.18.2-5(Cont.) Summary of allocations by fishery and community, by alternative and option

Fishery	State	City	Percent Har Lbs 1991-2000	Percent Har \$ 1991-2000	Percent of Harvest Allocation by Option						
					1A	1B	2A	2B	3A	3B	4A
	Washington	Other Washington	*	*							
		S-T CMSA	54.79%	54.11%	54.59%	55.09%	63.87%	61.68%	64.27%	61.04%	62.34%
DUT_BRN Total			100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
PRB_BLU	Alaska	Anchorage	*	*	*		*	*			
		Homer	12.15%	11.94%	13.74%		13.75%	13.74%			
		King Cove/ Sand Point	*	*	*		*	*			
		Kodiak	9.56%	9.60%	12.66%		12.66%	12.66%			
		Other Alaska	6.86%	6.92%	6.18%		6.18%	6.18%			
	Oregon	Newport	9.25%	9.13%	10.86%		10.86%	10.86%			
		Other Oregon	*	*	*		*	*			
	Other States	Other States	6.81%	6.32%	5.06%		5.06%	5.06%			
	Washington	Other Washington	*	*	*		*	*			
		S-T CMSA	50.24%	50.82%	49.38%		49.38%	49.38%			
PRB_BLU Total			100.00%	100.00%	100.00%		100.00%	100.00%			
PRB_RED	Alaska	Anchorage	*	*	*		*	*			
		Homer	5.90%	5.39%	8.72%		10.17%	9.88%			
		King Cove/ Sand Point	*	*	2.32%		2.33%	2.37%			
		Kodiak	8.26%	8.51%	8.99%		9.27%	9.28%			
		Other Alaska	7.29%	7.41%	7.71%		7.65%	7.68%			
	Oregon	Newport	7.01%	6.68%	7.82%		8.12%	8.11%			
		Other Oregon	*	*	*		*	*			
	Other States	Other States	3.16%	2.79%	4.29%		4.48%	4.45%			
	Washington	Other Washington	*	*	*		*	*			
		S-T CMSA	56.08%	56.25%	54.27%		51.57%	51.71%			
PRB_RED Total			100.00%	100.00%	100.00%		100.00%	100.00%			
STM_BLU	Alaska	Anchorage	*	*	*		*	*			
		Homer	*	*	*		*	*			

Table 3.18.2-5(Cont.) Summary of allocations by fishery and community, by alternative and option

Fishery	State	City	Percent Har Lbs 1991-2000	Percent Har \$ 1991-2000	Percent of Harvest Allocation by Option						
					1A	1B	2A	2B	3A	3B	4A
		King Cove/ Sand Point	2.59%	2.42%	2.19%		2.01%	2.13%			
		Kodiak	19.12%	18.75%	16.94%		17.71%	17.27%			
		Other Alaska	2.66%	2.73%	3.41%		3.82%	3.63%			
	Oregon	Newport	*	*	*		*	*			
		Other Oregon	*	*	*		*	*			
	Other States	Other States	*	*	2.52%		2.36%	2.50%			
	Washington	Other Washington	*	*	*		*	*			
		S-T CMSA	63.26%	64.26%	64.90%		62.88%	64.03%			
STM_BLU Total			100.00%	100.00%	100.00%		100.00%	100.00%			

Notes: Not all communities with historical harvest (1991-2000) were issued allocations under the alternatives
 Ownership information for allocations by alternative based on ownership of vessel during the most recent PMA Crab fishery activity
 Ownership information for average harvest 1991-2000 based on ownership of vessel during year of harvest
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1 and Allocation File

Table 3.18.2-6 Summary of allocations by fishery and community, by alternative and option percent change from average annual pounds harvested (1991-2000)

Fishery	State	City	Percent Har Lbs 1991-2000	Percent Har \$ 1991-2000	Percent Harvest Volume Change From 1991-2000 Average By Option							
					1A	1B	2A	2B	3A	3B	4A	
ADK_BRN	Alaska	Anchorage	*	*	*	*	*	*	*	*	*	
		Kodiak	*	*	*	*	*	*	*	*	*	
		Other Alaska	*	*								
	Washington	Oregon	Newport	*	*	*	*	*	*	*	*	*
		Other Washington										
		S-T CMSA	36.76%	36.63%	-4.57%	-1.21%	-35.67%	-31.59%	-58.90%	-49.33%	-34.72%	
ADK_RED	Alaska	Anchorage	*	*	*	*						
		Kodiak	*	*	-11.97%	-23.64%						
		Other Alaska	*	*								
	Washington	Oregon	Newport	*	*	*	*					
		Other States	Other States	*	*	NA	NA					
		Other Washington			*	*						
S-T CMSA	21.67%	21.07%	-39.12%	-25.68%								
BB_RED	Alaska	Anchorage	2.29%	2.34%	-6.33%	-4.24%	-6.99%	-5.86%	6.60%			
		Homer	3.32%	3.43%	-10.44%	-11.87%	-8.47%	-10.02%	7.81%			
		King Cove/ Sand Point	2.34%	2.35%	-38.38%	-36.86%	-35.91%	-34.82%	-28.78%			
		Kodiak	13.45%	13.65%	-10.03%	-11.49%	-8.85%	-9.64%	-6.94%			
		Other Alaska	3.64%	3.62%	-18.85%	-17.70%	-15.15%	-14.51%	-9.63%			
	Washington	Oregon	Newport	4.50%	4.33%	7.83%	7.00%	1.92%	1.02%	-1.22%		
		Other Oregon	*	1.75%	-9.24%	-11.05%	-10.39%	-11.96%	-12.00%			
		Other States	Other States	*	1.28%	65.73%	64.62%	58.21%	61.38%	64.71%		
		Other Washington	4.12%	4.05%	-7.77%	-6.89%	-10.09%	-9.79%	-7.16%			
		S-T CMSA	63.36%	63.22%	4.34%	4.60%	4.45%	4.61%	2.07%			
BS_OPIE	Alaska	Anchorage	1.77%	2.00%	20.15%		13.67%		25.10%	20.80%	37.09%	
		Homer	2.86%	2.93%	-5.63%		-10.22%		-1.94%	-3.97%	5.50%	
		King Cove/ Sand Point	2.10%	2.12%	-47.01%		-49.25%		-46.56%	-45.80%	-47.97%	
		Kodiak	13.22%	13.16%	-5.54%		-9.24%		-5.18%	-4.81%	-0.46%	

Table 3.18.2-6(Cont.) Summary of allocations by fishery and community, by alternative and option percent change from average annual pounds harvested (1991-2000)

Fishery	State	City	Percent Har Lbs 1991-2000	Percent Har \$ 1991-2000	Percent Harvest Volume Change From 1991-2000 Average By Option						
					1A	1B	2A	2B	3A	3B	4A
		Other Alaska	4.23%	4.15%	-7.21%		-6.75%		-3.85%	-5.65%	-0.50%
	Oregon	Newport	3.46%	3.66%	17.52%		19.20%		16.61%	15.51%	17.45%
		Other Oregon	1.79%	1.83%	16.45%		8.89%		19.53%	17.03%	9.63%
	Other States	Other States	1.44%	1.56%	98.72%		82.20%		104.55%	106.34%	103.67%
	Washington	Other Washington	4.35%	4.43%	-12.85%		-11.83%		-9.66%	-12.12%	-11.49%
		S-T CMSA	64.78%	64.16%	0.09%		1.69%		-0.89%	-0.41%	-2.31%
BS_TANN	Alaska	Anchorage	0.96%	1.04%	78.42%	75.39%	62.86%				
		Homer	3.04%	3.21%	12.63%	8.61%	3.95%				
		King Cove/ Sand Point	2.19%	2.32%	-51.77%	-50.88%	-46.45%				
		Kodiak	15.95%	15.82%	-9.22%	-10.67%	-11.89%				
		Other Alaska	3.49%	3.41%	-22.32%	-22.15%	-19.57%				
	Oregon	Newport	2.95%	3.44%	50.51%	48.89%	49.54%				
		Other Oregon	*	2.65%	-14.31%	-16.34%	-20.04%				
	Other States	Other States	*	0.97%	151.05%	165.50%	148.72%				
	Washington	Other Washington	3.71%	3.63%	-15.27%	-13.95%	-15.87%				
		S-T CMSA	64.23%	63.51%	0.54%	0.97%	1.86%				
COM_BRN	Alaska	Anchorage			NA	NA	NA	NA	NA	NA	NA
		Kodiak			NA	NA	NA	NA	NA	NA	NA
	Oregon	Newport			NA	NA	NA	NA	NA	NA	NA
	Washington	S-T CMSA			NA	NA	NA	NA	NA	NA	NA
DUT_BRN	Alaska	Anchorage	*	*	*	*	*	*	*	*	*
		Kodiak	*	*	*	*	*	*	*	*	*
		Other Alaska	*	*							
	Oregon	Newport	*	*	*	*	*	*	*	*	*
	Washington	Other Washington	*	*							
		S-T CMSA	54.79%	54.11%	-0.35%	0.55%	16.57%	12.58%	17.31%	11.41%	13.78%
PRB_BLU	Alaska	Anchorage	*	*	*		*	*			
		Homer	12.15%	11.94%	13.16%		13.17%	13.16%			

Table 3.18.2-6(Cont.) Summary of allocations by fishery and community, by alternative and option percent change from average annual pounds harvested (1991-2000)

Fishery	State	City	Percent Har Lbs 1991-2000	Percent Har \$ 1991-2000	Percent Harvest Volume Change From 1991-2000 Average By Option						
					1A	1B	2A	2B	3A	3B	4A
		King Cove/ Sand Point	*	*	*		*	*			
		Kodiak	9.56%	9.60%	32.35%			32.35%	32.35%		
		Other Alaska	6.86%	6.92%	-9.86%			-9.88%	-9.86%		
	Oregon	Newport	9.25%	9.13%	17.40%			17.38%	17.40%		
		Other Oregon	*	*	NA			NA	NA		
	Other States	Other States	6.81%	6.32%	-25.71%			-25.72%	-25.71%		
	Washington	Other Washington	*	*	*			*	*		
		S-T CMSA	50.24%	50.82%	-1.71%			-1.70%	-1.71%		
PRB_RED	Alaska	Anchorage	*	*	*			*	*		
		Homer	5.90%	5.39%	47.83%			72.44%	67.61%		
		King Cove/ Sand Point	*	*	-40.83%			-40.39%	-39.37%		
		Kodiak	8.26%	8.51%	8.83%			12.31%	12.35%		
		Other Alaska	7.29%	7.41%	5.78%			4.94%	5.39%		
	Oregon	Newport	7.01%	6.68%	11.48%			15.78%	15.65%		
		Other Oregon	*	*	*			*	*		
	Other States	Other States	3.16%	2.79%	35.80%			4.48%	4.45%		
	Washington	Other Washington	*	*	*			*	*		
		S-T CMSA	56.08%	56.25%	-3.22%			-8.05%	-7.80%		
STM_BLU	Alaska	Anchorage	*	*	*			*	*		
		Homer	*	*	*			*	*		
		King Cove/ Sand Point	2.59%	2.42%	-15.46%			-22.36%	-17.68%		
		Kodiak	19.12%	18.75%	-11.38%			-7.39%	-9.67%		
		Other Alaska	2.66%	2.73%	28.31%			43.91%	36.78%		
	Oregon	Newport	*	*	*			*	*		
		Other Oregon	*	*	*			*	*		
	Other States	Other States	*	*	87.76%			75.70%	86.26%		
	Washington	Other	*	*	*			*	*		

Table 3.18.2-6(Cont.) Summary of allocations by fishery and community, by alternative and option percent change from average annual pounds harvested (1991-2000)

Fishery	State	City	Percent Har Lbs 1991-2000	Percent Har \$ 1991-2000	Percent Harvest Volume Change From 1991-2000 Average By Option						
					1A	1B	2A	2B	3A	3B	4A
		Washington									
		S-T CMSA	63.26%	64.26%	2.60%		-0.60%	1.23%			

Notes: Not all communities with historical harvest (1991-2000) were issued allocations under the alternatives
 Ownership information for allocations by alternative based on ownership of vessel during the most recent PMA Crab fishery activity
 Ownership information for average harvest 1991-2000 based on ownership of vessel during year of harvest
 Averages based on ten years, even for those fisheries not open all ten years

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1 and Allocation File

3.18.2.2 Impact of alternatives: catcher/processor sector

Table 3.18.2-7 provides information on the "big three" BSAI crab fisheries being considered for rationalization. In terms of types of impacts under the rationalization alternatives, for confidentiality reasons the sector must be discussed as a whole, and even then only for the three largest BSAI crab fisheries. As shown, for Bering Sea opilio crab, catcher processors historically (1991-2000) harvested 11.14 percent of total harvest in terms of volume, and 10.76 percent in terms of value. For processing, the percentages are 14.35 percent (volume) and 13.53 percent (value). As is the case for all species, the values differ since they are based on different qualifying periods and data sets. The data in the table indicate that harvesting and processing quota shares will not "match up" and that allocations are less than the historic (1991-2000) average harvesting and processing levels (other than for processing Alternative 1).

For Bristol Bay red king crab, catcher processors historically (1991-2000) harvested 5.84 percent of total harvest in terms of volume, and 5.75 percent in terms of value. For processing, the percentages are 9.25 (volume) and 8.92 (value). As was the case with opilio, harvesting and processing quota shares will not "match up" and allocations are less than the historic harvesting and processing averages (in this case for all harvesting and processing alternatives).

For Bering Sea Tanner crab, catcher processors historically (1991-2000) harvested 10.49 percent of total harvest in terms of volume, and 9.85 percent in terms of value. For processing, the percentages are 14.39 (volume) and 13.28 (value). Similar to opilio and Bristol Bay red king crab, harvesting and processing quota shares will not "match up" and allocations are less than the 1991-2000 historic harvesting and processing averages.

As discussed elsewhere, the number of catcher processors participating in these three BSAI crab fisheries has declined over time, which is one factor in allocations being less than historic averages. From the information available it is not possible to draw conclusions on the probable effects of these allocations on individual catcher processor economic entities (positive or negative). Even if individual entities experience decidedly negative impacts, it is not likely that there will be effects at the community level for Seattle given the size of the local economy and the presence of other sectors that would presumably gain from any relative loss in the catcher processor sector. Allocations for catcher processors for the other six BSAI crab fisheries being considered for rationalization, and possible accompanying community effects, cannot be discussed because of confidentiality constraints.

3.18.2.3 Impact of alternatives: processing sector

Tables displaying processor allocations cannot be included in this report as they would necessarily reveal confidential information. This makes discussing changes in such allocations, and their effects on communities, difficult. Further complications arise because different communities have different combinations of processors, and some communities have less than four processors and so overall community processing information is confidential. Potential allocations to individual firms under a proposed two-pie system cannot be discussed, because while allocations would be public were they to actually be made, at present the calculations of potential allocations are based on specific confidential, single-business performance data. Nonetheless, there are certain general conclusions that can be stated about the "big three" species allocations.

Table 3.18.2-7 Catcher/processor 1991-2000 annual average harvesting and processing volume and value and allocation volumes as a percentage of fishery totals

Species	Harvesting									Processing			
	Value 1991- 2000 Average	Volume								Value 1991- 2000 Average	Volume		
		1991- 2000 Average	Alt 1A	Alt 1B	Alt 2A	Alt 2B	Alt 3A	Alt 3B	Alt 4A		1991- 2000 Average	Alt 1	Alt 2
Bristol Bay Red King	5.75%	5.84%	5.16%	5.37%	5.23%	5.43%	4.38%	NA	NA	8.92%	9.25%	8.06%	4.44%
Bering Sea Opilio	10.76%	11.14%	10.50%	NA	10.92%	NA	9.72%	10.19%	9.19%	13.53%	14.35%	6.90%	11.51%
Bering Sea Tanner	9.85%	10.49%	7.42%	7.87%	8.76%	NA	NA	NA	NA	13.28%	14.39%	7.48%	NA

During the period 1991-2000, 80 different processors worked on Bering Sea opilio crab. For processor Alternative 1, 31 processors would receive quota allocations. The top 12 would receive more quota allocation than they historically processed (94.10 percent compared to 75.66 percent). The rest would receive less allocation than they processed on an average annual basis over the 1991-2000 period. For processor Alternative 2, 33 processors would receive quota allocations. The top 12 (with 1 exception) would receive more quota allocation than they had historically processed (89.57 percent compared to 75.66 percent). The rest would receive less than their historical annual average. In terms of community effects, this would allow, although not ensure, those larger processors that currently contribute economically to communities through fish tax revenues and private sector economic activity associated with crab processing to continue doing so. Because allocations are to processing companies, however, and not to specific facilities or communities, economic decisions at the corporate level to shift production from one facility to another may have community effects that are essentially unknowable beforehand. Given what is known about relative costs of crab processing in various communities, St. Paul and other northern communities would appear to be more at risk for such production shifts as a region than would the southern region as a whole, but shifts between southern region communities are certainly possible, which could result in consolidation and processors becoming more concentrated in fewer communities. Given the tendency of the marketplace to reveal costs and incentives that had not previously been well known, however, this assessment is not one with a great deal of certainty.

During the period 1991-2000, 71 different processors worked on Bering Sea Tanner crab. For processor Alternative 1, 35 processors would receive quota allocations. The top 10 (with 1 exception) would receive more quota allocation than they processed on an annual average basis over the period 1991-2000 (87.30 percent compared to 67.21 percent; the top 12 would receive 91.93 percent compared to 73.29 percent). The rest would receive less allocation than they historically processed. Tanner crab is not included under processor Alternative 2. In terms of potential community effects, the situation would be similar to that described for opilio crab.

During the period 1991-2000, 65 different processors worked on Bristol Bay red king crab. For processor Alternative 1, 27 processors would receive quota allocations. The top 14 (with 2 exceptions) would receive more quota allocation than they processed on an average annual basis over the 1991-2000 period (95.58 percent compared to 86.36 percent). The rest would receive less allocation than they historically processed. For processor Alternative 2, 30 processors would receive quota allocations. The top 13 (with 1 exception) would receive more quota allocation than they historically processed (94.02 percent compared to 85.29 percent). The rest would receive less allocation than they historically processed. In terms of potential community effects, the situation would be similar to that described for opilio crab.

3.18.2.4 Detailed community level impacts

As noted in the introduction to this section, community and social impacts of crab rationalization approaches are discussed both in this section and in an appendix to this volume, and these two discussions, taken together, comprise the SIA for crab rationalization. The SIA (Social Impact Assessment: BSAI Crab Rationalization Overview and Community Profiles), in EIS Appendix 3, details the localized nature and intensity of engagement with and dependency on the crab fishery at the community level, and presents an analysis of the direction and magnitude of the social impacts likely to result from crab rationalization for the series of communities profiled as well as for the CDQ region.

4.0 Analysis of the preferred alternative

At its June 2002 meeting, the Council, by unanimous vote, selected the preferred rationalization alternative from among the several alternatives analyzed in a Council analysis. In the words one Council member, “The preferred alternative is a carefully crafted program that strikes a balance of the interests of several identifiable groups that depend on these fisheries.” The Council developed the rationalization program to fit the specific dynamics and needs of the BSAI crab fisheries. The program builds on the Council’s experiences with the halibut and sablefish IFQ program and the American Fisheries Act cooperative program for Bering Sea pollock. The program is intended to address conservation and management issues associated with the current derby fishery and to reduce bycatch and associated mortalities. Share allocations to harvesters and processors, together with incentives for cooperation, contained in the preferred alternative, are intended to increase efficiencies, provide economic stability, and facilitate compensated reduction of excess capacities in both harvesting and processing sectors. The binding arbitration element of the program is intended to resolve price disputes between harvesters and processors, which in the past have delayed fishing. Community interests are protected by Community Development Quota (CDQ) group allocations and regional landing and processing requirements, as well as several community protection measures. Captains are allocated a portion of the catch to protect their interests in the fisheries. These “owner on board” shares are intended to provide long term benefits to both captains and crew. The preferred alternative includes a comprehensive socioeconomic data collection program that would aid the Council in assessing the success of the program and developing amendments that may be necessary to mitigate any unintended consequences. Perhaps most importantly, the program would improve safety of participants in the fishery by ending the often frenetic race for fish. The Council’s motion defining the rationalization program is attached hereto, as Appendix 4-1. The Council believes that the crab fisheries in the Bering Sea/Aleutian Islands require this innovative, comprehensive management approach to adequately recognize and protect the interests of all participants. The Council believes that it recognizes all components of the fishery as a balanced, inextricably linked system, rather than individual, competing components. The Council believes that it may not be the appropriate model for other fisheries in the Nation, or even for other fisheries in the North Pacific, and is not intended to be a template for other fisheries. The Council believes it is the appropriate management approach for this fishery.

This section describes and analyzes the Council’s preferred rationalization alternative, a “three-pie, voluntary cooperative” program. Although the preceding sections analyze the impacts and implications of all of the elements included in the alternative, a complete understanding of the specific consequences of the alternative, in its totality, requires the a comprehensive analysis of the alternative, including all preferred elements and options, as provided in this section.

4.1 The preferred alternative

The preferred alternative would implement a three-pie cooperative to rationalize all of the large crab fisheries in the BSAI.¹ The following fisheries would be included in the rationalization program:

- Bristol Bay red king crab
- WAI (Adak) golden king crab - West of 174° W
- EAI (Dutch Harbor) golden king crab - East of 174° W
- WAI (Adak) red king crab - West of 179° W
- Pribilof blue and red king crab

¹ A few federal fisheries are excluded from the program, including the Norton Sound red king crab fishery, which is operated under a “super exclusive” permit program, intended to protect the interests of local, small vessel participants. Under the permit program, participants in the Norton Sound fishery are not permitted to participate in any other BSAI crab fishery. Also excluded from this program are AI Tanner crab, AI red king crab east of 179° W. long., Bering Sea golden king crab, scarlet king crab, *C. angulatus*, and *C. tanneri*.

St. Matthew blue king crab
Bering Sea *C. opilio* (snow crab)
Bering Sea *C. bairdi* (Tanner crab)

The three-pie voluntary cooperative program is a complex program that includes elements that affect several identifiable groups that depend on these fisheries. Allocations of harvest shares would be made to harvesters, communities, and captains. Processors would be allocated processing shares. Designated regions would be allocated landings and processing activity, to preserve their historic interests in the fisheries. Harvesters would be permitted to form cooperatives to realize efficiencies through fleet consolidation. The novelty of the program has compelled the Council to include several safeguards, including a binding arbitration program for the resolution of price disputes, and an extensive data collection and review program designed to assess the success of the program. The program elements would amend the FMP and be implemented by NOAA Fisheries and the State of Alaska through the cooperative management structure established in the FMP.

This program relies on the State of Alaska Department of Fish and Game (ADF&G), the State of Alaska Board of Fisheries (BOF), and the BOF/Council Joint Protocol Committee² to address concerns of discards, highgrading, incidental catch, and the need for bycatch reduction, improved retention, and in-season monitoring under the program. Incidental catch could be discarded under the proposed program, subject to any limits established by the State and Joint Protocol Committee.

4.1.1 The harvest sector

Harvesters will be allocated quota shares (QS) in each fishery rationalized by the program for which they meet eligibility thresholds. QS are a revocable privilege that allow the holder to receive an annual allocation of a specific portion of the TAC from a fishery. These annual allocations of harvests are referred to as Individual Fishing Quotas (IFQs). QS would be designated as either catcher vessel shares or catcher/processor shares, depending on whether the vessel that created the privilege to the shares processed the qualifying harvests on board. In addition, catcher vessel QS would be designated by landing region. Catcher vessel IFQ would be issued in two classes. Class A IFQ will require delivery to a processor holding processing quota. Class A IFQ will also be subject to a regional delivery requirement. Under this regional requirement, harvests would be delivered either in a North or South region (in most fisheries). Class B IFQ could be delivered to any processor (except catcher/processors), and would not be regionally designated. Over harvest of IFQ would be forfeited in all cases. Penalties would be imposed for any overage in excess of 3 percent of a person's IFQ.

The Class A/Class B share distinction will be made only in the annual IFQ allocations. QS will be issued in a single class, with all QS identical, except for the regional landing designation. Since the Class B IFQ is intended to provide negotiating leverage to harvesters that are unaffiliated with holders of processing shares, only QS holders that are unaffiliated with holders of processing shares will receive Class B IFQ. Holders of processing shares and their affiliates that hold QS will be allocated Class A IFQ for all of their IPQ holdings. Any remaining IFQ (i.e., IFQ that for which the processor or its affiliate does not hold equivalent amounts of IPQ) will be allocated as Class A IFQ and Class B IFQ at the same ratio as those allocated to independent harvesters. The annual poundage allocation of IFQ arising from the QS will be unaffected by the Class A/Class B distinctions. For each region of each fishery, the allocation of Class B IFQ will be 10 percent of

² The BSAI crab fisheries are subject to joint federal and state management with certain elements of oversight, including monitoring and observer coverage deferred to the State. The Council contemplates that the joint management relationship would continue in the rationalized fishery.

the total allocation of IFQ.³ The absence of an affiliation with a holder of processing shares will be established by a harvester filing an annual sworn affidavit, stating that the use of any IFQ held by that harvester is not subject to any control of any holder of processing shares.

To receive a QS allocation in a fishery a harvester must hold a valid, permanent, fully transferable License Limitation Program (LLP) license, endorsed for the fishery. Since LLP licenses are the current qualification for participation in the fisheries, their use for defining eligibility in the rationalization program will maintain the current fishery participation. A harvester's allocation of QS for a fishery would be based on landings in that fishery (excluding landings of deadloss). Specifically, each allocation is the harvesters average annual portion of the total qualified catch during a specific qualifying period. Qualifying periods were selected to balance historical participation and recent participation. Different periods were selected for different fisheries to accommodate closures and other circumstances in the fisheries in recent years. Qualifying periods for the various fisheries are the following:

Table 4.1-1 Qualifying periods for various crab fisheries

Fishery	Qualifying years
Bristol Bay red king crab	1996 - 2000 (best 4 of 5 seasons)
Bering Sea <i>C. opilio</i> (snow crab)	1996 - 2000 (best 4 of 5 seasons)
Bering Sea <i>C. bairdi</i> (Tanner crab)	1991/92 - 1996 (best 4 of 6 seasons)
WAI (Adak) golden king crab	1996/97 - 2000/01 (all 5 seasons)
EAI (Dutch Harbor) golden king crab	1996/97 - 2000/01 (all 5 seasons)
WAI (Adak) red king crab - West of 179° W	1992/93 - 1995/96 (best 3 of 4 seasons)
Pribilof blue and red king crab	1994 - 1998 (best 4 of 5 seasons)
St. Matthew blue king crab	1994 - 1998 (best 4 of 5 seasons)

Qualified catch is generally associated with the vessel that created the privilege to the LLP license. Since LLP licenses (and permits under the vessel moratorium program that preceded the LLP) are transferrable from vessel to vessel, catch on the vessel on which a license was used would be included in determining the allocation associated with a license. An additional provision would permit a person that purchased a license to continue to participate in a fishery to receive an allocation based on the history of the vessel on which the license was used. Lastly, a provision would permit a person that owned a vessel that sank and was replaced under the LLP license qualification rules (or subsequent to satisfaction of the LLP license qualification requirements)⁴ to credit 50 percent of their average annual history in qualifying years that the vessel participated, for years that the vessel or its replacement was unable to participate.

³ For example, if no North QS holders are affiliated with processing share holders, each North IFQ allocation will be 90 percent North Class A IFQ and 10 percent Class B IFQ. If half of the North QS is held by persons affiliated with processing shares, the holders of North QS that are unaffiliated with processing share holders would receive 80 percent North Class A IFQ and 20 percent Class B IFQ. The result would be that 10 percent of the total North IFQ in the fishery would be Class B IFQ. In the event that less than 10 percent of a fishery were owned by independent harvests, those independent harvesters would receive all B shares, but would not receive shares in excess of their allocation.

⁴ This provision also requires that the owner of the vessel also replace the vessel and begin fishing by the October 31, 2002.

The initial allocation of shares varies from fishery to fishery, because of different levels of participation and participation patterns. Figures 1, 2, and 3 show the estimated initial allocation in the different fisheries. Eligibility and distributions were estimated on a vessel basis.⁵ Since some participants may own interests in multiple vessels and licenses the estimates may not be totally accurate. Confidentiality of vessel and license ownership information prevent more detailed disclosure of the allocations.⁶

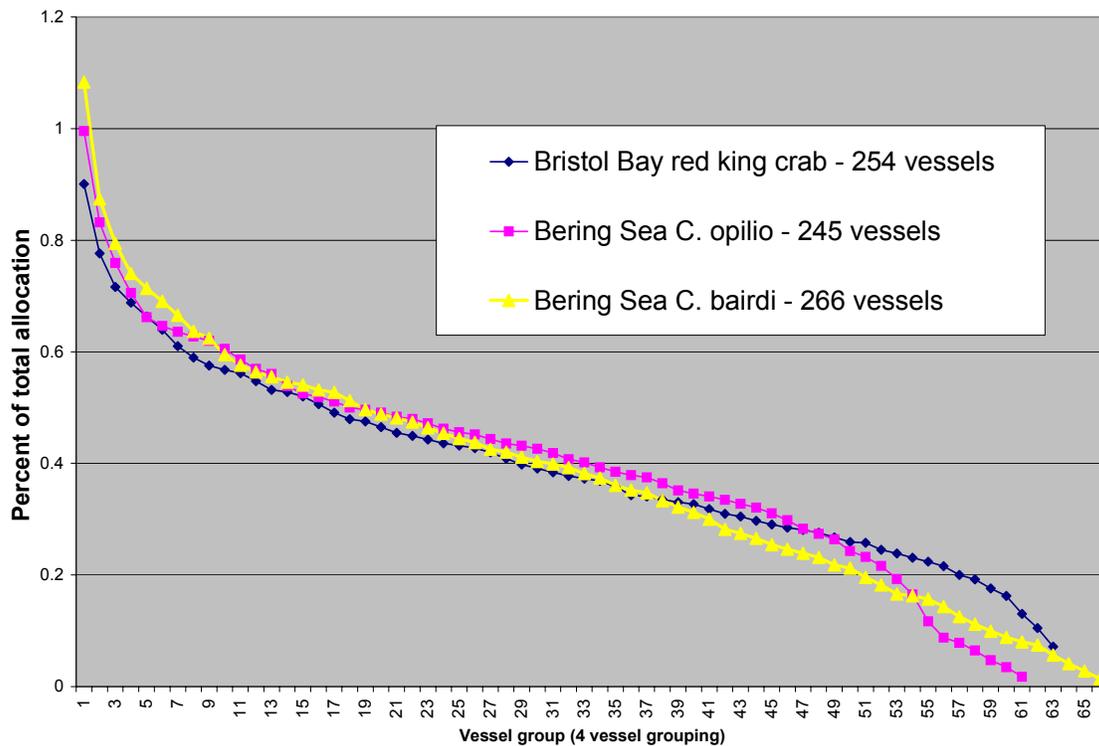


Figure 1 Harvest share allocation for Bristol Bay red king crab, Bering Sea opilio and bairdi
 Source: NPFMC crab rationalization database, 2001, Version 1.

To protect confidentiality, the allocations are shown in groups of 4 vessels, with vessel groupings made in descending order from the largest estimated allocation, to the smallest allocation. The last and smallest grouping contains between 4 and 7 estimated allocations, consistent with confidentiality rules. The estimated allocation shown for each vessel group is the average allocation to members of that group. Allocations are shown as shares of the total harvest allocation. Each legend shows the total number of vessels that would receive an allocation in each fishery. Because allocations are averages, it is possible, particularly in the

⁵ If a vessel engaged in activity that met the eligibility requirements for a distribution, the distribution was estimated using only the activity of the vessel that met the eligibility requirements. Amendment 10 to the LLP creates some exceptions that would entitle some persons to LLP licenses that do not meet these requirements. Records concerning the qualification of persons under the Amendment 10 exceptions to the LLP requirements are not yet available, so that currently, the most complete analysis is based on activities of single vessels. These exceptions are likely to result in the inclusion of more vessels in the allocation. In addition, the suboptions related to license transfers could result in some allocations being larger than the estimated allocations represented here.

⁶ The data collection program included in the preferred rationalization program would require participants to submit ownership information from which individual interests in the fisheries could be analyzed.

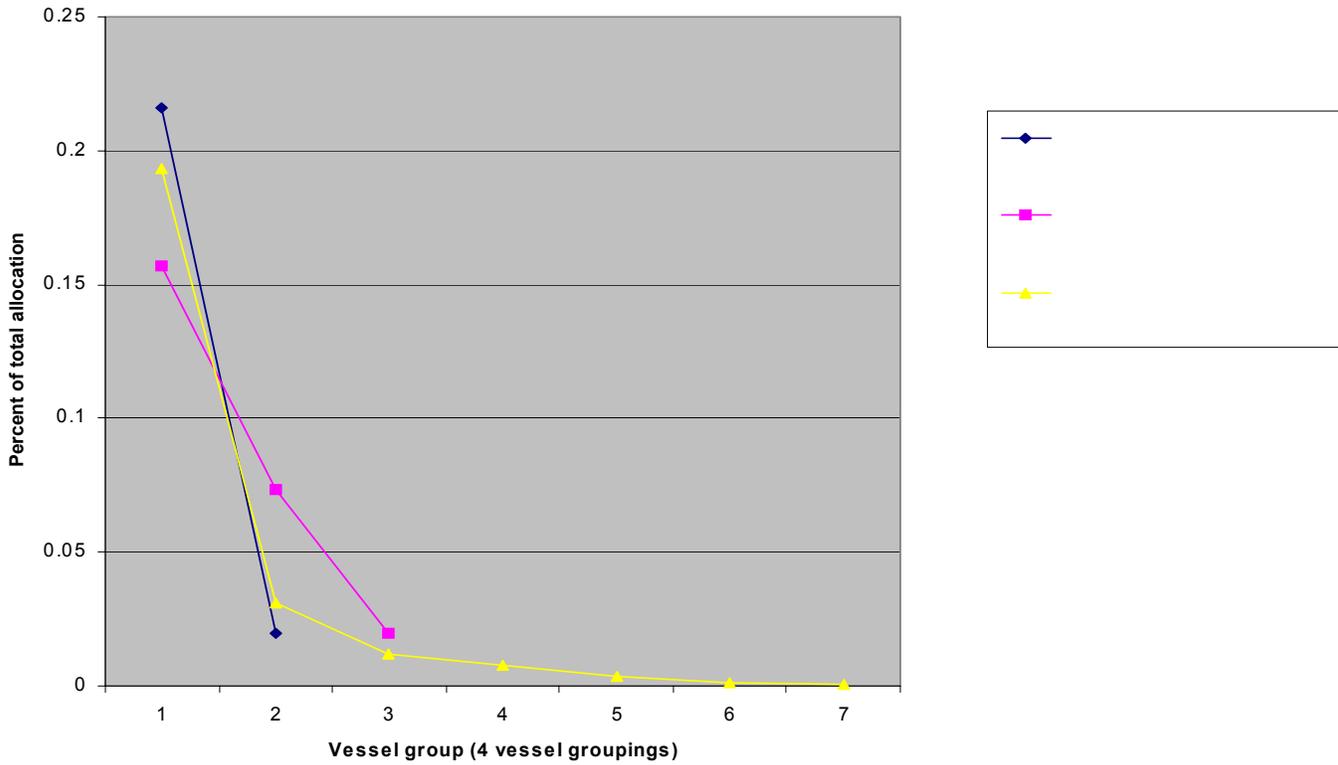


Figure 2. Harvest share allocation for WAI golden king and red king crab, and EAI golden king crab fisheries. (Source: NPFMC Crab Rationalization Database 2001, Version 1)

grouping with the largest allocation, that the largest allocation to a single vessel is significantly different from the average of those vessels within the grouping.

The figures show that the allocations vary significantly from fishery to fishery. Differences in the allocations arise from the different patterns of participation and catch history in the different fisheries. The Bering Sea *C. opilio* and *C. bairdi* and the Bristol Bay red king crab fisheries have the greatest estimated number of eligible vessels (between 245 and 266), and the least concentrated distribution. In these fisheries, the average of the largest four allocations is approximately 1 percent of the total allocation. The median allocation is approximately 0.4 percent of the total allocation. The allocation in the St. Matthew blue king crab fishery is slightly more concentrated, with 138 vessels estimated to receive an allocation. The average of the largest four allocations in these fisheries would be approximately 1.5 percent of the total allocation. The median allocation would be approximately 0.8 percent. In the Pribilof red and blue king crab fishery 110 vessels are estimated to receive an allocation. The average of the four largest allocations is estimated to be approximately 3 percent. The mean allocation in this fishery is approximately 0.6 percent (slightly less than the median allocation in the St. Matthew blue king crab fishery). The allocations in the Aleutian Islands fisheries are the most concentrated. These fisheries are the most distant from processing and other support facilities, likely discouraging some participation. The golden king crab fisheries also require additional, specialized gear for longlining pots. Furthermore, the golden king crab fisheries have limited grounds, complicating entry to those fisheries. Approximately 30 vessels would receive an allocation in the Western Aleutian Islands (Adak) red king crab fishery, which has been closed for several year, but which is showing signs of recovery. The four largest allocations in this fishery are estimated to average almost 20 percent of the total allocation. The concentration of shares in the fishery is also shown by the low median allocation, which is less than 1 percent.

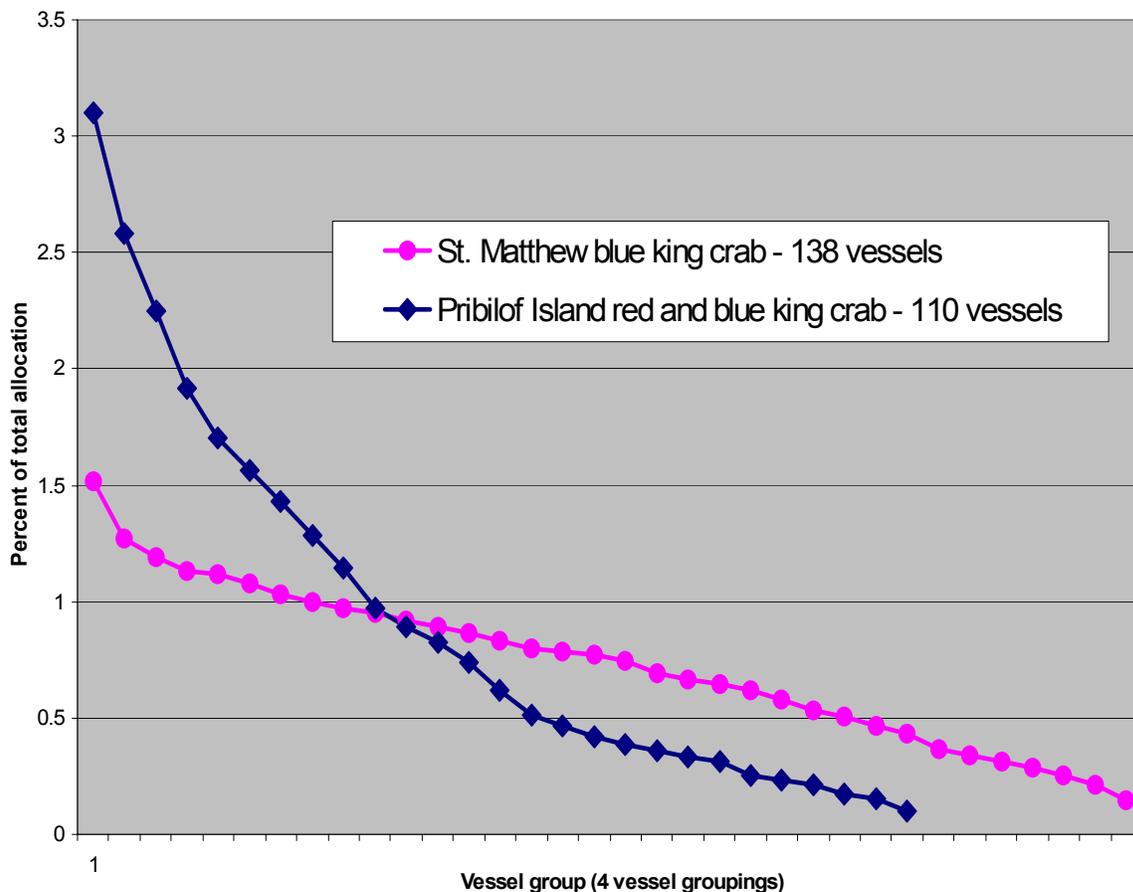


Figure 3 Harvest share allocation for St. Matthew blue king crab and Pribilof Island red and blue king crab fishery

Source: NPFMC Crab Rationalization Database 2001, Version 1

In the two Aleutian Island golden king crab fisheries, slightly more than 10 vessels would receive an allocation. The median allocation in the Western fishery, however, is more concentrated than the Eastern fishery. In the Western fishery, the four largest allocations are estimated to average approximately 22 percent of the total allocation. The median allocation in the fishery is estimated to be approximately 2.6 percent. In the Eastern fishery, the four largest allocations average approximately 16 percent, while the median allocation is slightly less than 8 percent.

QS and IFQ would both be transferrable under the program, subject to limits, including caps on the number of shares a person may hold or use. Leasing of QS (or equivalently, the sale of IFQs) may be prohibited, except within cooperatives, after the first five years of the program. Leasing is defined as the use of IFQs on a vessel in which the holder of the underlying QS holds less than a 10 percent ownership interest, or on which the underlying QS holder is not present. The possible limit on leasing by persons not in cooperatives would be intended to create an incentive for cooperative membership. To be eligible to purchase QS or IFQs, a person would be required to be a U.S. citizen, with at least 150 days of sea time in U.S. commercial fisheries, in a harvest capacity. An entity would be eligible to purchase shares only if it is at least 20 percent owned by a U.S. citizen with at least 150 days of sea time in U.S. commercial fisheries in a harvest capacity.⁷ Initial recipients of QS and CDQ groups, are exempt from these eligibility criteria.

Separate caps would be imposed on the ownership of shares by any person⁸ and the use of IFQs on any vessel. These caps are intended to prevent excessive consolidation of shares under the program. Limits on consolidation can be used to ensure adequate levels of market competition, facilitate entry to the fishery, protect labor markets, and ensure that the resource supports several participants. Different caps are chosen for the different fisheries, because of different fleet characteristics and the differences in historic dependency of participants on the different fisheries. Vessel use caps would not apply to cooperatives, thus providing an additional incentive for cooperative participation. Separate caps on QS holdings are established for CDQ groups, which represent rural western Alaska communities. Different caps are proposed for CDQ groups because each of these groups represent the interest of several persons. The ownership and use caps proposed for the different fisheries in the Council's preferred rationalization alternative are shown in Table 2 below.

Table 2 also shows the estimated number of persons and vessels that would receive allocations in excess of the respective ownership and use caps in each fishery. Ownership caps are applied individually and collectively. Under this rule all of a person's direct holdings are credited toward the cap. In addition, a person's indirect holdings are also credited toward the cap in proportion to the person's ownership interest. For example, if a person owns a 20 percent interest in a company that holds 100 shares, that person is credited with holding 20 shares for purposes of determining compliance with the cap.⁹ These ownership rules are thought to be more effective in preventing excessive consolidation of shares. The accuracy of the analysis of ownership caps, however, is limited by the lack of availability of complete ownership data. The analysis relied on registered license holder data files, which do not show ownership holdings beyond the registered owner. Detailed ownership data, necessary for full analysis of ownership, is currently unavailable because of restrictions that prevent analysts from accessing detailed ownership information. Application of the rules under the program will require the submission of detailed ownership information by shareholders.

⁷ The 20 percent U.S. citizen ownership is less than the current requirements for purchase of fishing interests under the AFA. The AFA requires a corporation to be 75 percent U.S. citizen owned to purchase a fishing interest.

⁸ The Council intends to clarify its position on ownership and use caps at its October meeting. The current Council motion contains only caps on share "ownership". Since limits on IFQ ownership effectively control the use of shares, ownership caps can be interpreted as capping use. This parallels the interpretation of use caps as limiting ownership adopted in the halibut and sablefish IFQ program.

⁹ Because use caps are applied on a vessel basis, no similar issue arises in applying use caps.

To protect independent vessel owners and processors that are not vertically integrated, processor ownership of harvest shares will also be limited by caps on vertical integration. A processor's ownership of QS is limited to 5 percent of the QS pool on a fishery basis. These caps are applied using a threshold rule for determining whether the shares are held by a processor, and then the individual and collective rule for determining the extent of share ownership. Under the threshold rule, any entity with 10 percent or more common ownership with a processor is considered to be a part of that processor. Any direct holdings of those entities would be fully credited to the processor's holdings. Indirect holdings of an entity would be credited toward the processor's cap in proportion to the entity's ownership. The rules for applying the caps on vertical integration are thought to be appropriate for limiting consolidation of harvest shares by processors. Initial allocations of shares above the cap would be grandfathered. The analysis of vertical integration relied on ownership data provided to the analysts by major processors that participate in the BSAI crab fisheries. These data were voluntarily submitted to assist Council staff with the analysis and were fully disclosed during the Council proceedings.

Table 3 shows the number of processors with affiliated vessels, the number of vessels affiliated with processors, and allocations to those vessels. A vessel and processor with 10 percent common ownership are considered affiliated, as required by the threshold rule in the Council's preferred alternative. Vertical integration varies by fishery. The three Aleutian Islands fisheries have a single processor affiliated with a single participating vessel. In the Pribilof and St. Matthews fisheries, four processors are affiliated with 9

Table 4.1-2 Ownership caps by fishery

	Number of owners ¹	Ownership cap	Number of owners over the cap	CDQ ownership cap	Number of vessels ²	Vessel use cap	Number of vessels over the cap
Western Aleutian Islands (Adak) Golden King Crab	14	0.10	*	0.20	11	0.20	*
Western Aleutian Islands (Adak) Red King Crab	38	0.10	6	0.20	28	0.20	*
Bristol Bay Red King Crab	303	0.01	10	0.05	254	0.02	0
Bering Sea C. Opilio	290	0.01	16	0.05	245	0.02	0
Bering Sea C. Bairdi (EBS Tanner Crab)	312	0.01	17	0.05	266	0.02	0
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	15	0.10	6	0.20	12	0.20	*
Pribilof Red and Blue King Crab	136	0.02	18	0.10	110	0.04	0
St. Matthew Blue King Crab	163	0.02	*	0.10	138	0.04	0

Sources: NPFMC Crab Rationalization Database, Version 1, 2001 and NMFS, RAM license registration files (2001).

1. Allocations to vessels are aggregated based on LLP license ownership files of NMFS RAM.

2. Allocations are on a vessel basis without aggregation.

Table 4.1-3 Processor/vessel affiliations by fishery

Fishery	Number of processors affiliated with vessels	Number of vessels affiliated with processors	Total allocation to processor affiliated vessels
Western Aleutian Islands (Adak) Golden King Crab	1	1	*
Western Aleutian Islands (Adak) Red King Crab	1	1	*
Bristol Bay Red King Crab	6	31	0.125
Bering Sea C. Opilio	6	25	0.122
Bering Sea C. Bairdi (EBS Tanner Crab)	6	33	0.127
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	1	1	*
Pribilof Red and Blue King Crab	4	9	0.117
St. Matthew Blue King Crab	4	10	0.086

* Withheld for confidentiality.

Sources: NPFMC Crab Rationalization Database, Version 1, 2001 and processor vessel ownership information (2001).

and 10 vessels, respectively. These processor affiliated vessels will receive between 8 and 12 percent of the total allocation. In the Bristol Bay and Bering Sea fisheries, six processors are affiliated with between 25 and 35 vessels. These vessels will receive slightly more than 12 percent of the total allocation in these fisheries. Confidentiality restrictions prevent the disclosure of the number of allocations over specific levels.

4.1.2 Captains shares (a.k.a. C Shares)

In each fishery, eligible captains in that fishery would be allocated 3 percent of that fishery’s QS. The allocation to captains would be based on the same qualifying years and computational method used for vessel allocations (shown in Table 4 below). To be eligible to receive an allocation in a fishery, a captain would have to have at least one landing in three of the qualifying years and have recent participation demonstrated by at least one landing in two of the three most recent seasons preceding June 10, 2002. For the Adak red king crab, the Pribilof red and blue king crab, the St. Matthew blue king crab, and the *C. bairdi* fisheries, recency would be demonstrated by at least one landing in two of the three most recent seasons preceding June 10, 2002, in the *C. opilio*, Bristol Bay red king crab, or one of the Aleutian Islands golden king crab fisheries.¹⁰ Recency requirements would be waived for otherwise qualifying captains who died in fishing related incidents. Any resulting shares will accrue to their estate. During the first three years a fishery is open after implementation, C shares will not be subject to IPQ or regional delivery requirements.¹¹ After three years, C shares will be subject to the Class A IFQ/Class B IFQ distinction with commensurate regional delivery requirements, unless the Council determines, after review, not to apply those designations.¹² Regional designations will be based on the captain’s historical deliveries, with the an adjustment to match the regional PQS distribution using the same scheme used for making that adjustment to the harvest share distribution.

Table 4.1-4 Number of eligible captains and allocations by fishery.

Fishery	Estimated number of eligible captains	Estimated number of harvest share allocations		Average of four largest allocations	
		Mean allocation	Median allocation	Mean allocation	Median allocation
Western Aleutian Islands (Adak) Golden King Crab	9	11	0.111	0.063	0.195
Western Aleutian Islands (Adak) Red King Crab	4	28	0.250	0.211	0.250
Bristol Bay Red King Crab	189	254	0.005	0.005	0.011
Bering Sea <i>C. Opilio</i>	155	245	0.006	0.006	0.014
Bering Sea <i>C. Bairdi</i> (EBS Tanner Crab)	173	266	0.006	0.005	0.015
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	13	12	0.077	0.082	0.113
Pribilof Red and Blue King Crab	38	110	0.026	0.026	0.048
St. Matthew Blue King Crab	73	138	0.014	0.013	0.023

Source: NPFMC Crab Rationalization Database, Version 1, 2001

¹⁰ The Adak red king crab, the Pribilof red and blue king crab, the St. Matthew blue king crab, and the *C. bairdi* fisheries were all closed for several consecutive seasons preceding 2002.

¹¹ During these three years, C share IFQ will not be considered in determining the 90 percent/10 percent ratio of Class A IFQ to Class B IFQ in each region of each fishery.

¹² If C share IFQ are issued with the Class A IFQ/Class B IFQ distinction, after the third year of the program, the ratio of C share Class A IFQ to Class B IFQ will be the same as the ratio of catcher vessel Class A IFQ to Class B IFQ, in each region. In addition, both the catcher vessel Class B IFQ allocation and the C share Class B IFQ allocation will be included in determining the 10 percent allocation of Class B IFQ, in each region, in each fishery.

To be eligible to purchase C shares a person must be a U.S. citizen, with at least 150 days sea time in a U.S. commercial fishery, in a harvest capacity. In addition, the person must be an “active participant” in the BSAI crab fisheries, demonstrated by a landing, in a fishery included in the rationalization program, in the preceding 365 days prior to purchasing C shares, as evidenced by either an ADF&G fish ticket, an affidavit from the vessel owner, or other verifiable evidence.

Leasing of C shares in each fishery would be permitted in the first three seasons a fishery is prosecuted, after implementation of the program. After the first three seasons the fishery is prosecuted, leasing would be permitted only in the case of a documented hardship (such as a medical hardship or loss of vessel) for the term of the hardship, subject to a maximum of 2 years over a 10 year period.

To ensure that these shares benefit at sea participants in the fisheries, holders of the underlying QS would be required to be on the vessel harvesting the C share IFQs. In addition, individual C share use and holdings are capped at the same level as the vessel use caps applicable to general harvest shares (shown in Table 2). Initial allocations in excess of the cap are grandfathered. C shares are not considered in determining a vessel’s compliance with the vessel use caps on general harvest shares. Landings with C shares will be subject to the IFQ fee program.

Catcher/processor captains will be allocated catcher/processor C shares that include both a harvesting and on board processing privilege. Harvests with catcher/processor C shares may be delivered to shore-based or floating processors. Catcher vessel C shares must be delivered to shore-based or floating processors for processing.

The initial allocation of shares varies from fishery-to-fishery, because of different levels of participation and participation patterns. Table 4 shows the number of captains estimated to receive a C share allocation, the number of harvest allocations, the mean and median C share allocation, and the average of the four largest C share allocations in each fishery. Figures 4, 5, and 6 show the estimated initial allocation of C shares in the different fisheries. To protect confidentiality, the allocations are shown in groups of 4 captains, with captain groupings made in descending order from the largest estimated allocation to the smallest allocation. The last grouping contains between 4 and 7 estimated C share allocations, consistent with confidentiality rules. The estimated allocations, shown for each vessel group, is the average allocation to members of that group. Allocations are shown as shares of the total C share allocation. Each legend shows the total number of captains that would receive an allocation in each fishery. Because allocations are averages, it is possible, particularly in the grouping with the largest allocation, that the largest allocation to a single captain is significantly different from the average of those four captains.

The figures show that the allocations vary significantly from fishery to fishery. Differences in the allocations arise from the different patterns of participation and catch history in the different fisheries. The Bering Sea *C. opilio* and *C. bairdi* and the Bristol Bay red king crab fisheries have the greatest estimated number of eligible captains (between 155 and 189) and the least concentrated distribution. In these fisheries, the average of the largest four allocations is between 1 percent and 1.5 percent of the total C share allocation. The median allocation is approximately 0.5 percent of the total C share allocation. The allocation in the St. Matthew blue king crab fishery is slightly more concentrated, with 73 captains estimated to receive an allocation. The average of the largest four allocations in this fishery would be approximately 2.3 percent of the total C share allocation. The median allocation would be approximately 1.3 percent. In the Pribilof red and blue king crab fishery 38 captains are estimated to receive a C share allocation. The average of the four largest allocations is estimated to be approximately 4.8 percent of the total C share allocation. The mean and median allocation in this fishery is approximately 2.6 percent. The allocations in the Aleutian Islands fisheries are the most concentrated. These fisheries have the least vessel participation and consequently the

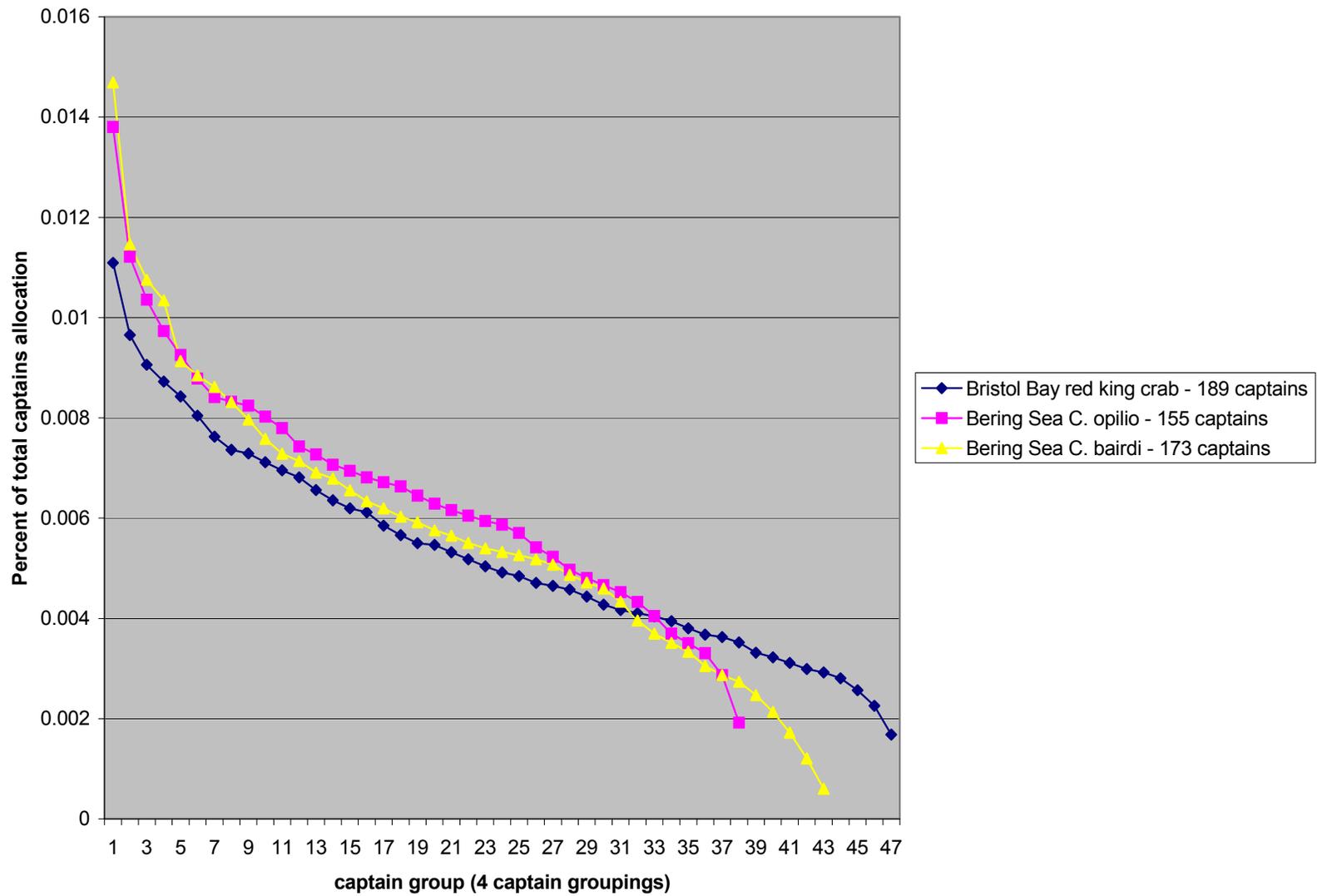


Figure 4 Estimated initial allocation of C shares in the Bristol Bay red king crab, Bering Sea opilio and bairdi fisheries.

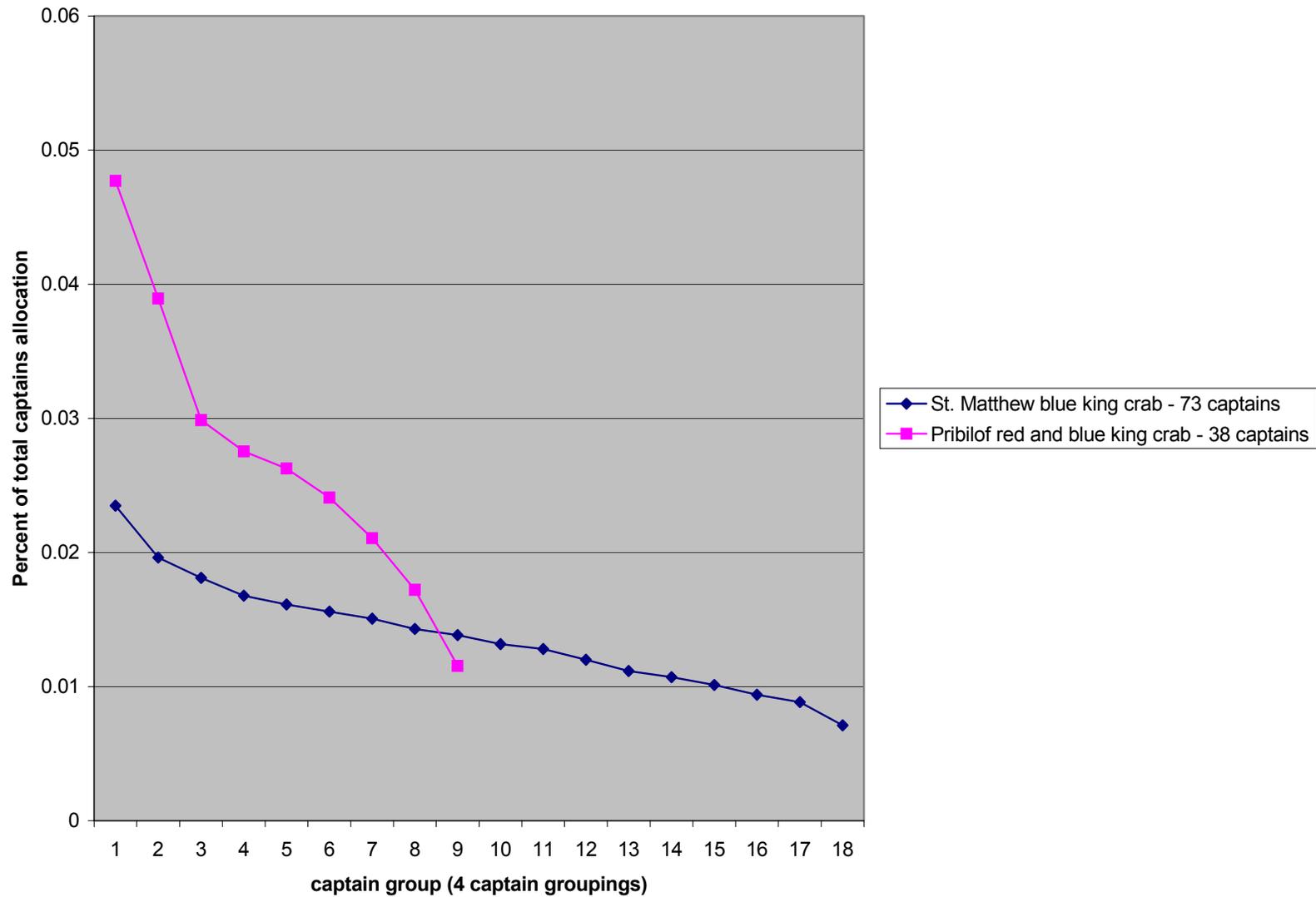


Figure 5 Estimated initial allocation of C shares in the St. Matthew Blue and Pribilof red king crab fisheries

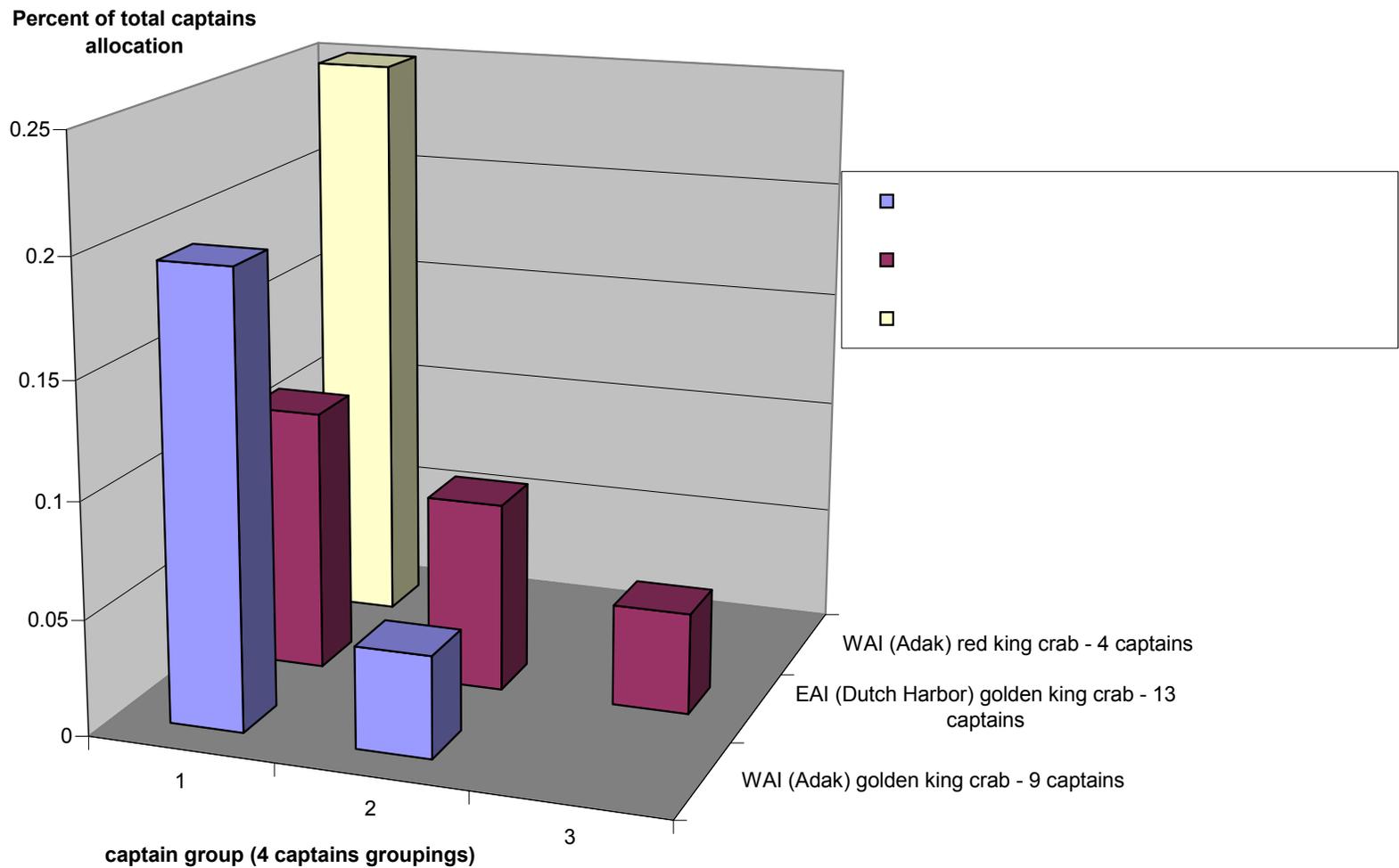


Figure 6 Estimated initial allocation of C shares in the Aleutian Islands red and golden king crab fisheries

least captain participation. Approximately 4 captains would receive an allocation in the Western Aleutian Islands (Adak) red king crab fishery, which has been closed in several recent years but is showing signs of recovery. Confidentiality protections prevent the release of any data concerning these allocations. In the Western Aleutian Islands golden king crab 9 captains are estimated to receive an allocation, while 13 captains are estimated to receive an allocation in the Eastern Aleutian Islands golden king crab fishery. In the Western fishery, the four largest allocations are estimated to average approximately 20 percent of the total allocation. The median allocation in the fishery is estimated to be approximately 6.3 percent. In the Eastern fishery, the four largest allocations average approximately 11 percent, while the median allocation is slightly more than 8 percent.

4.1.3 Processing sector

The proposed program would also create a processing privilege that would be allocated to processors, which is analogous to the harvest privilege allocated to harvesters. Processors will be allocated processing quota shares (PQS) in each fishery rationalized by the program for which they meet the threshold criteria. PQS are a revocable privilege to receive deliveries of a specific portion of the annual TAC from a fishery. These annual allocations of processing privileges are referred to as Individual Processing Quotas (IPQs). IPQs would be issued for 90 percent of the allocated harvests, corresponding to the 90 percent allocation of Class A harvest shares.¹³ The annual IPQ allocation would equal the processor's PQS times 90 percent of the TAC, the portion of the TAC for which processor shares are allocated.

Processors that processed crab in either 1998, or 1999, would be eligible for an initial allocation of PQS. Under a hardship provision, a processor that failed to meet this requirement, but that processed *C. opilio* in all years from 1988 to 1997, and invested in excess of \$1 million dollars in processing equipment and improvements after 1995, would be eligible for an allocation. Processing shares will be regionally designated for processing in a North or South region (corresponding to the regional designation of the Class A harvest shares).

PQS allocations would be based on processing history during a specified qualifying period for each fishery. A processor's allocation in a fishery would equal its share of all qualified processing in the qualifying period (i.e., pounds processed by the processor divided by pounds processed by all qualified processors). The qualifying period for determining processor allocations are the following:

Table 4.1-5 Qualifying period for determining processor allocations

Fishery	Qualifying years
Bristol Bay red king crab	1997 - 1999 (3 seasons)
Bering Sea <i>C. opilio</i> (snow crab)	1997 - 1999 (3 seasons)
Bering Sea <i>C. bairdi</i> (Tanner crab)	Based 50 percent on allocation for Bristol Bay red king crab and 50 percent on allocation for Bering Sea <i>C. opilio</i>
WAI (Adak) golden king crab	1996/97 - 1999/2000 (4 seasons)
EAI (Dutch Harbor) golden king crab	1996/97 - 1999/2000 (4 seasons)
WAI (Adak) red king crab - West of 179° W	Based on allocation for WAI (Adak) golden king crab
Pribilof blue and red king crab	1996 - 1998 (3 seasons)
St. Matthew blue king crab	1996 - 1998 (3 seasons)

¹³Processor privileges would not apply to the remaining 10 percent of the TAC (corresponding to the 10 percent of the TAC allocated as Class B harvest shares).

Allocations will be made to the buyer of record on Alaska Department of Fish and Game fish tickets, except if the buyer can be determined to be an entity other than the entity named on the fish ticket, by the State of Alaska Commercial Operators Annual Report, fish tax records, or other evidence of direct payments to fishermen. This rule reflects an intention to allocate shares to the entity which purchased the crab and funded the processing activity. Several processors have made “custom processing” arrangements with other processors, under which one entity processes crab on behalf of another entity. Under these arrangements, the processing activity is often funded by an entity other than the entity taking delivery of the crab.¹⁴

Figures 7, 8, and 9 show the distribution of processing share allocations.¹⁵ As with harvesters, the allocations are grouped into 4 processor groupings to protect confidentiality. Processor groupings were made in descending order from the largest estimated allocation to the smallest allocation. The last grouping contains between 4 and 7 estimated allocations, under confidentiality rules. The estimated allocation shown for each vessel group is the average allocation to members of that group. Allocations are shown as shares of the total processing allocation. Each legend shows the total number of vessels that would receive an allocation in each fishery. Because allocations are averages, it is possible, particularly in the grouping with the largest allocation, that the largest allocation to a single processor is significantly different from the average of the grouping’s processors. In addition to the graphs, Table 5 shows the average of the four largest allocations, the mean allocation, and the median allocation under each option.¹⁶

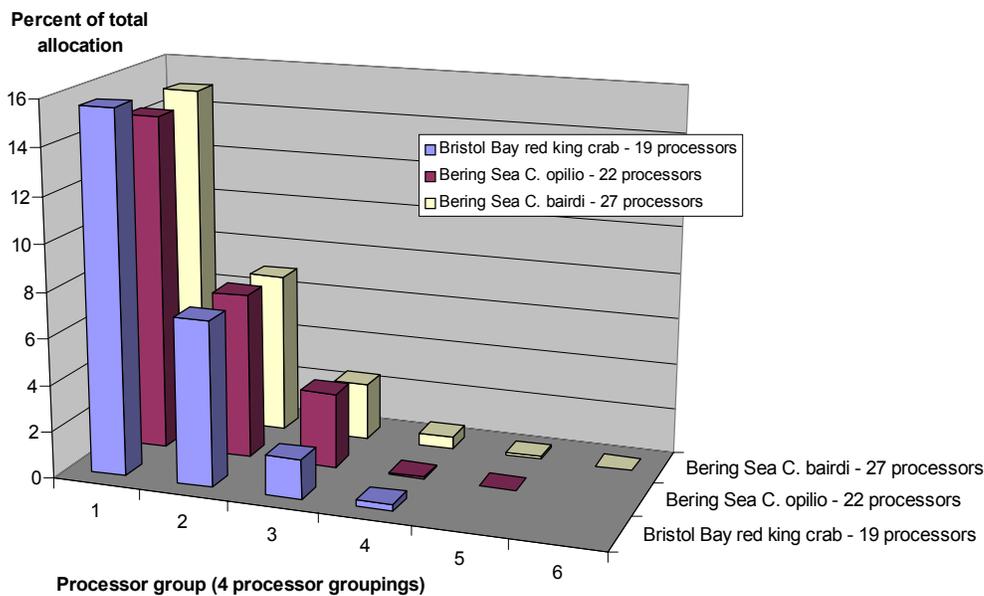


Figure 7 Processor share allocations in the Bristol Bay red king crab, Bering Sea c.opilio and the Bering Sea c.bairdi crab fisheries. Source NPFMC crab rationalization database, 2001, Version 1

¹⁴ The quantitative analysis of the allocations relied strictly on fish ticket data, and therefore does not show custom processing relationships in the fishery. Detailed information on custom processing is not readily available. Available information shows that custom processing accounts for between 7 and 10 percent of all processing in the BSAI crab fisheries.

¹⁵ Processor allocations are aggregated at the company level based on processor facility ownership information verified with participating processors.

¹⁶ The mean allocation is the average allocation. The median allocation is the allocation at the midpoint in the distribution, for which half of the allocations are larger and half of the allocations are smaller.

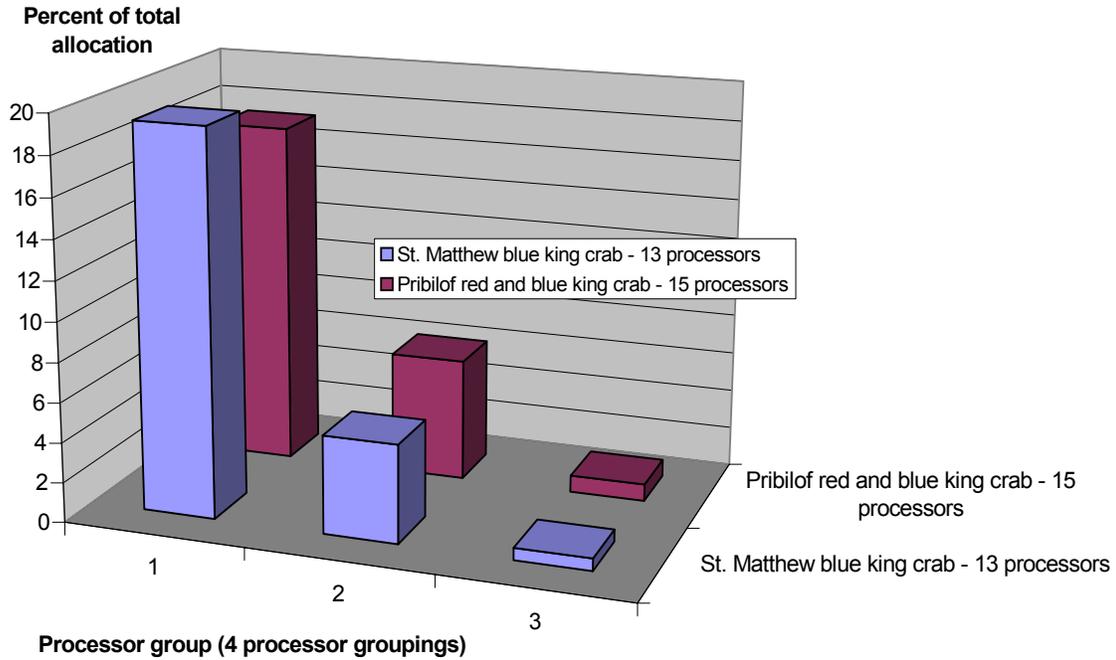


Figure 8 Processor share allocations in the St. Matthew blue king crab and Pribilof red and blue crab fisheries. Source: NPFMC crab rationalization database, 2001, Version 1

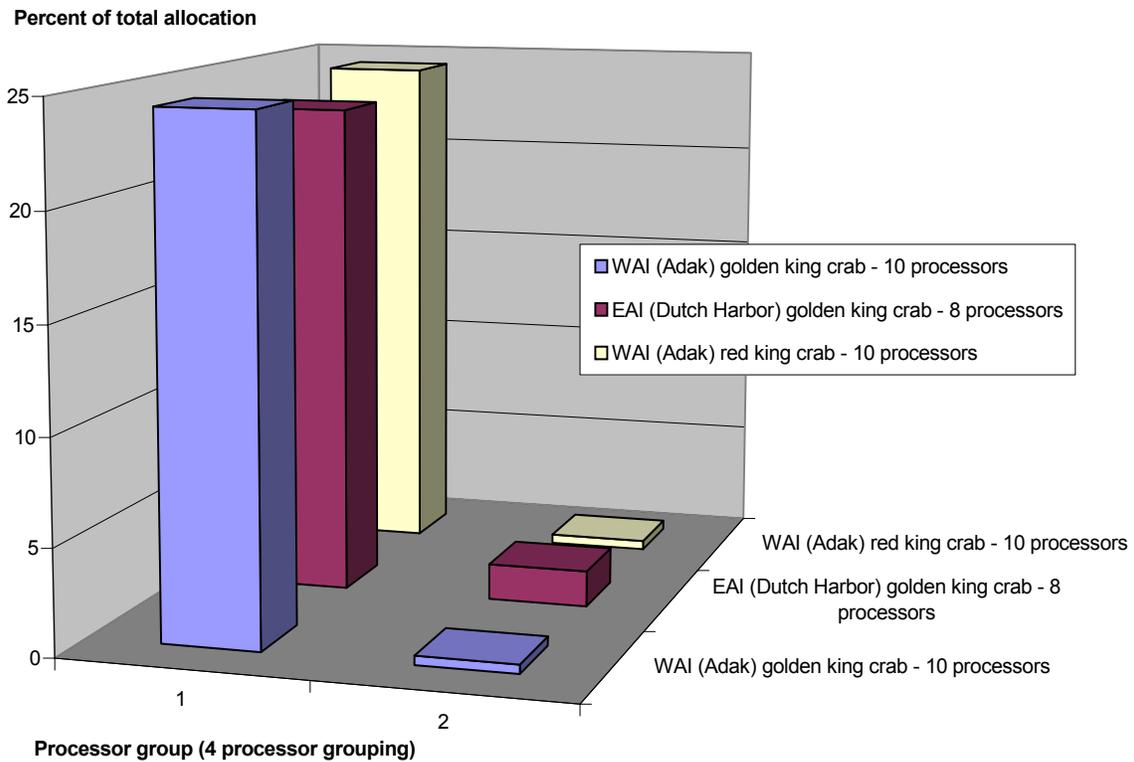


Figure 9 Processor allocations in the Aleutian Island king crab fishery Source: NPFMC crab rationalization database, 2001, Version 1

Estimates of processor allocations are substantially more concentrated than harvester allocations. This relative concentration occurs for two reasons. First, and of greater importance, there are relatively fewer processors active in the fisheries than vessels active in the fishery. Second, more complete ownership information is available concerning processors. Processor allocations were aggregated to the company level. Company ownership of facilities was determined based on existing records, with the assistance of processor representatives.¹⁷ This allowed the analysts to obtain a fairly reliable ownership aggregation of facilities. Records of vessel ownership that are reliable are not available. Allocations of processing to catcher/processors are included and are calculated in the same manner as for floating and shore based facilities, but are not aggregated at the company level, because of the lack of vessel ownership data.

As in the harvest sector, processing allocation concentration varies across fisheries. The Aleutian Islands fisheries have the greatest concentration, with the four largest allocations comprising in excess of 90 percent of the total allocation. The Eastern Aleutian Islands golden king crab fishery has the largest median allocation - 6 percent. Only 8 processors will receive an allocation in this fishery, so only 4 processors would receive allocations in excess of the median. In the Pribilof and St. Matthews fisheries, the allocations are slightly less concentrated, with the four largest allocations making up between approximately 70 and 80 percent of the total allocation. These fisheries have median allocations of approximately 4 percent, showing that between 6 and 7 processors would receive allocations larger than 3 to 4 percent. In the Bristol Bay and Bering Sea fisheries, the allocations to the four largest processors is approximately 60 percent of the total allocation. The low medians of these allocations, together with the total number of processors receiving allocations, show that approximately 10 processors would receive allocations in excess of 1 to 2 percent. In addition, the graph of the allocations in these fisheries show that approximately 8 processors would receive allocations in excess of 5 percent.

Table 4.1-6 Processor allocation statistics and share caps.

Fishery	Mean	Median	Average of four largest allocations	Number of processors	Allocations in excess of the 30% cap
Western Aleutian Islands (Adak) Golden King Crab	0.100	0.008	0.244	10	*
Western Aleutian Islands (Adak) Red King Crab ¹	0.100	0.008	0.244	10	*
Bristol Bay Red King Crab	0.053	0.017	0.156	19	0
Bering Sea C. Opilio	0.045	0.020	0.145	22	0
Bering Sea C. Bairdi (EBS Tanner Crab)	0.037	0.006	0.150	27	0
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	0.125	0.060	0.233	8	*
Pribilof Red and Blue King Crab	0.067	0.038	0.173	15	0
St. Matthew Blue King Crab	0.077	0.043	0.193	13	*

¹ Allocation is based on the WAI (Adak) golden king crab allocation.

² Withheld for confidentiality.

Sources: NPFMC Crab Rationalization Database, Version 1, 2001.

Processor shares will be transferable, including leasing of PQS (or equivalently, the sale of IPQs) subject only to use and ownership caps. IPQs would be usable at any facility of a processor without transfer, subject to regional and community processing requirements. In addition, new processors would enter the fishery by purchasing PQS or IPQs, or by purchasing crab harvested with Class B shares or CDQ crab.

¹⁷ The facility ownership aggregations used by the analysts appear in Appendix 3-3. Some of the companies on that list have common owners. Peter Pan and Steller Sea have some common ownership, as do Westward Seafoods and Alyeska Seafoods. Depending on the rules chosen for determining ownership for purposes of applying caps, these companies with common owners might be considered a single entity. These companies were considered separate entities for purposes of the AFA.

Ownership of PQS would be limited to 30 percent of the outstanding PQS in a fishery.¹⁸ As with vertical integration caps, PQS ownership caps would be applied using a threshold rule for determining whether the shares are held by a processor and then the individual and collective rule for determining the extent of share ownership. Under the threshold rule, any entity with 10 percent or more common ownership with a processor is considered to be a part of that processor. Any direct holdings of those entities would be fully credited to the processor's holdings. Indirect holdings of those entities would be credited toward the processor's cap in proportion to the entities ownership. Initial allocations of shares above the cap would be grandfathered. In addition, in the *C. opilio* fishery no processor would be permitted to use in excess of 60 percent of the IPQs issued in the Northern region. Processing use caps for other species and regions were not included. The number of allocations in excess of the ownership cap in each fishery are shown in Table 6.

4.1.4 Catcher/processors

Catcher/processors, because they participate in both the harvest and processing sectors, have a unique position in the program. A few provisions of the program have been developed to deal specifically with the catcher/processor fleet. Catcher/processors will be allocated catcher/processor QS under the program. These shares will have both a harvest privilege and an on board processing privilege. Catcher vessels will be allocated QS that requires delivery to a shore-based or floating processor. To be eligible for catcher/processor shares, a person must be eligible for a harvest allocation by holding a permanent fully transferable catcher/processor LLP license. In addition, the catcher/processor must have processed crab in either 1998 or 1999. This requirement parallels the processor qualification requirement. Persons meeting this qualification requirement will be allocated catcher/processor shares in accordance with the allocation rules for harvest shares for all qualified catch that was processed on board.¹⁹ Catcher/processor shares would not have regional designations.

Although catcher/processor shares extend both harvesting and processing privileges, a person may deliver unprocessed crab, harvested with catcher/processor shares, to any other processor. In other words, catcher/processor shares may be delivered to a processor that does not hold unused IPQs. Catcher/processor shares may be severed into separate catcher vessel QS and PQS. When severed, the shares must be designated for a region with both shares taking the same regional designation.

Catcher/processors may purchase additional PQS, but any crab processed with purchased PQS must be processed within 3 miles of shore in the designated region. Catcher/processors may not purchase crab harvested with Class B harvest shares for processing. For purposes of this provision, any vessel that purchases crab harvested with B shares for processing, during a season, would be prohibited from acting as a catcher/processor during the remainder of the season, and any vessel that operates as a catcher/processor during a season would be prohibited from purchasing crab harvested with B shares during that season.

4.1.5 Cooperatives

The program would permit harvesters to form voluntary cooperatives, associated with one or more processors holding PQS. A minimum membership of four unique QS holders would be required for cooperative

¹⁸ As noted above, the Council will clarify its position on ownership and use caps at its October meeting. If the Council intends for ownership caps to apply to IPQ holdings, these caps are effectively use caps. If interpreted as such, the use cap on North shares in the Bering Sea *C. opilio* fishery would be an exception to the 30 percent cap on share ownership and use that is proposed for other fisheries.

¹⁹ Catcher/processors that meet only the harvest eligibility requirement would receive an allocation of catcher/vessel shares for any qualified catch. Likewise, catcher processors that meet only the processing eligibility requirement would receive only processor shares.

formation. The cooperative would receive the sum of the annual allocations of its members in the applicable fisheries. Cooperatives are required to file a cooperative agreement with the Secretary of Commerce, annually, after Council review, prior to the cooperative's allocation being set aside for its exclusive use. Cooperative members would be permitted to leave a cooperative at any time after one season. Departing members would be permitted to retain their QS and the associated IFQ allocations. Processors that associate with cooperatives would not be members of the cooperatives, but instead would remain independent. A cooperative would not be bound to deliver any harvests to an associated processor, provided that the cooperative complies with any delivery requirements of the program associated with the harvest and processing shares.

Harvesters within a cooperative would be permitted to transfer shares freely, among co-op members, and vessels on which cooperative shares are fished would not be subject to use caps. Shares would also be freely transferable between cooperatives, but would require approval by RAM before such shares could be fished.

Only processors that own PQS would be permitted to associate with a cooperative. Processors that do not hold IPQ could purchase crab harvested with Class B shares, but would not be able to associate with a cooperative. In addition, custom processing would be permitted under the cooperative program.

4.1.6 Binding arbitration

BSAI crab fisheries have a history of contentious price negotiations. Harvesters have often acted collectively to negotiate an ex- vessel price with processors, at times delaying fishing to pressure price concessions from processors. Participants in both sectors are interested in ending that practice, but are concerned that market power could be unbalanced by the rationalization of the fisheries. In a system with a one-to-one relationship of harvest and processing shares, the concern rises since the system will limit the pool of persons with which a shareholder may transact. The concern is most acute for the last shareholders from each sector to commit their shares. To ensure fair price negotiations, the Council has included a provision for binding arbitration for the settlement of price disputes. The system of binding arbitration that would apply to A shares and C shares (captains shares) when those shares are subject to IPQ landing requirements. Under the system, the arbitrator would establish a finding that preserves the historic division of revenues, while considering other relevant factors, including current ex- vessel prices, location and timing of deliveries, and safety.

The arbitration process would begin with a market report, prepared by an independent market analyst, and the establishment of a non-binding fleet wide benchmark price by an arbitrator that has consulted with both fleet representatives and processors. In determining this benchmark price, the arbitrator would consider the highest arbitrated price that applied to at least 7 percent of the outstanding IPQ in the fishery in the preceding year. This non-binding price is intended to inform the participants and the later binding arbitration proceedings. After a negotiating period, Class A IFQ holders would be permitted to initiate a single arbitration proceeding with each IPQ holder in the preseason. Proceedings may be initiated by an IFQ holder (or a group of IFQ holders) prior to the season, after committing to deliver shares to the IPQ holder. For a brief period of time prior to the commencement of hearings, other IFQ holders could join the proceeding by unilaterally committing deliveries to the IPQ holder. These commitments would be limited by the amount of IPQs held by the processor and would be on a "first come, firstserved" basis. The arbitration would be in a last best (or final) offer format, which is favored by some participants and is used in the Newfoundland arbitration system. The IPQ holder would submit a single offer. Each IFQ holder could submit an offer or join a group to submit a collective offer. For each IFQ holder or group, the arbitrator would select between the IFQ holder's (or group's) offer and the IPQ holder's offer. IFQ holders that did not participate in the arbitration could receive the benefits of arbitration by agreeing to deliver to the IPQ holder, accepting all terms of the arbitration decision (assuming that the IPQ holder held adequate shares to accept the delivery). Arbitration outcomes will be disclosed to holders of uncommitted class A IFQ to facilitate the opt-in process.

4.1.7 Regionalization

QS, Class A IFQ (which require delivery to a processor holding unused IPQs), and processor shares would be regionally designated under the program. Crab harvested with regionally designated IFQ would be required to be delivered to a processor in the designated region. Likewise, a processor with regionally designated shares would be required to accept delivery of and process crab in the designated region.

Two regional designations would be created in most fisheries. The North region would be all areas on the Bering Sea north of 56°20' N latitude. The south region would be all other areas. The regional designation is intended to preserve the historic geographic distribution of landings in the fisheries. Communities in the Pribilof Islands are the prime beneficiaries of the regionalization of the program.

QS and PQS would be designated based on the location of the activity that gave rise to the allocation. For example, qualified catch delivered in a region would result in shares designated for that region. Discrepancies in the North/South allocations in the two sectors would occur because of the differences in qualified catch caused by the qualification requirements and differences in qualification years for the sectors. This discrepancy would be corrected by re-designation of a portion of the harvest sector allocation. Only persons receiving harvest share allocations in both regions would have a portion of their shares re-designated. The number of a person's shares re-designated would be proportional to the total allocation in the region.

Table 4.1-7 Distribution of shares under the regionalization program in fisheries with the North/South regionalization.

Fishery	Region	Share	Number of processors	Number of vessels
Western Aleutian Islands (Adak) Red King Crab	South	1.00*	8	24
	Unknown	*	2	6
Bristol Bay Red King Crab	North	0.095*	2	12
	South	0.905	15	245
	Unknown	*	7	46
Bering Sea <i>C. Opilio</i>	North	0.462	7	197
	South	0.468	18	209
	Unknown	0.070*	5	72
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	South	1.000	8	11
Pribilof Red and Blue King Crab	North	0.675*	4	74
	South	0.325	11	76
	Unknown	*	3	13
St. Matthew Blue King Crab	North	0.724	4	113
	South	0.276*	9	78
	Unknown	*	2	29

* Value suppressed for confidentiality. All asterisked values are combined in a single cell for each fishery.

Source: NPFMC Crab Rationalization Database, Version 1, 2001

The Council has created exceptions to the North/South regional designations. In the Western Aleutian Islands (Adak) golden king crab fishery, 50 percent of the QS and PQS would be designated as Western shares.²⁰ This designation would be applied to all allocations, regardless of landings in the fishery. A second exception is the Bering Sea *C. bairdi* fishery, which would have no regional designation. This fishery is anticipated to be conducted primarily as an incidental catch fishery with the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries, making any regional designation operationally difficult and potentially overly restrictive.

²⁰ The remaining 50 percent of the Class A IFQ allocation would have no regional designation and would not be subject to a regional delivery requirement.

Table 7 shows the distribution of shares under the regionalization program in fisheries with the North/South designations. Certain processing activity could not be regionally designated for this report. This processing took place on floating processors and catcher/processors, both of which are mobile, complicating the regional designation. The table shows that processing in the two Aleutian Islands fisheries was conducted almost exclusively in the South region. Processing in the Bristol Bay red king crab fishery is also almost exclusively conducted in the South, with less than 10 percent of processing in the North. Processing in the Bering Sea *C. opilio* fishery is split almost evenly between the two regions. Processing in the Pribilof red and blue king crab and the St. Matthew blue king crab fisheries are more concentrated in the North region, where between 65 and 75 percent of all harvests are landed and processed.

4.1.8 Community protection measures

The preferred alternative includes several provisions intended to protect communities from excessive adverse impacts that could result from the change in management structure in the fisheries.

Cooling off provision: The inclusion of a “cooling off” period provision within the preferred alternative would prevent the movement of processing shares from eligible communities during the first two years of the program. Communities with 3 percent or more of the qualified landings in any crab fishery included in the rationalization program, would be eligible for this protection in all fisheries included in the program. Eight communities would qualify for this provision, including Dutch Harbor and St. Paul. Other qualifying communities cannot be revealed because of confidentiality protections. Communities are defined as boroughs, if one exists, or first or second class cities, if no borough exists. During the first two years of the program, any processing shares based on processing history from an eligible community could not be moved from that community. To allow for coordination of deliveries an exception to the rule would allow each processor to move 10 percent of its allocation from the eligible community, provided the aggregate amount of IPQs that could be moved from the community in any fishery in any season could not exceed 500,000 pounds. If 10 percent of the IPQs in a fishery in an eligible community exceeds 500,000 pounds, then up to but not more than 500,000 pounds of IPQs will be permitted to be moved from the community. If more than one processor has earned IPQ in the community, the 500,000 pound cap will be pro rated among processors with shares from that community based on their IPQ holdings in the fishery. The *C. bairdi* fishery would be excluded from the cooling off period landing requirements, as that fishery is expected to be an incidental catch fishery to the Bristol Bay red king crab and *C. opilio* fisheries on implementation of the program. The Western Aleutian Islands red king crab fishery would also be exempt from the cooling off period landing requirements because that fishery was closed for several years leading up to the program implementation. The Western Aleutian Islands golden king crab fishery would also be exempt from the cooling off period landing requirements because the landing requirements of the West regionalization program are inconsistent with the historic distribution of landings that would be established by the cooling off period.

IPQ Caps: IPQ caps would be established, limiting the annual allocation of IPQs in seasons when the TAC exceeds a threshold amount. In the Bristol Bay red king crab fishery IPQs would not be issued for the amount of the TAC in excess of 20 million pounds (the total IPQ allocation would not exceed 18 million pounds). In the *C. opilio* fishery, IPQs would not be issued for the amount of the TAC in excess of 175 million pounds (the total IPQ allocation would not exceed 157.5 million pounds). Any Class A IFQ issued in excess of the threshold would not be subject to the IPQ landing requirements but would be subject to the regional landing requirements. In the Bering Sea *C. opilio* fishery, the proposed 175 million pound threshold was exceeded 5 times between 1990 and 2000 (slightly less than 50 percent of the seasons). In the Bristol Bay red king crab fishery, the 20 million pound threshold was exceeded 11 times in the last 33 years (33 percent of the seasons).

Sea time waiver: Sea time eligibility requirements for the purchase of harvest shares would be waived for CDQ and community groups in eligible communities allowing those communities to build and maintain local interests in harvesting.²¹ CDQ and community groups would not be permitted to purchase C shares.

Right of first refusal for processor quota share: Eligible communities would also have a right of first refusal on the sale of processor shares originating from processing history in the community where the sale contemplates transfer of the shares outside of the community. Communities with 3 percent or more of the qualified landings in any crab fishery included in the program would be eligible for this protection, in all fisheries included in the program. Communities are defined as boroughs, if one exists, or first or second class cities, if no borough exists. In addition, eligible communities in the Northern Gulf of Alaska (defined as the area of the Gulf north of 56°20' would have a right of first refusal on the sale of processor shares from communities in that area that are not dependent on the crab fisheries. The right of first refusal would be granted to CDQ groups in CDQ communities. The right of first refusal and any share holdings of CDQ groups would be subject to CDQ rules. In non-CDQ communities, the right of first refusal would be granted to a community group formed under the rules of the halibut and sablefish community purchase program. The right of first refusal and any share holdings of these groups would be governed by rules similar to the halibut and sablefish community purchase program.

4.1.9 Community development quota program and community allocations

CDQ Program: The program would also make changes in the allocations under the Community Development Quota program. The CDQ program would be broadened to include the Eastern Aleutian Islands (Dutch Harbor) golden king crab fishery and the Western Aleutian Islands (Adak) red king crab fishery. In addition, the allocations in all crab fisheries covered by the rationalization program would be increased to 10 percent, from its current level of 7.5 percent.²² CDQ groups would be required to deliver at least 25 percent of their allocation to shore based processors. The CDQ allocations will be managed independently from the rationalization program and are not subject to the share designations and landing requirements of the rationalization program.

Adak allocation: The Council motion also provides that an allocation would be made to the community of Adak from the Western Aleutian Islands (Adak) golden king crab fishery, in an amount equal to the unused resource during the qualifying period. This allocation, however, would be capped at 10 percent of the total allocation in that fishery. Since approximately 12 percent of the GHL was unharvested during the qualifying period, the 10 percent cap would apply. ADF&G has maintained the GHL in this fishery at 2.7 million pounds in recent years. If the GHL is translated into the TAC in the rationalized fishery, the Adak allocation would be 270,000 pounds. The allocation to Adak would go to a non-profit entity representing the community, with a board of directors elected by the community. Shares could be held in trust by the Aleut Enterprise Corporation, for a period not to exceed 2 years, if the community organization is not formed prior to implementation of the program. Share holdings of the community organization would be governed by CDQ-type management and oversight to ensure the benefits of the allocation are realized by the community. This allocation is independent of any requirements of the program (e.g., IPQ landing requirements, regionalization, or other community protections).

²¹ CDQ and community groups would be eligible to purchase processing shares because no qualifying requirements are proposed for the purchase of those shares.

²² The increase would not apply in the Norton Sound fisheries, which are excluded from the three-pie voluntary cooperative program.

4.1.10 Crew loan program

To aid captains and crew, a low interest loan program (similar to the loan program under the halibut and sablefish IFQ program) would be created. This program would be funded by 25 percent of the funds collected under the fee program applied to IFQ holders in the BSAI crab fisheries. Loan money would be accessible only by active participants in crab fisheries, regulated under the rationalization program, and could be used to purchase either C shares or general harvest shares, in one or more of these same fisheries. Any general harvest shares purchased with loan money would be subject to all use and leasing restrictions applicable to C shares for the term of the lease.

4.1.11 Sideboards to protect participants in other fisheries

A three-pie voluntary cooperative program for the BSAI crab fisheries will affect the fishing patterns of current participants. Some participants may sell or lease their shares. Other participants could change the timing of their fishing. In either case, rationalization could allow BSAI crab fishermen to increase participation in other fisheries. To protect participants in these other fisheries, sideboards would apply to all vessels that receive an allocation in the *C. opilio* fishery. The sideboards would restrict these vessels to their historic harvests in all Gulf of Alaska groundfish fisheries (except the IFQ sablefish fishery, which is subject to program harvest limitations). Vessels with less than 100,000 pounds of total *C. opilio* harvests and more than 500 metric tons of total cod harvests during the qualifying years would be exempt from the sideboard caps. In addition, vessels with less than 50 metric tons of total groundfish landings in the qualifying period would be prohibited from harvesting cod from the Gulf of Alaska. Sideboards will be applied to vessels, but will also restrict harvests on the accompanying groundfish license, if that license is used on another vessel.

Crab harvests, by vessels that participate in the Bering Sea pollock fisheries, are currently limited by sideboard restrictions established under the American Fisheries Act. Likewise, the quantity of crab processed by entities that participate in the Bering Sea pollock fisheries, are also limited by sideboards established under the AFA. Since the crab fisheries would be rationalized, these sideboard restrictions would be removed.

4.1.12 Additional program elements

Annual Reports: Under the program, NMFS Restricted Access Management, in conjunction with the State of Alaska, would be directed to produce annual reports concerning the program and a preliminary report on the program after three years. A full review of the program would be undertaken at the first Council meeting in the fifth year after implementation of the program. The review would be intended to objectively measure the success of the program in addressing the concerns, and achieving the goals and objectives specified in the Council's problem statement and the Magnuson-Stevens Act standards. Impacts of the program on vessel owners, captains, crew, processors, and communities would be examined. The review would include an assessment of options to mitigate negative impacts of the program. Additional reviews would be conducted every five years.

Data Collection: A mandatory data collection program would be developed and implemented under the rationalization program. Cost, revenue, ownership, and employment data would be collected regularly from the harvest and processing sectors. The data would be used to study the economic and social impacts of the program on harvesters, processors, and communities and assess the success of the program. Participation in the data collection program will be mandatory for all participants in the fisheries. The program will require adequate regulatory and statutory protection of confidentiality. The novelty of the data collection program and the lack of uniformity in accounting practices could lead to some compliance errors, notwithstanding good faith efforts to comply with the requirements of the program. Data collection enforcement and penalties would be structured to avoid over penalizing honest mistakes of those attempting to comply with its requirements.

Monitoring and Enforcement: NOAA Fisheries and the State would coordinate monitoring and enforcement of this program. Managers must be able to ensure that regulations governing the fishery are adhered to. A harvester's fishing activity, a cooperative's aggregate catch, a processor's processing activity, and a C/P's activity will need to be monitored. Methods for catch accounting and catch monitoring plans for cooperatives would be developed to generate data that will provide accurate and reliable estimates of the total catch and landings, to manage quota share accounts, prevent overages of harvest quota shares and processor quota shares, and determine adherence to regionalization requirements. Monitoring needs include catch composition, bycatch (i.e., retained incidental catch) and discards, and landed deadloss. Tools used for monitoring include scales at processors, observers, vessel monitoring system, shore side observers, shore side electronic reporting. A portion of the management fees, collected from harvesters and processors under the program, would be shared with the State for management and observer programs in the fisheries. The amount of these fees and upon whom those fees will be imposed have not been specified.

4.2 Participation levels and industry composition under the preferred alternative

This section examines several impacts of the preferred alternative on industry. Vessel participation levels, fleet composition, harvesting practices, captain and crew participation, processing participation, and composition of the processing sector are all examined.

4.2.1 Vessel participation levels and fleet composition

The number and size of vessels in each fishery under the preferred alternative are likely to depend on several factors, many of which cannot be quantified. As a consequence, it not possible to determine the magnitude of the changes in participation levels that are probable under the preferred alternative.

Two different effects of the preferred alternative on fleet composition must be assessed. First, the number of vessels that participants use in the fishery, once all desired harvest share transfers are made must be assessed. In other words, the equilibrium number of participating vessels should be assessed, given the conditions in the fishery, at any point in time.¹ The second effect that must be assessed is how the alternative affects fleet participation responses to changes in the fisheries. In other words, how the fleet transitions between different equilibria in response to changing conditions in crab stock abundance is an important part of assessing the different impacts of the alternative on fleet composition, particularly because stock sizes and harvests can make rapid and unexpected changes in these fisheries.

Changes to in-season management (such as, fixed shares, extending seasons, and relaxation of pot limits) are likely to facilitate the consolidation of fishing effort, meaning fewer vessels than currently participate in the fisheries will be required. Working in the opposite direction, processing shares, regional landing requirements, and community protections, all will likely contribute to a broader geographical distribution of landings, requiring the use of additional vessels than would be required in the absence of these rules. These requirements could also affect the types of vessels used in the fisheries. For example, the cooling off period and right of first refusal create community linkages between processing shares and communities that have at least 3 percent of the allocation in any fishery included in the rationalization program. Since the linkages apply in all fisheries (including those in which a community has less than 3 percent of the qualified history) these requirements could result in relatively small amounts of crab being landed in relatively remote locations. This distribution could affect the composition of the fleet, if the operational efficiency of vessel size is directly correlated with the amount of catch .

At the outset, the cooperative structure of the preferred alternative may contribute to more rapid consolidation. Although the alternative allows liberal trading among cooperatives, the IPQ landing requirements could complicate efforts to consolidate across cooperatives. The ability of the fleet to consolidate in response to changes in the sizes of allocations could be hindered by processing shares and the cooperative structure, particularly if inter-cooperative transfers prove to be complicated (i.e., have high transaction costs).² The specific effects of cooperatives on consolidation will depend in part on the fleets use of cooperatives. The flexibility of that structure, which allows participants to be members of more than one cooperative at any given time, would allow an additional avenue for consolidation that is unavailable under more rigid cooperative structures. Processor shares, however, could make consolidation more difficult, since harvesters are limited in their ability to coordinate deliveries by these specific landing requirements.

¹ This is akin to determining the equilibrium vessel participation.

² The value of the fishery suggest that harvesters are unlikely to leave crab unharvested, so fleets are likely to be able to expand in response to increase abundance.

Fleet composition is also very difficult to predict. A core group of crab vessels are likely to dominate the fisheries (as, indeed, they do at present). The majority of these vessels are likely to also operate in several of the fisheries. Some vessels may specialize, particularly in the golden king crab fisheries, where pots are longlined, requiring unique gear and vessel modifications.

In addition to these specialized crab vessels, a group of vessels that are likely to be used in crab fisheries will also participate in groundfish fisheries. Many of these vessels are likely to be exclusively pot boats, allowing for low cost transitions between the fisheries. Vessels that transition between pot gear and other gear types could also be used in the crab fisheries, particularly in years when TACs are high and additional effort is necessary to harvest the quota. Some of these vessels may transition from other gear types, if TACs rise sharply or harvest efficiencies can be realized on particular vessels. In years of high crab TACs, vessels with large capacity, such as trawl vessels that can be converted to fish crab, may be used to increase effort. Other vessels may be used for special efficiencies. For example, if an individual or cooperative has a relatively small allocation to fish in a particular fishery, a relatively small longline vessel may be converted to a pot configuration, if it is able to harvest the allocation more efficiently than larger crab vessels that might need to be removed from a larger fishery. The specific composition of the fleet will be determined by efficiencies such as these, and the consolidation of shares by harvesters, which is likely to depend in part on individual relationships and preferences that are not known or predictable.

The corporate nature of the fleet could contribute to consolidation. Compared to some other fisheries, the crab fisheries have fewer owner-operators. An owner-operator might be reluctant to forego active participation onboard his/her boat and consolidate activities on a vessel operated by other participants, since working on board could bring both financial and other compensation. For a share holder that has not traditionally been actively involved in the operation of the vessel, lifestyle considerations are less likely to influence the decision of whether to fish shares in consolidation with other participants. The preference for maintaining direct involvement in the industry, however, could keep some participants active who might otherwise sell their shares. Again, these different influences cannot be gauged.

4.2.2 Fishing practices

The most important impact on fishing practices arises from the allocation of fixed shares in the fisheries and extension of seasons that are likely to disperse fishing activity temporally. These effects are likely to be strongest in the Bristol Bay red king crab and the Bering Sea *C. opilio* fisheries, where seasons have been as short as a few days or weeks in recent years. The removal of the time pressure of the race to fish should have a noticeable effect on the behavior of harvesters on the grounds. The allocation of shares will reduce the incentive for harvesters to fish through severe weather to avoid a loss of catch to competitors.

The fixed allocation and the season extensions, provided under the preferred alternative, should also allow harvesters to respond to specific market demands. In some cases, these demands could result in further temporal dispersion of harvest activity. If specific customers demand specific products at specific times, or if a more general demand for specialized fresh product, such as live crab, develops, these demands could result in some temporal realignment of harvest activity. The tendency for dispersion of fishing over time is likely to be mitigated by the interest in harvesting crab with optimum meat fill (which is seasonally dependent). In addition, harvesters will continue to respond to traditional periods of high demand (e.g., holidays and festivals).

Timing of **fishing may also be affected by fisheries in other areas of the world**. So, under the preferred alternative, harvest activity will tend to disperse temporally, while still being concentrated at times (and in locations), to the extent that harvesters perceive an economic benefit to be had. The exact outcome of these factors cannot be known, *a priori*, and could change year-to-year with stock fluctuations and market conditions.

As noted above, extending fishing over a longer period of time may also allow harvesters to reduce harvest capacity in the fishery. The relaxation of pot limits is also likely to contribute to capacity reductions. Allowing a vessel to use more pots and fish a fixed allocation should, together, result in longer soak times, as time pressures are removed and harvesters with more pots to tend can schedule pot lifts at longer intervals, without leaving crews inactive. The longer soak times should allow escape mechanisms on the gear more time to sort crab, resulting in less harvest of undersized and female crab, reducing bycatch. The removal of time pressures on harvesters by fixed harvest allocations and longer seasons should also reduce the amount of lost gear, since harvesters will not sacrifice harvests, if extra time is taken to search for lost pots. Lost pots contribute to crab mortality, since they continue to fish until the twine on the escape mechanism decomposes.³

The fixed harvest allocations may decrease bycatch in the fisheries by allowing harvesters time to change locations without loss of catch. Harvesters that retrieve pots with relatively high quantities of undersized or female crab, or for that matter, low value dirty shell crab, are more likely to move to other areas in search of higher value catch, if their total harvest is secure through the fixed allocation. In this latter instance, the benefit accruing to the fisherman may be offset by the adverse impacts on the resource, as addressed below.

Although the removal of the time pressure of the race for fish could reduce some detrimental fishing practices, it could also increase the propensity of harvesters to high grade, discarding lower quality crab to catch higher valued crab. Harvesters will have an incentive to high grade if the price difference between high quality crab and low quality crab exceeds the costs of discarding the low value crab and harvesting high valued crab. Whether an incentive to high grade will emerge under the preferred alternative is, largely, an empirical question, which cannot be predicted at this time. Monitoring and regulation can be used to assess the level high grading, and establish rules that will limit its effects on stocks. The use of monitoring and regulation to manage high grading is discussed in Section 3.2.

Issuance of fixed harvest allocations that extend several years into the future are argued by some to reduce the incentive for detrimental high grading. This effect would arise if harvest share holders believe that wasteful fishing practices reduce future allowable catch. If fishermen do not believe that their individual harvest practices have a substantial effect on future crab stocks, they would tend to maximize their current income, discounting associated future costs of their behavior. The outcome of these competing effects cannot be predicted.

4.2.3 Impacts on captains and crew participation

This section examines the effects of the preferred alternative on captains and crew. A few specific provisions contained in the preferred alternative are intended to address captains and crew. These provisions are discussed briefly, after which more general affects of the alternative on captain and crew participation are considered. Under the preferred alternative, the pool of eligible captains in a specific fishery (e.g., BBRKC), will, collectively, receive an allocation of three percent of the TAC in that fishery. These allocations (C shares) are a revocable privilege that allow the holder to receive an annual allocation of a specific portion of the annual TAC from the specific crab fishery.

C share allocations are based on historic participation in the fishery or fisheries, as a means to protect the historic interests of captains. Once trading of these shares begins, C shares are intended to provide their holder (which may be either captains or crew) with additional leverage, in the form of a fungible asset, when negotiating with the vessel owners who employ them. To receive a C share allocation in a fishery, a captain must meet both a qualifying year landing requirement and a recency landing requirement. In fisheries closed

³ The tendency of lost gear to continue to fish is commonly known as ghost fishing.

in recent years, the recency component requires that the captain have landings in one of the crab fisheries, governed under the rationalization proposal, that has been open in recent years. In each of the fisheries, the allocations rely on several years of participation.

A special loan program would fund the purchase of harvest shares (including C shares) by captains and crew. This program is intended to be an independent source of funding for share purchases by captains and crew who might otherwise need to borrow from the vessel owners that employ them to develop an ownership interest in the fisheries. This would have the obvious potential to undermine the principal benefit attributed to C shares, namely the added leverage the holder may have in negotiating with the vessel owner. The effectiveness of this program in providing and entry opportunity for captains and crew cannot be predicted with certainty. Any increase in share holdings by captains and crew, attributable to the loan program, is unlikely to affect fishing practices.

The most dramatic effects of the preferred alternative on captains and crew will occur because of the reduction in the number of participating vessels and the slowing of the pace of fishing. Any fleet consolidation will reduce the number of captains and crew active in the fisheries. Slowing the pace of fishing may result in the use of somewhat small crews, as well. The concentration of harvests on the vessels remaining in the fisheries, however, could provide more stable employment to captains and crew that are able to retain positions in the fisheries. Jobs should be for longer seasons, since fishing should take place over a longer period of time. The skills of the average captain and crewman in these fisheries could be expected to increase, since only the best of the current participants should be expected to remain in the fisheries, and those that remain will spend more time crab fishing, presumably perfecting their skills and knowledge of prosecution of the fisheries. Different skills could become more important in the future as participants benefit from cost efficient harvest practices, rather than catch maximization in a race for fish operating mode.

Although participation in the fisheries can be expected to remain a dangerous occupation, the slowing of the race for fish should reduce the incentive to take excessive risks that may threaten the safety of the vessel, captain, and crew. Captains and crew are less likely to work around the clock and/or in exceptionally bad sea and weather conditions, both of which are common requirement under the status quo. As previously suggested, crew sizes might decrease, but a crew of at least 5 persons, including the captain, is likely to be employed on most vessels, as that is presently perceived to be the minimum crew needed to operate a crab vessel in the BSAI.

4.2.4 Processing sector participation and practices

The preferred alternative provides protection to processors through the allocation of processing shares. Since the allocation of processing shares is novel, the effects of those allocations on processor practices are not certain. Processing shares will be allocated for 90 percent of the TAC, by fishery.

Generally speaking, product and processing improvements will occur in a rationalized fishery. The change to a rationalized fishery creates the opportunity for the development of fresh and live crab markets, since harvests can be dispersed over a greater time period. It also holds the potential for development of new processed products and product forms, as slower paced fisheries make possible better handling practices and (perhaps) higher recovery rates. This, in turn, offers the opportunity to serve new markets and broaden the consumer base to which BSAI crab is marketed. More profitable uses for older shell crab and better treatment of new shell crab—including using more time consuming blast and plate freezers, instead of brine freezers—could improve over all quality. The extent to which these markets will develop cannot be predicted, but rationalization offers the potential.

In addition to the ability to provide more products to broader markets, rationalization may allow processors to improve product quality on more processed products. With longer periods of production, processors should

be able to better train crews to handle and grade crab. The ability to produce higher quality products in a slower fishery is also evident from current processing in the CDQ fishery. Processors that participate in both the commercial and CDQ fisheries report that they postpone most of their production of high-quality products until the CDQ season, when more time is available for processing. By creating a privilege to a share of the landings in a fishery, processor shares could affect processing practices. The combination of processing shares with the cooperative structure in the harvest sector is likely to contribute to the coordination of deliveries to each processing share holder and one or more associated fleets. In addition, individual processors are likely to use the negotiating leverage associated with PQS to concentrate deliveries to limit the amount of time they will need to have crews on hand. Processing of crab tends to be labor intensive in comparison to processing of fin fish. Crab processing also utilizes different equipment from other processing. To the extent that processing for crab requires dedication of crews or space that would be used for other processing activities, processors can be expected to time deliveries to have steady and uninterrupted flow of crab through their facilities. Some processors that are less active in fisheries other than crab are likely to bring in crews specifically for crab harvesting. Timing of deliveries is likely to be of even greater importance to these processors, who might have a limited capacity to use crews during any down times between deliveries. Although many participants believe that processing shares provide the opportunity for coordination of processing activities, others believe that processing shares could dampen incentives to innovate or develop new products and markets. Whether processor shares have this effect could depend in part on whether harvesters can rely on the arbitration process to raise ex- vessel prices to a level that creates incentives for processors to aggressively pursue production improvements and new markets, or to sell their shares to processors that are willing to pursue those improvements and markets.

Since processing share holdings must be matched one-to-one with class A harvest share holdings, it is likely that each processing share holder will need to work with more than one cooperative. In addition, since cooperatives are not mandatory, some processing share holders may need to transact with individuals that choose not to enter cooperatives. The ability of a processing share holder to use the negotiating leverage created by processing shares to coordinate deliveries is likely to be affected by the extent to which harvesters enter cooperatives and the relationships established by cooperatives. If a processor needs to work with several cooperatives, its ability to coordinate deliveries could be affected.

The slowing of fishing under the rationalization program creates an opportunity to remove additional capital from the processing sector. The removal of processing facilities from the fisheries, however, could be reduced by regional and community protections that geographically limit the ability of processors to concentrate processing. During the two year cooling off period, most processing is required to remain in the community of the processing that gave rise to the underlying processor shares. The effects of this provision on processing are likely to be limited in duration, but will likely extend beyond the two years that the provision will be in effect. After the two year cooling off period, the right of first refusal may limit the ability of processors to consolidate processing through the sale of processing shares. The limitations and exemptions on to the right are likely to limit the effectiveness of the right and duration of its effect on fisheries. If community groups are able to use the provision to purchase interests in processing, the long run distribution of landings and consolidation of processing could be impacted by the provision. Regional designations on processing shares will require processors to process crab in one of two designated regions in most fisheries. Since the regional designations apply in perpetuity, the effects of regionalization will continue indefinitely. Since regionalization divides processing into only two geographic areas, its impact is likely to be weaker than those of the cooling off period or the right of first refusal. In terms of limiting consolidation, the most noticeable affect of regionalization is likely to occur in the season in which no processing would occur in a region but for the regional requirements. While this is most likely to occur in seasons of low total harvests, the slower pace of fishing and the coordination of deliveries in a rationalized fishery could lead to the concentration of harvests in a single region in the absence of regional landing requirements. The specific effects of the regional landing requirements cannot be determined.

Consolidation in processing is likely to occur at two levels, long term consolidation and short term consolidation. Long term consolidation will occur through the transfers of PQS (the long term privilege processing shares). Processors that remain in the fisheries in the long run are likely to serve multiple fisheries. With the reduced time pressure from the end of the race for fish, processors will be able to realize cost savings by being active in several fisheries to prevent down time between landings that might arise if active in a single fishery. Most processors are likely to be active in both crab and fin fish fisheries; some processors, however, may concentrate on crab, serving multiple crab fisheries.

Short term consolidation (or expansion of processing) would occur through the transfer of IPQs or custom processing. IPQ transfers and custom processing are likely in years of large changes in the TAC, when processor will wish to make changes in the amount of capacity on relatively short notice and in years of low TACs, when processors that do not wish to go through the expense of opening a facility for a small amount of deliveries. In years of extremely low TACs, consolidation could be limited by the caps on processing share holdings. The free leasing allowed of processing shares, however, could result in extensive custom processing by PQS holders that choose not to be active in the processing sector, instead choosing to lease their shares.

4.3 Changes in net benefits to the Nation

The net benefits to the Nation arising out of the change in management to the preferred alternative would be expected to accrue from several different sources. First, changes in production from the fisheries is likely to positively affect net benefits. Both the harvest sector and the processing sector would be expected to gain through economic and operational efficiencies as a direct result of management changes. The primary changes in these sectors will be changes in capitalization and consolidation. Absent the artificially induced race-for-fish, economic and physical risks to vessels and crew will be substantially reduced, providing yet additional positive net benefits. The change in management is also likely to positively affect U.S. consumers, through changes in product quality, availability, variety, and price. Further, the changes in conduct of the fisheries and management could result in positive changes in the environment of the BSAI. These may, in turn, yield net benefits to the Nation as diverse as ecosystem productivity gains and welfare improvements attributable to non use/passive use values. These various effects cannot be readily quantified. Several aspects of the alternative are novel. In addition, quantification would require detailed cost information from both the harvesting and processing sector, market data on product supply and price responsiveness, and estimates of passive use values associated with these resources, none of which are currently available. Lastly, crab stocks are highly variable further limiting the extent to which effects can be quantified.

4.3.1 Changes in net benefits arising from production

This section analyzes changes in net benefits arising from production from the fisheries. The section first analyzes efficiency in the harvest sector, then analyzes efficiency in the processing sector. Efficiency changes are reflected in the difference between revenues and costs. Overall change in benefits from production equal the sum of efficiency changes in harvesting and efficiency changes in processing.

Net benefits from overall production (harvesting and processing) in the fisheries is likely to be derived from a few related sources – reduction in amounts of inputs used to produce outputs, improvements in product recovery and quality, and new product and market development.

A brief discussion of production efficiency and potential sources of returns from the fisheries is helpful to develop a structure for assessing those benefits and understanding their place in overall net benefits of the fishery. Production efficiency is a measure of the effectiveness of a producer (either a harvester or a processor) in using inputs to produce one or more outputs. Production efficiency focuses on the relationship between the quantity and quality of outputs produced, and the quantity and quality of the various inputs (e.g.,

fuel, vessels, and labor) used for that production.⁴ Two different types of efficiencies contribute to, and together constitute, production efficiency. “Technical efficiency” refers only to the production process that converts inputs to outputs and is a measure of the quantities of inputs used and the quantity of outputs produced in a production process (independent of prices and their effects). Decreasing quantities of inputs and increasing quantities of outputs are sources of technical efficiencies. “Allocative efficiency” considers both the markets for inputs and outputs, and choices of inputs and outputs. This is a measure of the economic benefits of the choosing different mixtures of inputs and outputs in production. Allocative efficiency necessarily considers the costs and revenues generated by these choices. Collectively, these two types of efficiency define “production efficiency”.⁵ Production efficiency, which is the concern of this section, therefore requires the consideration of both the choices that the producer makes in the markets for inputs and outputs and the process by which inputs are converted to outputs. In the end, production efficiency may be measured by the returns to producers – the difference between the producer’s revenues generated by outputs and the producer’s costs of inputs.

Since the output of these fisheries is crab products (e.g., crab sections), an analysis of production efficiency would assess the efficiency of both the harvest of crab and the processing of crab into crab products. The Council’s problem statement, however, recognizes that production in the fisheries is generally separated into two sectors – harvesting and processing – and expresses its intent that the rationalization program contribute to the economic stability of both sectors. To facilitate an understanding of the implications of the alternatives on these two sectors, this analysis separately assesses the implications of the different alternatives on the efficiency of the two sectors.⁶

To develop an understanding of production efficiencies, it is helpful to develop a framework for assessing returns to producers in the fisheries and the sources of those returns. Three different sources contribute to returns to producers in the fisheries; resource rents, harvester normal profits, and processor normal profits. First, crab that will be harvested and processed have a scarcity value while unharvested in the water that is realized by harvesting and processing. This value can be said to exist independent of the action of harvesters and processors. Once the crab is harvested and processed, this value is captured by the industry. The value referred to here is the resource rents, or the value of crab in its natural state that is realized only by the

⁴ Economists estimate four different contributions to production efficiency, all of which together constitute production efficiency:

1. Reducing the quantities of inputs used to produce a given set of outputs;
2. Increasing the quantities of outputs produced with a given set of inputs;
3. Reducing the cost of production by improving the mixture of inputs used to produce a given set of outputs; and
4. Increasing revenues by improving the mixture of outputs produced using a given set of inputs.

The first two of these estimates are "technical efficiency" and refer only to the production process that converts inputs to outputs (rather than the markets for inputs and outputs). The later two measures are "allocative efficiency" and require consideration of both the markets for inputs and outputs and choices of inputs and outputs.

⁵ See appendix 2-7 to the RIR, which is appendix 1 of this document, for a more complete description of these different types of efficiency.

⁶ The analysis later summarizes overall efficiency in production from the fisheries (which is the combined efficiency of harvesting and efficiency of processing) allowing the reader to assess the contribution of production to net benefits of the different alternatives.

harvesting and processing of the crab.⁷ In large part, the ex- vessel price represents the division of resource rents between the two sectors. This value, however, is only one part of the returns realized through the harvesting and processing of crab.

In addition to resource rents, each sector is generally expected to receive normal profits (or a reasonable return on investment in the industry). As in any business, harvesters and processors invest capital and effort on the reasonable expectation of receiving a return on that investment. Normal profits, however, may not be earned during transitional periods. Transitional periods could occur because of changes in the total harvests, economic conditions that affect product markets, or regulations governing the fishery. These changes in circumstances can lead to unexpected effects on the returns to participants. The prevalence of changes in annual total harvests of crab fisheries are particularly problematic for this reason, since long term planning can be disrupted by those exogenous changes. Harvesters and processors that invest, based on returns observed in seasons of high harvests, may not receive the return they expect (and could suffer losses) as a result of drastic stock declines. In assessing the distribution of revenues and efficiencies under the different alternatives, the ability of the different sectors to respond to these changes and the ability of one sector to impose the cost of unexpected changes on the other sector must be assessed.

When assessing the efficiencies in this section, one must keep in mind the relationship between resource rents and efficiencies. In a more efficient fishery, a greater portion of the rents of the resource will be captured by the fishery participants. For example, ending a race for fish may slow the flow of crab through processing plants, increasing product recovery, which increases returns from the fishery. This capture of additional rents could result in relative improvements in both sectors, if the efficiency gain is shared between the sectors. The discussion of efficiencies is largely an analysis of the capture and distribution of the resource rents between the two sectors. The reader should bear in mind that in a fishery in which the division of revenues changes to the relative detriment of one sector, that sector does not necessarily suffer a decline in efficiency (and hence may not be made worse off following the change, as compared their state before the change occurred), if substantial efficiencies are realized (or, in other words, substantial additional rents are captured). If total revenues in the fishery rise substantially, even a relative adverse shift in the division of revenues for, say, party “A” could leave party “A” more efficient and, thus, better off in net terms.

The analysis also considers the affects of the different alternatives on efficiency during times of transition, particularly on implementation of the preferred alternative and during times of low total harvests. The ability of the different sectors to capture resource rents and receive normal profits during transition periods is also discussed.

As should be apparent from this discussion, a critical factor in the assessment of the effects on efficiency of the harvesting and processing sectors is the ex- vessel price of crab, which represents the distribution of crab product revenues between the two sectors. Crab landings generate revenues for harvesters and are a principal input cost to processors. Because of the importance of crab prices in determining the efficiencies of the different sectors, the analysis in this section devotes considerable attention to the effects on the distribution of revenues between the sectors (which is reflected in the prevailing ex- vessel price structure).

4.3.1.1 Economic efficiency in the harvesting sector

This section focuses on the production of crab by harvesters – harvest and landing of live crab – and harvest sector efficiency in that production. The product output of the harvest sector is live crab delivered to a processing facility. Since harvest allocations are fixed by regulation, the discussion of the effect of outputs

⁷ Note that the value being referred to here is not the entire value of the crab, but only that value that is realized through harvesting and processing. Frequently (and later in this document) economists consider other values of a resource, such as the non-use value, derived from the resource remaining in its natural state.

on efficiency focuses on prices.⁸ Crab harvesters rely on several inputs, including fuel, labor (i.e., captains and crew), vessels, among others. The preferred alternative does not directly affect the markets for these goods and services and is likely to have little predictable effect on the prices of these goods and services.⁹ As a result, the analysis of harvest sector efficiency effects focuses on the quantities of inputs used in production (or technical efficiencies), rather than input prices.

Harvesting practices are likely to change substantially under the preferred alternative. At least that is the expectation underlying the proposed action. Harvest share allocations will enable harvesters to reduce inputs used to harvest their fixed allocations, improving technical efficiency. Free trading of shares, subject to individual use caps, under the program will aid in facilitating these efficiency gains by allowing more efficient harvesters to purchase the shares of less efficient participants and consolidate shares on fewer vessels. The effects of this alternative on harvest sector efficiency will be affected by the allocation of processing shares and two different types of harvest shares; Class A harvest shares that require delivery to a processor that holds processing shares, and Class B harvest shares that can be delivered to any processor. Class A shares would be allocated for 90 percent of the TAC, while Class B shares would be issued for 10 percent of the TAC. The effects of these different share allocations on harvest sector efficiencies is discussed throughout this section.

Harvest sector technical efficiency gains under this alternative are expected to be reduced by the regional and community landing requirements and the community right of first refusal on processing shares. For example, harvesters required to deliver their IFQ catch to remote communities to meet community landing requirements may also need to travel to less remote ports for services that might be unavailable in the remote communities. Technical efficiencies might be improved if harvesters were able to concentrate landings in locations that minimize harvest costs. Instead, the regional and community landings requirements, which are likely to disperse landings geographically, could reduce efficiencies by requiring the fleet to make deliveries in several different locations. The extent of any decrease in efficiency gains cannot be predicted and will likely vary with several factors, including stock levels and the geographic distribution of stocks in the fisheries. In addition, the ability of the industry to respond to these landing requirements cannot be predicted. If harvesters coordinate operations (particularly across cooperatives that may hold shares in different regions) any efficiency loss could be reduced. For example, in a season of high total harvests, if one cooperative holds shares that require delivery to a processor relatively close to the fishing grounds, while another holds shares for delivery for a more distant processor, inputs may be reduced by the cooperatives trading shares to allow in-season deliveries to the nearby processor, with each harvester making a single end of season delivery to the processor more remote from the fishing grounds. In part, the technical efficiency effects of these landing requirements could be determined by the willingness and ability of the industry to respond creatively.

Since the community landing requirements of the “cooling off period” will lapse after two years, the impacts of those provisions on efficiency will be limited. Because the regional landings requirements are a permanent part of the program, the effects of those requirements will continue for the duration of the program. The right of first refusal on processing shares is intended to provide community groups with a mechanism to retain historical processing activity. The effects of this provision on harvest efficiency depend on whether community groups are able to leverage the right to retain processing that would depart the community and

⁸ In assessing the production from the fisheries, it is important to bear in mind that harvesters may contribute to the product outputs of processors through cooperation with processors. For example, a processor may not be capable of producing fresh or live crab without coordination of deliveries with harvesters that allow the processor to deliver product to markets without loss or spoilage. If the contribution of harvesters to the development of different products by processors is rewarded with a price increase that exceeds the harvesters additional costs for the coordination of those deliveries, harvesters realize an efficiency improvement.

⁹ The labor market for captains and crew could be affected if a reduction in the number of vessels participating increases competition for remaining jobs. This potential impact is discussed in greater detail in section 4.4 below.

be consolidated in other areas. Since the provision has exceptions that would allow processing to leave a community without being exposed to the right of first refusal and the right of first refusal expires if not exercised on the first sale of the shares for use outside the community, the long term effects of this provision could be limited. Alternatively, if community groups show a willingness to exercise the right, the affects could be lasting.¹⁰

The landing requirements of the processing shares could also limit the ability of harvesters to realize technical efficiency gains. Since crab landings are dependent on the processor location, it is possible that processors may choose to process in locations that reduce harvest technical efficiency gains.¹¹ Some impacts on harvest efficiencies could depend on processor practices, particularly with respect to the provision of fuel, bait, and other services. For example, if remotely located processors decide not to provide these goods and services to delivering vessels, harvest sector efficiencies could be impacted greatly. The technical efficiency effects of processor provision of goods and services could depend on whether the arbitration program creates an incentive for processors to provide goods and services by requiring a higher ex-vessel price, if goods and services are not provided. If ex-vessel prices are affected by the provision of goods and services, in the long run, processors are likely to realize higher returns by aiding harvesters' realization of technical efficiencies.¹²

The cooperative structure of this alternative may aid harvesters in improving technical efficiency by fleet members working together. Two competing effects of the voluntary nature of the cooperative program could impact of the alternative's effect on harvest efficiency. First, since cooperative membership is voluntary, harvesters that have a preference for maintaining an independent operation may realize less efficiency gain. This independence is likely to be overcome with time, if gains in efficiency can be realized by cooperative action. The voluntary structure of cooperatives, however, could contribute to efficiency gains by allowing harvesters to enter different cooperatives in different fisheries, enabling greater efficiency gains than a structure that limits a harvester to a single cooperative in all of the fisheries that it participates.

The 10 percent B share harvest allocation could also affect harvester technical efficiency. These shares are likely to be harvested simultaneously with the A shares, which require delivery to a processor holding processor shares. If delivery to some processors would increase harvester technical efficiency (through input cost reductions), we might expect the B shares to migrate to those processors.¹³

Technical efficiency in the harvest sector is likely to be lowest during times of transition, particularly when total harvests are low. Community, regional, and processor landing requirements could disburse landings adding substantially to harvester input costs. Coordination of harvesting by cooperatives could aid technical efficiency. If processors are willing and able to engage in custom processing that consolidates processing

¹ Whether these purchases would have an effect on the harvest sector could depend on whether the arbitration process allows harvesters to recover the added costs in the ex-vessel price. Delivery location is a factor to be considered by the arbitrator, but the specific effects cannot be predicted.

² Although the costs to harvesters may rise as a result of these processing choices, the net return to harvesters may be unaffected, if harvesters recover these added costs in ex-vessel revenues. Net returns are discussed in a later section of this document.

¹² In the event that processors do compensate harvesters with higher ex vessel prices in the absence of providing goods and services, the loss in technical efficiency would be mitigated or overcome to the extent of the price compensation.

¹³ Harvesters may choose not to use their B share harvests in the most technically efficient manner, if they can leverage a better price on A share deliveries with those B shares (improving overall harvester efficiency through a price improvement). In the end, harvesters can be expected to use their B shares in the manner that provides the greatest overall harvester efficiency on all landings. The extent of the effect of B shares on harvest efficiencies, however, cannot be predicted, but is likely to be limited due to the relatively small size of that allocation.

during these periods, harvest technical efficiencies could be less affected. The decision of processors to engage in this consolidation is likely to depend on several factors, including its effects on ex-vessel prices and processor efficiencies, and cannot be predicted. Although technical efficiencies are likely to suffer in times of low total harvests, harvester technical efficiency under this alternative should be better (or at least no worse) than under the status quo alternative.

Harvester revenues are also an important component of harvest sector efficiency. Several factors are likely to affect the ex-vessel price under the preferred alternative. Slowing the race for fish with an allocation of harvest shares generally provides harvesters with substantial power in the landings market. Yet, the effects of this alternative on price will differ significantly from a harvester only IFQ program because of the allocation of processing shares and two different types of harvest shares; Class A harvest shares that require delivery to a processor that holds processing shares and Class B harvest shares that can be delivered to any processor. Although a relationship between the two share types will likely exist, an understanding of the ex-vessel prices in the fisheries is gained by examining the different share types separately, then examining their relationship.

Because of the structure of the arbitration program, harvesters are likely to capture a relatively larger share of the resource rents for crab harvested with Class B shares than for crab harvested with A shares. Arbitration is undertaken only at the harvester's election and applies only to A share deliveries. Consequently, a harvester can negotiate deliveries of B shares independently from deliveries of A shares, by threatening arbitration if the processing share holder attempts to intertwine negotiations of A share and B share deliveries. Providing harvesters with the ability to negotiate B share deliveries separately from A share deliveries makes B shares equivalent to IFQ in a harvester-only IFQ program. Processor entry, however, could be more limited under this alternative than under the harvester-IFQ program, in which case, processors might capture more of the resource rents on B share landings than on the landings of crab in a harvester-only IFQ program because of the reduced competition.¹⁴

Processing share landing requirements limit the market for A share landings. As a consequence, the distribution of revenues of landings of crab harvested with A shares will depend greatly on the arbitration program, the outside opportunity for harvesters that are dissatisfied with the outcome of price negotiations. Although arbitration may take place in few instances, the threat of arbitration and the expected arbitration price are likely to drive the outcome of negotiations. The arbitration standard provides that the historic division of first wholesale revenues should be maintained for the landings of crab harvested with A shares. Assuming no change in the total benefits derived from the fisheries, this standard would preserve the historic distribution of benefits for A share landings. Whether the standard will have that effect cannot be determined and is likely to depend on several different factors. If processed product revenues are improved through product improvements and developments (capturing greater rents), both sectors could share those additional rents. The arbitration standard would likely provide for the sharing of these revenues between the sectors with the division influenced by the contribution of the parties to the product developments and improvements. In addition, the arbitration standard provides that the arbitrator can consider any relevant evidence in making an arbitration decision, including negotiated prices for both A share landings and B share landings. Although this breadth of discretion could be necessary for fairness, it also makes the standard less predictable.

Another factor that could affect the distribution of product revenues to harvesters for A share landings is the ability of harvesters to leverage a higher A share price, using B share landings. If harvesters are able to drive processors to compete for B share landings by increasing the price for A share landings, it is possible that

¹⁴ The cap on IPQs (which also operates as a cap on A shares) could add to harvester negotiating leverage in years of high total harvests. The extent of this effect depends on total harvests, which are very hard to predict.

harvesters could derive greater revenues from A share crab than the historic division of revenues.¹⁵ It is also possible that these elevated A share landings prices will be considered by the arbitrator in determining arbitrated prices. If so, the distribution of revenues to harvesters for A share landings could be greater than the distribution that would be derived from the historic division of revenues. At the outset of the program, the division of revenues from A share landings is likely to be similar to the current distribution of revenues in the fisheries. Over time, the division of revenues may change as the industry changes under the new management regime. As a result, the division of revenues for A shares is difficult to predict.

In general, vertical integration of the industry will decrease competition for landings to the detriment of independent harvesters (or harvesters that are not affiliated with processors). Vertical integration reduces any dependence of processors on harvesters for landings and provides additional information to processors that can be used in negotiations. The allocation of B shares to independent harvesters only, however, should counter some of this dampening effect on competition. Since the B shares will always constitute 10 percent of the total share allocation, the percentage of shares held as B shares by independent harvesters will increase as vertical integration increases. These additional B shares will increase the market power of independent harvesters because processors will need to compete for the B share landings.¹⁶

During transitions, particularly on implementation and in years of low total harvests, harvester efficiency will be relatively low. On implementation, relationships and delivery coordination could be slow to develop resulting in relatively low harvesting efficiency in comparison to later periods under the program. Share matching in the first few years could result in substantial inefficiencies if participants in both sectors are reluctant to lease shares to others to achieve efficiencies while complying with the one-to-one match required of A shares and processing shares. Regional and community landing requirements will compound the coordination problem, since they require a relatively wide geographical distribution of landings. Some harvesters could be disadvantaged greatly, if delivery of a single load is required to be divided among different locations. Low total harvests in the current fisheries will compound this problem. The structure of the arbitration program, which creates an incentive for matching shares and settling prices before or early in the season, should help overcome this potential loss of efficiency. Cooperatives and free transferability of shares should also reduce efficiency losses. Overall, the technical efficiencies that result from the slowing of the race for fish are likely to fully counter (and possibly exceed) these coordination inefficiencies. Overall, harvest efficiency should improve (or at least remain unchanged) in comparison to the status under this alternative.

4.3.1.2 Net benefits of the processing sector

Under the preferred alternative, processing practices are likely to change substantially, yielding improvements in processing efficiency. The allocation of harvest shares under this alternative will slow fishing substantially, reducing the incentive for processors to quickly offload and process crab to avoid deadloss. Processors that are initially issued processing shares will be guaranteed access to 90 percent of the crab harvest, by species.

Processing sector efficiencies under this alternative are likely to be reduced by the regionalization and community protection program. The regionalization program could limit the ability of processors to consolidate processing geographically in areas that reduce processing costs. The impacts of the regional

⁴ The experimental analysis of the arbitration program suggests that harvesters could develop this competition under an arbitration program that uses a binding fleetwide arbitration price. Whether a similar result could be achieved under the non-binding fleet wide arbitration cannot be predicted.

¹⁶ If the fisheries were to become over 90 percent vertically integrated, the allocation of B shares would be less than 10 percent, but all independent harvesters would receive only B shares.

processing requirements are mitigated to some degree, since only two regions are created in any fishery. The impacts, however, are long lasting, since the regional processing requirements are a permanent part of the program.

The community protection measures that are likely to have the greatest impact on processor efficiency are the “cooling off period” and the right of first refusal. The cooling off period requires processors to process crab in the community in which processing occurred upon which the processing share allocation is based. The effects of this provision on efficiency are limited, since it would only apply in the first two years of the program. The efficiency reductions, however, could be substantial if a processor could be required to process small amounts of crab in remote locations. The impacts of the “cooling off provision” are difficult to characterize because the effects are likely to be dependent on harvest levels during the time the provision is applicable. In addition, no quantitative estimates of the impacts of the provision can be provided because data are unavailable.

The right of first refusal would grant CDQ and community groups a right of first refusal to acquire shares being sold by a processor for processing outside of the community. In general, a provision of this type might be expected to reduce efficiency gains in the processing sector, by permitting community and CDQ groups to intervene in transactions that have potential to increase efficiencies. The effects of the provision cannot be predicted since the propensity of groups to exercise the right cannot be predicted. In the long run, the provision could deter efficiency increasing transactions that might occur through the movement of processing. The provision, however, has several exceptions that allow processors to move shares (both temporarily and permanently) that can be expected to limit its effects on efficiency.

The presence of 10 percent B shares, that have no regional, community, or processor share delivery requirements might slightly reduce processing efficiency. In most cases these shares are likely to be harvested simultaneously with A shares. In general, B share deliveries are expected to migrate to the most efficient processors. B share landings, however, may not migrate to efficient processors if harvesters can use those shares to leverage a better price for A share landings. The cap on IPQ in years of high total harvests in the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries could also affect processor efficiency gains by allowing harvesters to determine deliveries based on the highest price (which should be a reflection of processor technical efficiencies and output decisions). Price concessions for these landings, however, could reduce overall processor efficiency. The continuation of the regional landing requirements on shares issued in excess of the IPQ cap could also limit overall processing efficiencies to some degree because of their effect on technical efficiencies.

Processor efficiency is likely to be relatively low in times when total harvests are low because of scale effects and the regional and community landing requirements and community protections. The relatively small B share allocation will provide less leverage to harvesters during these periods. Processors that are financially weak, have relatively small allocations, or depend primarily on crab will be most vulnerable during these downturns. Processor share holdings will provide significant protection to these processors, but the financially weakest participants could be forced to exit. Divestiture of shares will provide some compensation to those that exit.

Processing efficiency, on the whole, should improve under this alternative, in comparison to the status quo. Slowing the race for fish and the pace of crab though plants will provide for processing technical efficiencies, as well as allocative efficiencies in the choice of outputs. The processor share allocation will provide allocation processors with significant negotiating leverage. To some extent, regional and community protections will reduce efficiencies, but overall efficiency should rise under this alternative.

4.3.1.3 Net benefits in production (harvesting and processing)

Net benefits in production (or production efficiencies) will increase under the preferred alternative as a result of the allocation of harvest shares, which end the race for fish. Technical efficiencies and improvements in product recovery and quality and product developments are the prime components of these gains in overall efficiency. The cooperative structure of this alternative could improve coordination, if harvesters elect to use that voluntary structure. Processor shares could improve coordination of activities across sectors. Processor shares, however, limit the ability of harvesters to respond to markets, which could limit efficiency gains. The arbitration program could counter this effect, provided the arbitrator is able to understand efficiency implications of the different circumstances of participants in the fishery. This effect is likely regardless whether many participants engage in arbitration since the expected arbitration outcome will impact negotiated prices. Community protections and regional landing requirements also will limit production efficiency gains under this alternative. Overall production efficiency, however, should be greater under this alternative than under the status quo alternative.

A substantial portion of the processing interests are foreign owned and a substantial portion of the allocation of processing shares will be to foreign owned entities. In addition, foreign entities would be permitted to purchase interests in the harvest sector beyond that currently held (i.e., the 20 percent U.S. ownership requirement for purchasing harvest shares would allow greater foreign ownership than current rules governing foreign purchases of interests in the fisheries). Notwithstanding the current foreign interests and potential future foreign interests, net benefits to U.S. producers is expected to rise. Since processing share allocations are based on historic participation, the allocation to foreign processors should not differ from their historic participation (which would be expected to continue if the status quo is maintained). As a result, domestic processors can be expected to receive additional benefits in proportion to their historic participation. Any purchases of shares in the fisheries that increases foreign holdings would generate revenues for the U.S. citizen holder of those shares, yielding a net benefit to domestic sellers.

Notwithstanding these current and potential future foreign interests in the fisheries, net benefits to this Nation's producers (harvesters and processors) is expected to increase under the preferred alternative because of efficiency gains in production.

4.3.2 Effects on environmental benefits

All three of the rationalization alternatives are likely to contribute environmental benefits from both improved fishing practices and improved management of stocks. Changes in the fisheries under rationalization and their effects on stocks, however, cannot be fully predicted. Increased soak times are anticipated in a rationalized fishery. These increases could lead to improved sorting of harvests by gear reducing the amount and handling of discards in the fishery. A reduction of discards is likely to reduce mortality to the benefit of stocks. If fishers are able to fish with greater care in a rationalized fishery, they also may be able to reduce the number of pots that are lost on the grounds each year.

Additional benefits could also arise from other effects of rationalization. Improving the timing of deliveries to processors may reduce queuing times, which can be as high as 36 hours in some of the current fisheries. Reducing the amount of time crab spend in a vessel's tanks should decrease the number of crab that die during the wait to offload. Since crab must be processed live, crab that die in the tank (deadloss) have no market value. If deadloss were to be decreased it would reduce the amount of crab harvested that is not utilized.¹⁷

¹⁷ Reductions in deadloss would also increase the net benefits for harvesters since deadloss would be counted against the IFQ holders allocation.

In a rationalized fishery, catch is likely to be managed more precisely than in the current competitive fishery. In the competitive fishery, harvests are monitored through voluntary inseason reports from participants. In a rationalized fishery, with no permitted overages or underages, overharvests could be minimized because the catch of each vessel is strictly limited by share holdings.¹⁸ Penalties will be instituted to ensure that the limits are not exceeded.

A competing effect could arise if harvesters perceive a benefit to high grading. High grading is likely to occur if the increase in revenues from discarding low value, barnacled or brown shell crab and harvesting high value, clean shell crab exceeds the increase in cost of making those discards and harvests. To the extent that efforts of the harvest sector to increase quality of catch increase discard mortality, these efforts could reduce the net benefits derived from the fishery in the long run. Harm to stocks from high grading could decrease future harvests and total revenues realized from the fishery. Issuance of fixed harvest allocations that extend several years into the future are argued by some to reduce the incentive for detrimental high grading, if fishers perceive a future cost to high grading. The extent and effects of any high grading problem cannot be predicted. Both harvest strategy modifications and improved monitoring could be used to mitigate the effects of high grading.

Improvements in the precision of management of the crab fisheries should result in an increase in net benefits under rationalization. Although certain incentives in a rationalized fishery could result in environmentally harmful fishing practices, careful monitoring can be used to minimize harmful practices. With a well-tailored monitoring program, rationalization could lead to improved environmental conditions and an increase in the net benefits to the environment.

4.3.3 Effects on consumers

Improved product quality, increased variety of products, and increased product recovery are likely to occur to the benefit consumers, as the race for fish removes time constraints on both harvesters and processors. In addition, to the extent that the change in management improves conditions of crab stocks, consumers are likely to benefit from additional product in the market. Some product development is likely to occur in a rationalized fishery, as processors have time to develop new products, increasing the variety of crab products in the market. Since Bering Sea and Aleutian Islands crab is part of a world market, prices are not likely to be affected substantially by the program. Although processing shares are likely to give processors leverage in negotiations with harvesters, the cap on processing shares holdings is likely to be adequate to ensure that no processor gains control of the product market to the detriment of consumers.

The extent to which the gains in the quality and quantities of products generated by these fisheries are realized by U.S. consumers depends on a few different factors. Since Bering Sea and Aleutian Islands crab are sold into world markets, many of which are more quality sensitive than the U.S. market, it is possible that a portion of the consumer benefit will be realized overseas and not by U.S. consumers. Notwithstanding the potential for the realization of a portion of the benefits by overseas consumers, it is believed that U.S. consumers will experience a net gain from quality improvements, product development, and improved recovery that are likely to occur under the preferred alternative. The magnitude of these benefits are unknown.

4.3.4 Effects on management and monitoring costs

The changes in the cost of management and monitoring are difficult to predict. Implementation will require the distribution of share allocations to both sectors and captains in each fishery. Ongoing management will require annual harvest and processing allocations based on shareholdings and the tracking of the harvests and

¹⁸ Underharvesting, which is likely to occur in a rationalized fishery, can be limited by liberal share transfer rights.

processing. The voluntary cooperative structure, under which allocations would be made to harvest cooperatives instead of individual participants, could reduce some of these costs depending on the level of cooperative activity in the fishery.

Monitoring requirements and costs are likely to increase under the preferred alternative. Port sampling and observer requirements are likely to increase with extended seasons. Also monitoring will likely increase to ensure compliance with harvest and processing allocations. Sound management could also require increased monitoring to determine the impacts of potential management changes, such as the effects of increased soak times on selectivity and sorting and the potential for seasons to extend into molting and mating periods. In addition, vessel monitoring systems that provide real time data to managers might also be necessary for monitoring participants in the fishery. These costs are likely to exceed the cost of monitoring in-season harvests in the current managed open access fishery. Monitoring costs under current management are reduced by the abbreviated, intense seasons and by monitoring harvests in the aggregate.

Some management measures in the current fishery are likely to be avoided. Tank inspections that are conducted at the beginning of each season are less critical in a rationalized fishery. In addition, the in-season monitoring of fleet harvests, used to monitor harvest of the GHF, will no longer be necessary. These avoided costs are likely to be quite small, particularly in comparison to the costs of monitoring and tracking harvesting and processing of quotas. Although some elements of current management are likely to be unnecessary in a rationalized fishery, new management requirements are likely to result in an increase in the total cost of management under rationalization.

An additional cost incurred under the preferred alternative will be the cost of data collection and program review. Although these aspects of the program could bring future benefits by ensuring that the program functions as intended and unanticipated negative effects are minimized, these components of the preferred alternative will add costs to management. No estimates can presently be offered as to the probable magnitude of these management, monitoring, and enforcement costs.

4.3.5 Expected change in net benefits to the Nation

The dominant change in the net benefits under the preferred alternative will arise from improvements in production efficiencies of both the harvest and processing sectors. In a rationalized fishery, both sectors will have greater ability to focus input choices to minimize costs of production, and to improve and increase product outputs. The ability of the industry to realize these benefits is likely to be constrained somewhat by regional and community landing requirements, and possibly by the effects of the community right of first refusal. These program constraints are, themselves, included to address identified needs of specific user groups, uniquely dependent upon these fisheries. The benefits which accrue to these dependent entities, from inclusion of these provisions, have been determined by the Council to exceed the costs attributable to constraining the efficiency improvements cited above.

In addition, the ability of the two sectors to work together could impact the realization of benefits associated with efficiency gains. The extent of these various effects cannot quantitatively estimated, although they are reasonable to expect. U.S. consumers should also benefit from rationalization, as producers are able to improve product quality and recovery rates. Although management costs may rise under rationalization, environmental, U.S. consumer, and U.S. producer benefits that arise out of improved management should outweigh those costs, resulting in an expected overall increase in net benefits to the Nation under the preferred alternative.

4.4 Effects on captains and crew

The preferred alternative will affect captains and crews in a few ways. The longer seasons, together with a decline in the number of vessels, should result in fewer crew positions in these fisheries, although those that are employed can expect to be so for a longer time-period each year. Captain and crew compensation could change, if competition increases for the remaining jobs. The C share program should provide some mitigation to captains affected by the program, but the relatively small allocation of C shares is likely to have very limited effects as a result of the restrictions placed on those shares. Since these C shares require the owner to be on board the vessel fishing the shares, they should trade at a lower price. Whether holders of these shares will be able to leverage better compensation with the relatively small allocation cannot be predicted, but is not likely. The ability of holders of C shares to use those shares for negotiating leverage will be limited by the requirement that those shares be subject to the 90/10 A share/B share division in the third year of the program. Since C share holder allocations will require landing of the shares with the holder of processor shares, the captain will need to displace not only another captain, but also a harvest share holder, in order to move into a new position. The need for such a displacement limits the use of C shares as negotiating leverage, since the threat of a C share holder walking away from a position is dependent on the existence of another position on a vessel that delivers to a processor with uncommitted processing shares. So, C shares provide their holders with an allocation of modest value for negotiation, but which can be divested when leaving a fishery or moving between positions. Given the relatively minor importance of these shares as compared to the general harvest share allocation, holders of general harvest shares and processing shares are unlikely to respond to these shares in a market that requires the matching of C shares with processing shares.

Although fewer crew are likely to be employed in a rationalized fishery, the professionalism of crews could rise under this alternative. Since crews will be active for a longer time, crews should gain greater experience and have less time reorienting themselves each season. Fewer inexperienced crew members will participate in the fisheries and turnover should be limited, if crew are compensated at a level that encourages long term participation.

4.5 Entry to the harvest sector

The effects of the preferred alternative on entry to the harvest sector are difficult to predict. Entry could occur through the purchase of quota shares without ownership of a vessel. IFQs could then be fished from a vessel on which the quota share owner crews, or by leasing the IFQs to a vessel owner. This would allow a gradual entry to the fishery by both crew members and investors. The cost of entry is determined in part by quota share prices, which will depend on the distribution of benefits between the sectors. These benefits, in turn, depend on the ex-vessel price effects, perhaps resulting from the arbitration program, and the dynamics of the Class A share/Class B share ratio. While these affects cannot be predicted with any certainty, a few general observations about the effects of the alternative on entry can be made. The larger the share of the value of the crab resource captured by harvesters (and therefore embodied in the harvest share price), the more costly entry to the harvest sector will be. So, if most of the resource value of crab is realized by holders of harvest shares, new entrants will have to pay a greater amount for those shares, reflecting the capitalized value of the expected yield of each share. In addition, if those shares carry a substantial portion of the resource value of the crab, it is possible that recipients of an initial allocation will be reluctant to sell their quota shares, but will instead choose to lease shares to take advantage of the stream of income arising from the resource interest embodied in the shares. If little of the resource value is carried by the harvest shares, those shares will sell for a lower value and could be more available on the market, since the share will primarily represent the opportunity to earn normal profits from engaging in harvesting in the fishery. As noted, this effect cannot be predicted with any certainty.

The cooperative structure of this alternative could be an obstacle to new entry, if cooperative members rely on those relationships for selling shares to other cooperative members. In addition, the use of cooperatives

for harvesting of shares could lead to greater leasing, which could inhibit the development of a market for harvest shares. The development of a market for harvest shares is critical to entry. The extent of the market, however, cannot be predicted.

Entry under this alternative could be aided by the three percent C share allocation, which in general are required to be fished by the holder of those shares. These shares can be expected to sell for a discounted price, because of the limitations on their use. Yet, since these shares make up only three percent of the total harvest share allocation, the extent to which crew could purchase a significant interest in the fisheries through C share purchases alone is limited. The low interest loan program proposed to aid crew in the purchase of shares is also likely to facilitate entry to the fishery and could alleviate some financing difficulties, including those of dependence on vessel owners through loans to crew for share purchases.

The willingness of private markets to finance share purchases of any kind could be limited, since volatility of crab stocks could make shares a risky asset.

4.6 Entry to the processing sector

As under all of the alternatives, entry to the processing sector will be complicated by the challenging operational requirements and need for market development of these fisheries. Entry to the processing sector will also be affected by the structure of the “three-pie voluntary cooperative” program. The ability of processors to enter the fishery will be determined in large part by the ex-vessel price of crab, the first wholesale market for crab, and the resulting market price of processing shares. Under a two-pie IFQ program, with 90 percent of each fishery allocated through processing shares, long term entry to the processing sector will occur most commonly through the purchase of processing shares. Processing shares in this program would create a regulatory barrier to entry. The extent of the barrier depends on the market price of processing shares, which cannot be predicted. The relatively small number of processors in the crab fisheries could lead to a limited market for processing shares, which would complicate entry to the processing sector.

The allocation of a minimum of 10 percent of the harvest quota as Class B shares, which can be delivered to any processor, could facilitate some entry into the processing sector. Processors that serve small, niche markets that have minimal capital investments would be most likely to enter through the purchase of crab harvested with B shares. In years of high total harvests, some processors could enter (?)...with the more traditional processing operations by purchasing crab harvested with Class B shares, or crab harvested with Class A shares that exceed the cap on processing shares, in the case of the Bristol Bay red king crab or Bering Sea *C. opilio* fisheries. Processors that enter in this way are likely to have existing facilities that are temporarily converted to crab processing by adding a crab line. Although the unallocated processing provides an opportunity for entry of processors, the ability of entering processors to compete for those shares could be limited by the ability of holders of processing shares to spread the cost of attracting Class B share deliveries across Class A share landings. The binding arbitration program, which applies to only Class A shares and which can be initiated only by harvesters, could improve the opportunity for processors without processing shares to purchase Class B share landings. By providing harvesters the unilateral ability to separate transactions for Class A share landings from Class B share landings, processors without processing shares could have more opportunity for entry.

In any case, crab harvested with open delivery shares is, in general, likely to sell for a higher ex-vessel price than crab harvested with shares that require delivery to a processor holding processing shares. Because of these two competing effects, processors might choose to enter with or without purchasing processing shares, depending on their business objectives. Not allocating the entire fishery in processing shares simplifies short term entry by processors that wish to experiment in crab markets without taking the risk of purchasing a processing share that is a longer term asset. Leasing of processing shares could also facilitate short term entry, however, the development of that market could be hampered if processing share holders choose not to lease

shares, in an attempt to protect long term interests in the fishery. Unlike the harvest sector, short term share holdings could be used by a participant to develop an interest in the fishery that could be perpetuated through the purchase of crab harvested with B shares that do not require processor shares. Processors, therefore, are less dependent on share holdings for continued participation than harvesters.

4.7 Community/social effects of the preferred alternative

As described in Section 2.6, the community and social impact assessment in this RIR utilizes a two-pronged approach to understanding the nature, intensity, and differential distribution of potential impacts. Community and social impacts are discussed in this section and in an appendix to this volume (Social Impact Assessment: Overview and Community Profiles). These two discussions, taken together, comprise the Social Impact Assessment (SIA) for crab rationalization.

In this section, impacts are described based on output projections using the quantitative fisheries data sources for harvesting and processing presented in Section 2.6 as a baseline, where those data can meaningfully be attributed to communities or regions. As discussed in Section 2.6, there are fundamental problems with sector-based community discussions for a number of the sectors, based upon data confidentiality considerations. This is less problematic for data associated with the more numerous harvest vessels than for the analysis of processor related data. Within the constraints imposed by the data, this section focuses on quantitative data and contains a series of discussions and tables that cover potential impacts related to changes in the harvest vessel (catcher vessel plus catcher processor), catcher processor, and processing (shore plant, floater) sectors.

Within the quantitative data, assignment of a region or community of ownership for harvest vessels and catcher/processors is based on the vessel ownership and address information as listed in CFEC vessel registration files or NOAA Fisheries federal permit data. As a result, some caution in the interpretation of this information is warranted. It is not unusual for vessels to have complex ownership structures involving more than one entity in more than one region (or for some of the vessels from the Pacific Northwest that spend a great deal of time in Alaska ports to hire at least a few crew members from these ports), but the region or community of ownership provides a rough indicator of the direction or nature of ownership ties (and associated employment and economic activity) when patterns are viewed at the sector or vessel class level. For shoreplant and floating processing entities, regional or community designation was based on the location of the plant or floater itself (rather than ownership address) in order to provide a relative indicator of the local volume of fishery related economic activity, which can also serve as a rough proxy for the relative level of associated employment and local government revenues.

The SIA Appendix focuses more on narrative descriptions supplemented with quantitative and qualitative data to analyze potential community and social impacts of rationalization. The community profiles in the appendix each contain an analysis of the nature, direction, and magnitude of the social impacts likely to result from the rationalization alternative. The SIA Appendix also contains a specific overview of community experience with previous fishery rationalization programs and provides a summary of community level impacts of those programs likely to be useful as analogs for anticipating impacts associated with the proposed rationalization alternative. The appendix also features a discussion of CDQ region impacts.

Under status quo conditions, the fishery would continue in a manner similar to that seen under the existing conditions. Impacts similar to those associated with overcapitalization and the race for fish seen in the fishery at present would continue. That is, continuation of status quo conditions would not result in a static or stable situation. Current problematic dynamics would continue, and adverse sector and community or social impacts would be expected to continue, if not increase.

Further (as with the preferred alternative) the fishery has changed somewhat during the time since the qualification period, and if status quo conditions were to result from a lack of implementation of a rationalization alternative, some displacement impacts would be expected following resolution of a number of issues resulting from the period of time the fishery has been managed in anticipation of rationalization, such as the status of interim participants.

4.7.1 Community/social impact of the preferred alternative: harvest sector

The following series of tables provides information on harvester qualification and allocations under the three-pie alternative. Table 4.8-1 provides information on the distribution of BSAI harvest vessels (catcher vessels plus catcher processors) that would be allocated BSAI crab quotas under the three-pie alternative, by community of ownership of the vessels. For comparison purposes, the average annual number of vessels participating in each fishery category in the period 1991-2000 is provided (calculated using the open years during this period for each fishery). This figure does not correspond to qualifying years but provides a consistent basis for comparison on the community level. Data by year during this period (rather than annual averages) for this table series are provided in an attachment (Attachment 3) at the end of the SIA Appendix. As shown, in most cases, an equal or greater number of vessels will qualify for quota allocation than fished on an average annual basis during 1991-2000. Most of the exceptions differ by only a vessel or two. Cases of larger differences are generally for “communities” that have relatively low landings, relatively more non-qualified landings, or both -- Anchorage, Other Alaska, Other Washington, and Other Oregon in the first case; King Cove/Sand Point and Kodiak in the second. For all other communities and fisheries, the annual average number of vessels (or greater) would qualify for allocations under the rationalization alternative.

Table 4.8-2 provides information by community of the percentage volume of each individual BSAI crab fishery that would be allocated under the three-pie alternative to vessels owned by residents of that community. In addition, for comparison purposes, it provides the historical volume and value for the harvest of each individual BSAI crab fishery taken by the vessels owned by residents of each named community. A significant number of cells have been suppressed in this table due to data confidentiality restrictions. This table allows a quick comparison of how total fishery percentage allocations would shift between communities under this alternative. It is also easy to see how the alternative would impact community fleet allocations, which would result in larger or smaller allocations in each fishery.

Table 4.7-1 Count of harvest vessels allocated BSAI crab, by community and fishery, under the three-pie voluntary cooperative alternative

State	Community	Fishery	Number of Harvest Vessels Annual Average, 1991-2000		Number of Harvest Vessels Qualifying under the Three-Pie Alternative
			Vessels with "Qualified" BSAI Crab Landings	All Vessels with BSAI Crab Landings	
Alaska	Anchorage	Adak Brown	1*	1*	1*
		Adak Red	0*	0*	1*
		Bristol Bay Red	5	6	6
		Bering Sea Opilio	6	6	6
		Bering Sea Tanner	5	5	6
		Dutch Harbor Brown	1*	1*	1*
		Pribilof Red and Blue	2*	3*	1*
		St. Matthew Blue	2*	2*	2*
	Homer	Bristol Bay Red	8	9	7
		Bering Sea Opilio	8	8	8
		Bering Sea Tanner	8	9	8
		Pribilof Red and Blue	5	5	5
		St. Matthew Blue	2*	2*	4
	King Cove/Sand Point	Bristol Bay Red	6	7	5
		Bering Sea Opilio	5	5	5
		Bering Sea Tanner	6	6	5
		Pribilof Red and Blue	3*	9	5
		St. Matthew Blue	3*	4*	4
	Kodiak	Adak Brown	2*	2*	2*
		Adak Red	2*	2*	5
		Bristol Bay Red	36	44	36
		Bering Sea Opilio	32	38	36
		Bering Sea Tanner	35	44	36
		Dutch Harbor Brown	1*	1*	2*
		Pribilof Red and Blue	7	11	15
		St. Matthew Blue	18	23	22
		Other Alaska	Adak Brown	1*	1*
Adak Red			0*	0*	0*
Bristol Bay Red	12		16	12	
Bering Sea Opilio	12		15	13	
Bering Sea Tanner	10		14	13	
Dutch Harbor Brown	1*		1*	0*	
Pribilof Red and Blue	5		8	7	
St. Matthew Blue	4		5	5	
Washington	Seattle-Tacoma CMSA	Adak Brown	6	9	7
		Adak Red	4	5	16
		Bristol Bay Red	134	146	158
		Bering Sea Opilio	126	138	147
		Bering Sea Tanner	125	139	166

Table 4.7-1(Cont.) Count of harvest vessels allocated BSAI crab, by community and fishery, under the three-pie voluntary cooperative alternative

State	Community	Fishery	Number of Harvest Vessels Annual Average, 1991-2000		Number of Harvest Vessels Qualifying under the Three-Pie Alternative	
			Vessels with "Qualified" BSAI Crab Landings	All Vessels with BSAI Crab Landings		
		Dutch Harbor Brown	6	11	8	
		Pribilof Red and Blue	31	36	61	
		St. Matthew Blue	56	64	89	
	Other Washington	Adak Brown	0*	1*	0*	
		Adak Red	1*	1*	2*	
		Bristol Bay Red	10	13	9	
		Bering Sea Opilio	10	12	8	
		Bering Sea Tanner	9	12	9	
		Dutch Harbor Brown	0*	1*	0*	
		Pribilof Red and Blue	3*	5	2*	
		St. Matthew Blue	3*	5	3*	
Oregon	Newport	Adak Brown	1*	2*	1*	
		Adak Red	1*	1*	2*	
		Bristol Bay Red	9	9	11	
		Bering Sea Opilio	8	8	11	
		Bering Sea Tanner	8	9	12	
		Dutch Harbor Brown	1*	1*	1*	
		Pribilof Red and Blue	4	4	5	
		St. Matthew Blue	2*	2*	3*	
		Other Oregon	Bristol Bay Red	5	6	4
			Bering Sea Opilio	4	5	5
		Bering Sea Tanner	6	7	5	
		Pribilof Red and Blue	1*	1*	2*	
		St. Matthew Blue	2*	3*	3*	
Other States		Adak Red	0*	0*	2*	
		Bristol Bay Red	3*	5	6	
		Bering Sea Opilio	4	5	6	
		Bering Sea Tanner	3*	4	6	
		Pribilof Red and Blue	4	4	5	
		St. Matthew Blue	2*	2*	5	

Notes: Not all communities with historical harvest (1991-2000) were issued allocations under this alternative. Ownership information for allocations is based on ownership of vessel during most recent relevant BSAI crab activity. Ownership information for average harvest 1991-2000 is based on ownership of vessel during year of harvest. Average vessel numbers for individual fisheries calculated using only years each such fishery was open. "Pribilof Red and Blue" signifies the Pribilof red king crab and Pribilof blue king crab fisheries combined. While managed as separate fisheries under existing conditions, these are combined under the proposed rationalization alternative. Cells with values marked * are suppressed in subsequent harvest volume or value tables due to confidentiality restrictions.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1 and Allocation File

Table 4.7-2 Summary of harvest vessel allocations by community and fishery, under the three-pie voluntary cooperative alternative

State	Community	Fishery	Percent of Total Fishery Harvest Value 1991-2000	Percent of Total Fishery Harvest Volume 1991-2000	Percent of Total Fishery Harvest Volume Quota Allocation
Alaska	Anchorage	Adak Brown	*	*	*
		Adak Red	*	*	*
		Bristol Bay Red	2.31%	2.27%	2.44%
		Bering Sea Opilio	1.79%	1.57%	2.43%
		Bering Sea Tanner	1.03%	0.97%	1.55%
		Dutch Harbor Brown	*	*	*
		Pribilof Red and Blue	2.61%	2.75%	*
		St. Matthew Blue	*	*	*
	Homer	Bristol Bay Red	3.26%	3.16%	1.67%
		Bering Sea Opilio	2.63%	2.54%	3.03%
		Bering Sea Tanner	3.94%	2.76%	3.06%
		Pribilof Red and Blue	5.52%	6.31%	11.37%
		St. Matthew Blue	*	*	1.44%
	King Cove/Sand Point	Bristol Bay Red	2.19%	2.18%	1.67%
		Bering Sea Opilio	1.91%	1.89%	1.09%
		Bering Sea Tanner	2.05%	1.90%	1.18%
		Pribilof Red and Blue	7.54%	6.58%	2.04%
		St. Matthew Blue	2.59%	2.78%	2.13%
	Kodiak	Adak Brown	*	*	*
		Adak Red	*	*	48.95%
		Bristol Bay Red	14.65%	14.50%	13.00%
		Bering Sea Opilio	14.17%	14.51%	13.64%
		Bering Sea Tanner	17.18%	17.49%	14.52%
		Dutch Harbor Brown	*	*	*
		Pribilof Red and Blue	10.57%	10.40%	10.81%
		St. Matthew Blue	20.47%	20.65%	18.02%
	Other Alaska	Adak Brown	*	*	*
		Adak Red	*	*	*
		Bristol Bay Red	4.44%	4.55%	3.29%
		Bering Sea Opilio	4.35%	4.33%	4.21%
Bering Sea Tanner		3.28%	3.30%	2.84%	
Dutch Harbor Brown		*	*	*	
Pribilof Red and Blue		8.10%	8.40%	6.89%	
St. Matthew Blue		2.95%	2.98%	3.64%	
Washington	Seattle-Tacoma CMSA	Adak Brown	40.90%	40.54%	21.92%
		Adak Red	25.96%	26.51%	11.90%
		Bristol Bay Red	61.09%	61.22%	64.16%
		Bering Sea Opilio	63.49%	64.13%	62.78%
		Bering Sea Tanner	62.91%	63.57%	65.04%
		Dutch Harbor Brown	67.69%	68.97%	63.43%
		Pribilof Red and Blue	50.17%	49.39%	50.68%

Table 4.7-2(Cont.) Summary of harvest vessel allocations by community and fishery, under the three-pie voluntary cooperative alternative

State	Community	Fishery	Percent of Total Fishery Harvest Value 1991-2000	Percent of Total Fishery Harvest Volume 1991-2000	Percent of Total Fishery Harvest Volume Quota Allocation	
		St. Matthew Blue	61.98%	61.02%	63.27%	
	Other Washington	Adak Brown	*	*	*	
		Adak Red	*	*	*	
		Bristol Bay Red	4.35%	4.40%	3.83%	
		Bering Sea Opilio	4.53%	4.26%	3.85%	
		Bering Sea Tanner	3.66%	3.62%	3.15%	
		Dutch Harbor Brown	*	*	*	
		Pribilof Red and Blue	5.08%	5.07%	*	
		St. Matthew Blue	3.45%	0	*	
Oregon	Newport	Adak Brown	*	*	*	
		Adak Red	*	*	*	
		Bristol Bay Red	4.10%	4.26%	4.45%	
		Bering Sea Opilio	3.63%	3.55%	4.06%	
		Bering Sea Tanner	3.54%	3.15%	4.40%	
		Dutch Harbor Brown	*	*	*	
		Pribilof Red and Blue	6.19%	6.56%	9.07%	
		St. Matthew Blue	*	*	*	
		Other Oregon	Bristol Bay Red	2.17%	2.11%	1.55%
			Bering Sea Opilio	1.86%	1.74%	1.96%
		Bering Sea Tanner	2.45%	2.37%	2.01%	
		Pribilof Red and Blue	*	*	*	
		St. Matthew Blue	*	*	*	
Other States		Adak Red	*	*	*	
		Bristol Bay Red	1.45%	1.36%	2.02%	
		Bering Sea Opilio	1.64%	1.48%	2.95%	
		Bering Sea Tanner	0.96%	0.86%	2.25%	
		Pribilof Red and Blue	2.88%	3.46%	5.11%	
		St. Matthew Blue	*	*	2.50%	

Notes: Not all communities with historical harvest (1991-2000) were issued allocations under this alternative. Ownership information for allocations is based on ownership of vessel during the most recent relevant BSAI crab fishery activity.

Ownership information for average harvest 1991-2000 is based on ownership of vessel during year of harvest. 1991-2000 averages based on 10 years, even for those fisheries not open all 10 years.

"Pribilof Red and Blue" signifies the Pribilof red king crab and Pribilof blue king crab fisheries combined. While managed as separate fisheries under existing conditions, these are combined under the proposed rationalization alternative.

* = cell values suppressed due to confidentiality.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1 and Allocation File

Table 4.8-3 provides information similar to that shown in Table 4.8-2, but expressed in terms of percentage change from the 1991-2000 average for each individual community. Where communities harvest a relatively small percentage of any particular fishery, a small shift may make a relatively large difference in the total harvest for community-owned vessels, as shown in this table. As can be seen in the table, the percentage change varies considerably from place to place and from fishery to fishery. This table also shows, within the confines of confidentiality restrictions, patterns of change between communities. For example, the King Cove/Sand Point fleet, under this alternative, would receive a quota share amount significantly less than their 1991-2000 annual average harvest amount. Newport, on the other hand, would see an increase over historical share in all fisheries for which information can be displayed. Other communities show a more complex pattern of increases and decreases from the 1991-2000 averages, in part due to the lack of information in cells that must be suppressed.

Beyond the pattern of initial allocations to local fleets, community or social impacts from the harvesting sector under the three-pie alternative will be driven by what happens to the shares following allocation. By design, the initial pattern of distribution of shares follows a distribution of overall GH/L/TAC use during a recent period of time so, all things being equal, there should not be a large number of “winners” and “losers” in the initial allocation. There will be, of course, perceived inequities based on differential performance during the qualification period when compared to a longer or a shorter period, or a period (or allocation) that is more heavily weighted toward a greater emphasis on historic participation or more recent time interval. Following the initial allocation, it is expected that there will be consolidation of the fleet, and this consolidation will have a number of community or social impacts. The nature and intensity of these impacts will depend on the relative importance of the local fleet in terms of the overall engagement in, and dependence upon, the crab fishery. As detailed in the SIA Appendix, communities engaged in the BSAI crab fisheries vary widely in their differential dependence on fleet, processor, and support service sectors.

Fleet consolidation has the potential to result in community and social impacts as the pattern of vessel ownership (or operation) changes, and this will have different impacts in different communities, as described in the SIA Appendix. Accompanying the consolidation of vessels will be a loss in crew positions. While overall harvest volumes and values may not decline (and values are likely to increase if rationalization is successful, all things being equal), fewer individuals will benefit directly from the fishery in the harvest sector as employment declines. It is also a likelihood that crew compensation arrangements may change. At present, crew shares are common in the fishery where crew members share in the risk or uncertainty of the undertaking and have an accompanying ability to share in relatively large rewards for high performance. With a large degree of risk of return removed under a rationalization program, there may be movement toward a wage type of compensation structure rather than a share structure. While this may be offset to a degree by the captain's share features of this alternative, it is not clear that this will protect crew interests in the same way.

While there is community protection built into the processor share distribution under this alternative, there is no similar direct provision for harvester shares. Individuals with harvester shares may be effectively locked into eligible communities by relationships to processors limited by the “cooling off” period and right of first refusal provisions. They would still, however, have the option of leasing shares to other harvesters whose vessels may be from other communities. In such a case, the benefits of the harvesting activity (e.g., crew compensation, vessel support activity) would not flow back to the communities associated with the original vessel (beyond payment to the share holder). (The exceptions to this generalization are CDQ and Adak community allocations that effectively act as regional or community protections for a portion of harvesting share.) As noted below, however, eligible communities can purchase harvesting shares under this alternative due to a waiver in sea time requirements that otherwise restrict harvest shares to active participants or original harvest share recipients.

Table 4.7-3 Summary of harvest vessel allocations by community and fishery, under the three-pie voluntary cooperative alternative, as a percentage change from 1991-2000 annual average harvest volume

State	Community	Fishery	Percent of Total Fishery Harvest Value 1991-2000	Percent of Total Fishery Harvest Volume 1991-2000	Percent Change Between Quota Allocation and 1991-2000 Annual Average Volume	
Alaska	Anchorage	Adak Brown	*	*	*	
		Adak Red	*	*	*	
		Bristol Bay Red	2.31%	2.27%	7.49%	
		Bering Sea Opilio	1.79%	1.57%	54.78%	
		Bering Sea Tanner	1.03%	0.97%	59.79%	
		Dutch Harbor Brown	*	*	*	
		Pribilof Red and Blue	2.61%	2.75%	*	
		St. Matthew Blue	*	*	*	
		Homer	Bristol Bay Red	3.26%	3.16%	-47.15%
			Bering Sea Opilio	2.63%	2.54%	19.29%
	Bering Sea Tanner		3.94%	2.76%	10.87%	
	Pribilof Red and Blue		5.52%	6.31%	80.19%	
	King Cove/ Sand Point	St. Matthew Blue	*	*	*	
		Bristol Bay Red	2.19%	2.18%	-23.39%	
		Bering Sea Opilio	1.91%	1.89%	-42.33%	
		Bering Sea Tanner	2.05%	1.90%	-37.89%	
		Pribilof Red and Blue	7.54%	6.58%	-69.00%	
	Kodiak	St. Matthew Blue	2.59%	2.78%	-23.38%	
		Adak Brown	*	*	*	
		Adak Red	*	*	*	
		Bristol Bay Red	14.65%	14.50%	-10.34%	
		Bering Sea Opilio	14.17%	14.51%	-6.00%	
		Bering Sea Tanner	17.18%	17.49%	-16.98%	
		Dutch Harbor Brown	*	*	*	
		Pribilof Red and Blue	10.57%	10.40%	3.94%	
	Other Alaska	St. Matthew Blue	20.47%	20.65%	-12.74%	
		Adak Brown	*	*	*	
		Adak Red	*	*	*	
		Bristol Bay Red	4.44%	4.55%	-27.69%	
		Bering Sea Opilio	4.35%	4.33%	-2.77%	
		Bering Sea Tanner	3.28%	3.30%	-13.94%	
		Dutch Harbor Brown	*	*	*	
Pribilof Red and Blue		8.10%	8.40%	-17.98%		
St. Matthew Blue		2.95%	2.98%	22.15%		
Washington		Seattle-Tacoma CMSA	Adak Brown	40.90%	40.54%	-45.93%
	Adak Red		25.96%	26.51%	-55.11%	
	Bristol Bay Red		61.09%	61.22%	4.80%	
	Bering Sea Opilio		63.49%	64.13%	-2.11%	

Table 4.7-3(Cont.) Summary of harvest vessel allocations by community and fishery, under the three-pie voluntary cooperative alternative, as a percentage change from 1991-2000 annual average harvest volume

State	Community	Fishery	Percent of Total Fishery Harvest Value 1991-2000	Percent of Total Fishery Harvest Volume 1991-2000	Percent Change Between Quota Allocation and 1991-2000 Annual Average Volume	
		Bering Sea Tanner	62.91%	63.57%	2.31%	
		Dutch Harbor Brown	67.69%	68.97%	-8.03%	
		Pribilof Red and Blue	50.17%	49.39%	2.61%	
		St. Matthew Blue	61.98%	61.02%	3.69%	
	Other Washington	Adak Brown	*	*	*	
		Adak Red	*	*	*	
		Bristol Bay Red	4.35%	4.40%	-12.95%	
		Bering Sea Opilio	4.53%	4.26%	-9.62%	
		Bering Sea Tanner	3.66%	3.62%	-12.98%	
		Dutch Harbor Brown	*	*	*	
		Pribilof Red and Blue	5.08%	5.07%	*	
		St. Matthew Blue	3.45%	0	*	
Oregon	Newport	Adak Brown	*	*	*	
		Adak Red	*	*	*	
		Bristol Bay Red	4.10%	4.26%	4.46%	
		Bering Sea Opilio	3.63%	3.55%	14.37%	
		Bering Sea Tanner	3.54%	3.15%	39.68%	
		Dutch Harbor Brown	*	*	*	
		Pribilof Red and Blue	6.19%	6.56%	38.26%	
		St. Matthew Blue	*	*	*	
		Other Oregon	Bristol Bay Red	2.17%	2.11%	-26.54%
			Bering Sea Opilio	1.86%	1.74%	12.64%
		Bering Sea Tanner	2.45%	2.37%	-15.19%	
		Pribilof Red and Blue	*	*	*	
		St. Matthew Blue	*	*	*	
Other States		Adak Red	*	*	*	
		Bristol Bay Red	1.45%	1.36%	48.53%	
		Bering Sea Opilio	1.64%	1.48%	99.32%	
		Bering Sea Tanner	0.96%	0.86%	161.63%	
		Pribilof Red and Blue	2.88%	3.46%	47.69%	
		St. Matthew Blue	*	*	*	

Notes: Not all communities with historical harvest (1991-2000) were issued allocations under this alternative. Ownership information for allocations is based on ownership of vessel during the most recent relevant BSAI crab fishery activity. Ownership information for average harvest 1991-2000 is based on ownership of vessel during year of harvest. 1991-2000 averages based on 10 years, even for those fisheries not open all 10 years. "Pribilof Red and Blue" signifies the Pribilof red king crab and Pribilof blue king crab fisheries combined. While managed as separate fisheries under existing conditions, these are combined under the proposed rationalization alternative. * = cell values suppressed due to confidentiality.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1 and Allocation File

Another type of community or social impact associated with support sector entities would result from the three-pie alternative. By design, a rationalized fishery obviates the need for a race-for-fish and, as a result, fishing activity can be expected to slow down and spread out over a longer period of time. Communities with support service business sectors dependent on harvest vessels will experience change. To a degree, in-season support services in coastal Alaska communities are organized at present around the economic inefficiencies of the fishery. Geared for peak or surge demand (as are the harvesters and processors themselves), these businesses are unlikely to experience immediate gains as a result of rationalization as demands for service are no longer time critical in the same way they were before rationalization. With rationalization, time will become less important and money more so when vessels are making decisions about where and when (or how) to obtain services. Over the long run, support service provision is likely to be less volatile than under present conditions, and while the overall sector may shrink, the remaining businesses are likely to experience more predictable conditions allowing better business planning.

Community development (harvest) allocations under the three-pie alternative would benefit two different groups. First, the CDQ groups would benefit from an increase in the number of crab species covered by the program and an increase in the CDQ allocation percentage from 7.5 to 10 percent of covered species. Second, the community of Adak would benefit from a 10 percent allocation set-aside of the Western Aleutian Islands golden king crab fishery. This allocation is designed to foster economic growth in the emerging civilian community of Adak based on engagement in the commercial fishery. (As discussed in the Adak community profile in the SIA Appendix, the Adak community allocation would be administered by a new community-based entity chosen by the community as a whole.)

The three-pie alternative also includes regionalization provisions. Under a north/south regional split designed primarily to benefit the Pribilof communities of St. Paul and St. George, landings would follow a pattern established in the qualifying period, at least on the regional level (specific community level protection measures are discussed under processing, below). While these patterns would otherwise be expected to change substantially under a rationalized fishery, the north region designation (that portion of the Bering Sea north of 56 degrees 20 minutes north latitude) would ensure landings in the north area and, in combination with specific community protection provisions that apply to processing, benefit both St. Paul and St. George (assuming both meet qualifying criteria¹⁹). Under an east/west split that would only apply to the Western Aleutian Islands golden king crab fishery, 50 percent of the landings in the fishery would be earmarked for the western Aleutians (from 174 degrees west longitude, which includes Atka and lands to the west of Atka). This would initially at least primarily benefit the community of Adak as the only site with developed shore processing capability in the region. Community protection provisions specific to harvesting include a sea time eligibility requirements waiver to allow CDQ or community groups that represent qualified communities (those with more than 3 percent of qualified landings in a crab fishery in this program) to purchase harvest quota, and in this way communities could directly control harvest shares.

The three-pie alternative would also have community or social impacts resulting from changes in the relationship between harvesters and processors. With both harvester and processor shares as a part of this alternative, it is assumed that bargaining leverage will shift from baseline conditions, but with the binding arbitration feature of this alternative, the outcome is not clear. Given that most communities do not have a symmetric presence of local processing and a local fleet, changes in the relation between processors and harvesters will impact different communities differently, but in ways that are not predictable at present. The flexibility of cooperative formation, membership, and operation under this alternative also make it difficult to forecast likely harvester related community effects.

¹⁹ Unfortunately for the purposes of community or social impact assessment, a complete listing of communities that would qualify as eligible for community protection provisions under this alternative cannot be disclosed as eligibility is determined by confidential processing information in three-quarters of the cases. Of the total eight communities that would be eligible, only Unalaska/Dutch Harbor and St. Paul have enough processing entities to permit disclosure that they are on the list.

4.7.2 Community/social impact of the preferred alternative: catcher/processor sector

Of the 38 catcher processors that participated in the relevant BSAI fisheries in this period, 11 would appear to be qualified for CP shares under the three-pie alternative, as shown in Table 2.6-15 in the existing conditions section (8 from the greater Seattle area, 2 from Kodiak, and 1 from Anchorage). Some qualified catcher processors would also receive processor shares for the crab they processed as motherships (purchased from catcher vessels). Of the 27 apparently non-qualified catcher processors, 25 would be from the greater Seattle area and 2 from Newport. Some of these vessels, although not qualified as catcher processors because they did not process crab in either 1998 or 1999, would be allocated harvest shares as catcher vessels. In the year 2000, the most recent year for which information is available, 10 catcher processors participated in the BSAI crab fisheries.

Beyond numbers of vessels, Table 4.8-4 provides information on volume and value for the “big three” BSAI crab fisheries that would be rationalized under this alternative. In terms of types of impacts under the alternative, for confidentiality reasons the sector must be discussed as a whole, and even then only for the three largest BSAI crab fisheries. As shown, for Bering Sea opilio crab, catcher processors historically (1991-2000) harvested 11.14 percent of total harvest in terms of volume, and 10.76 percent in terms of value. For processing, the percentages are 14.35 percent (volume) and 13.53 percent (value). The processing percentage is larger than the harvest percentage because historically some catcher processors acted as motherships or floaters once the GH/L/TAC was caught and the harvest season was over, but catcher vessels still had crab to unload. Because catcher processors will be allocated special CP shares, the “harvest” and “processing” allocations for catcher processors are equal. In all cases they are less than the historical average (in terms of either weight or value) harvested or processed by this sector. As described in previous sections, some qualified catcher processors will also receive processor shares for crab they processed while acting as motherships, and some non-qualified catcher processors will receive harvest quota shares. Neither form of these “separated quota shares” is represented in the “Quota Allocation” column of Table 4.8-4.

Table 4.7-4 Catcher/processor 1991-2000 annual average harvesting and processing volume and value and allocation volumes as a percentage of fishery totals under the three-pie voluntary cooperative alternative

Species	Harvesting			Processing		
	Value 1991-2000 Average	Volume		Value 1991-2000 Average	Volume	
		1991-2000 Average	Quota Allocation		1991-2000 Average	Quota Allocation
Bristol Bay Red King	5.75%	5.84%	4.21%	8.92%	9.25%	4.21%
Bering Sea Opilio	10.76%	11.14%	7.45%	13.53%	14.35%	7.45%
Bering Sea Tanner	9.85%	10.49%	5.94%	13.28%	14.39%	5.94%

Note: “Quota Allocation” is CP shares only. Some current CPs may be allocated harvest shares only if they harvested crab in the qualifying period but did not process crab in 1998 or 1999.

For Bristol Bay red king crab, catcher processors historically (1991-2000) harvested 5.84 percent of total harvest in terms of volume, and 5.75 percent in terms of value. For processing, the percentages are 9.25 (volume) and 8.92 (value). As with opilio, catcher processor quota shares will be less than the historical harvesting and processing averages.

For Bering Sea tanner crab, catcher processors historically (1991-2000) harvested 10.49 percent of total harvest in terms of volume, and 9.85 percent in terms of value. For processing, the percentages are 14.39 (volume) and 13.28 (value). Similar to opilio and Bristol Bay red king crab, harvesting and processing quota shares will be less than the 1991-2000 historical harvesting and processing averages.

As discussed in the SIA Appendix, the number of catcher processors participating in these three BSAI crab fisheries has declined over time, and this is one factor in allocations being less than historical averages. From the information available and because of confidentiality requirements it is not possible to draw conclusions on the probable effects of these allocations on individual catcher processor economic entities (positive or negative). As discussed in Section 2.6.2, ownership of the catcher processor fleet is highly concentrated in the Seattle area. Even if individual entities experience decidedly negative impacts, it is not likely that there will be effects at the community level for Seattle given the size of the local economy and the presence of other sectors that would presumably gain from any relative loss in the catcher processor sector. The crab catcher processor sector as a whole will diminish in size from its historical average, although the number of qualified crab catcher processors will approximate the number of operations active during the most recent seasons. Whether these operations will be allocated quota shares equivalent to those most recent operations cannot be discussed. Allocations for catcher processors for the other six BSAI crab fisheries being considered for rationalization, and possible accompanying community effects, cannot be discussed even at this most general of levels because of confidentiality constraints.

Operators in the crab catcher processor sector anticipate that crab rationalization under the three-pie alternative will have positive effects for those who qualify, even though most believe that the initial allocation to their sector is less than equitable. The sector is also capped as a whole, in that there is no mechanism to form “new” CP shares from separated harvest and processor shares. Indeed, the sector can shrink further, in that there is a mechanism for the reverse – to form separated harvest and processor quota shares from CP shares. CP shares will allow operations to consolidate or adapt in the most economically rational way. Many scenarios people described posited the “stacking” of quota shares in one way or another, whether within a single company or as a cooperative contractual agreement between/among companies. Several operators suggested that larger catcher processors would be retired as less economically efficient than “pocket” processors in a more time-relaxed rationalized fishery. CP quota shares would be stacked on a single “pocket” processor to its capability, or some operations may combine CP quota shares with simple harvest shares, with the “pocket” processor functioning as a catcher vessel part of the time. Most operators cited the benefits of the AFA for pollock catcher processors as a model for what they would expect from crab rationalization – contraction/consolidation of participants, longer periods of operation, higher utilization, more valuable product mix, and a more stable and potentially higher-paid labor force. There is a concern that industry participants with operations in both the BSAI and the Gulf of Alaska will be able to use the benefits of rationalization in the BSAI as an economic advantage in the open access competition Gulf of Alaska fisheries. Possible examples cited ranged from processors with multiple plants and other platforms to harvest vessels that, as members of cooperatives in the BSAI, could arrange their fishing activities to benefit themselves and the other members of their cooperative (and their processor) to the detriment of harvesters confined to the Gulf of Alaska.

Given the pattern of ownership within the sector, social and community impacts associated with sector changes would be concentrated in Seattle, although two enterprises are located in Kodiak and one in Anchorage. While impacts to individual enterprises may be substantial, especially in the long run, it is unlikely that impacts would be felt at the community level in Seattle, Kodiak, or Anchorage.

4.7.3 Community/social impact of the preferred alternative: processing sector

Tables displaying specific processor allocations cannot be included in this document as they would necessarily reveal confidential information. This makes discussing changes in such allocations, and their effects on communities, difficult. Further complications arise because different communities have different combinations of processors, and communities have less than four processors so overall community processing information is confidential. Potential allocations to individual firms cannot be discussed, because while allocations would be public were they to actually be made, at present the calculations of potential allocations

are based on specific confidential, single-business performance data. Nonetheless, there are certain general conclusions that can be stated about the “big three” species allocations under this alternative.

During the period 1991-2000, 80 different processors worked on Bering Sea opilio crab. Under the three-pie alternative, 22 processors would receive quota allocations. The top 11 (with no exceptions) would receive more quota allocation than they historically processed (99 percent compared to 73 percent). The rest would receive less allocation than they processed on an average annual basis over the 1991-2000 period. In terms of community effects, this would allow, although not ensure, those larger processors that currently contribute economically to communities through fish tax revenues and private sector economic activity associated with crab processing to continue doing so. Because allocations are to processing companies, however, and not to specific facilities or communities, economic decisions at the corporate level to shift production from one facility to another may have community effects that are essentially unknowable beforehand. (Given what is known about relative costs of crab processing in various communities, St. Paul and other north region communities would appear to be more at risk for such production shifts as a region than would the south region as a whole [defined as the Bering Sea south of 56 degrees 20 minutes north latitude, plus the entire Gulf of Alaska], absent regionalization provisions, but there are also community impact concerns associated with consolidation elsewhere, as developed below.)

During the period 1991-2000, 71 different processors worked on Bering Sea tanner crab. Under the three-pie alternative, 27 processors would receive quota allocations. The top 9 (with 1 exception) would receive more quota allocation than they processed on an annual average basis over the period 1991-2000 (91 percent compared to 64 percent). The rest would receive less allocation than they historically processed. In terms of potential community effects, the situation would be similar to that described for opilio crab.

During the period 1991-2000, 65 different processors worked on Bristol Bay red king crab. Under the three-pie alternative, 19 processors would receive quota allocations. The top 7 (with no exceptions) would receive more quota allocation than they processed on an average annual basis over the 1991-2000 period (89 percent compared to 72 percent). The rest would receive less allocation than they historically processed. In terms of potential community effects, the situation would be similar to that described for opilio crab.

In general then, processor allocations would benefit the larger processors the most, but by design (as was the case with harvester shares) the initial pattern of distribution of shares follows a distribution of overall GHL/TAC use during a recent period of time so, all things being equal, there should not be a large number of “winners” and “losers” in the initial allocation. Also as with the harvesters there will be, of course, perceived inequities based on differential performance during the qualification period when compared to a longer or a shorter period, or a period (or allocation) that is more heavily weighted toward more historic participation or more recent time interval.

Beyond the pattern of initial allocations to local processors, community or social impacts from the processing sector under the three-pie alternative will be driven by what happens to the shares following allocation. Following the initial allocation, it is expected that there will be consolidation of processing, and this consolidation will have a number of community or social impacts. The nature and intensity of these impacts will depend on the relative importance of local processing in terms of the overall engagement in, and dependence upon, the crab fishery. As detailed in the SIA Appendix, communities engaged in the BSAI crab fisheries vary widely in their differential dependence on fleet, processor, and support service sectors.

Under the three-pie alternative, there are a number of impediments to immediate or sweeping consolidation within the processing sector. First, there are the ownership caps specified by fishery. Current ownership patterns that may exceed these caps will be grand-fathered in, but these companies will be prevented from any substantial future growth.

A second impediment to consolidation under the three-pie alternative is the regionalization requirement. The north/south region split (based on historic landing patterns) for multiple crab species was designed primarily to benefit the Pribilof communities of St. Paul and St. George. These communities came to be engaged in and dependent upon the fishery to a degree during race-for-fish conditions through local processing activity and would likely see an exodus of processing capacity under rationalization conditions, absent specific protections. The east/west split of the Western Aleutian Islands golden king crab fishery is designed to benefit the communities of the western Aleutian Chain, with the primary beneficiary at least in the near term being Adak, but the area also encompasses the community of Atka. This split is less based on historic patterns than on a desire to foster emerging economic growth based on commercial fisheries in the western Chain and will require additional processing activity in the west over what was seen during the qualifying period.

A third set of impediments to consolidation of processing under this alternative are the community protection measures of a “cooling off” period and a right of first refusal that would apply to eligible communities. Communities with 3 percent or more of qualified landings in any crab fishery in the program would be eligible for this protection in all fisheries included in the program. A total of 8 communities would be eligible for these protections: Unalaska/Dutch Harbor, St. Paul, and 6 other communities that cannot be listed by name due to confidentiality restrictions.

The “cooling off” period is a temporary measure that would prevent movement of processing shares from eligible communities during the first 2 years of the program. Given that this “no movement” feature applies to conditions that were extant under the qualification period, this “no movement” provision actually requires movement from the present (that is, post-qualification period) configuration of processing to re-set conditions to those seen under the qualifying period. This may have profound community impacts in a limited number of cases. For example, in the most recent years there has been no crab processing occurring at St. George. If St. George is deemed eligible for protection under this provision, processors would have to move back to St. George and process there for at least 2 years if they desired to use their allocated quota. Again, assuming that in this example St. George is deemed eligible for this type of protection, this would be a significant beneficial impact for the community, which has not recently seen processing activity. (The Western Aleutian Island golden king crab fishery would be exempt from the “cooling off” period landing requirements because the West regionalization program is explicitly designed to foster a pattern of landings that differs from the historic pattern.)

The right of first refusal for processor quota share is a longer-term impediment to processor consolidation under the community protection measures in the three-pie alternative. Communities with 3 percent or more of the qualified crab landings in any fishery included in the program are eligible for protection under this measure. Essentially this provision means that a CDQ group, if one exists, or a duly constituted community group²⁰ if a CDQ group does not exist, can exercise a right of first refusal to prevent processing share from leaving the community.

There are some situations where processing quota can move between communities without triggering a right of first refusal. Except during the 2-year “cooling off” period, movement of quota share can occur freely (that is, without formal transfer) between plants owned by a common firm within the same region as shares are allocated to owning entities, not individual facilities. So, for example, following the “cooling off” period an

²⁰ Holdings of a community group would be subject to rules similar to the halibut and sablefish community purchase program. That program requires that the entity be non-profit and submit (1) a certificate of incorporation, (2) verification of its qualification, (3) documentation demonstrating accountability to the community, and (4) an explanation of how the community intends to implement performance standards for the management of its shares. As detailed elsewhere, the community group would be required to submit an annual report and meet certain performance standards, including a requirement to maximize the benefit from use of community shares for community residents, ensuring that benefits are equitably distributed throughout the community, and ensuring that community shares would be fished.

entity owning multiple plants in the south region could consolidate all its crab processing in one location without triggering any right of first refusal provisions in the communities from which processing allocations were “taken.” It is also important to note that a “community” under the community protection provisions of the three-pie alternative is defined as a borough, if one exists and no first or second class city exists. All things being equal, this would mean that (also following the “cooling off” period) consolidation could occur within a borough without triggering a right of first refusal. These factors could result in consolidation and processors becoming more concentrated in fewer communities in the south region in a different way than could or would be seen in the north region. Given the tendency of the marketplace to reveal costs and incentives that had not previously been well known, however, this type of movement of processing share (and its related community and social impacts) cannot be assessed with a high degree of certainty.

The right of first refusal process is more complex in some cases than in others due to different priorities assigned to CDQ and borough membership for the purposes of determining “community” under this provision. In the case of a CDQ community within a borough (for example, Akutan in the AEB), the local CDQ group (the Aleutian Pribilof Islands Community Development Association [APICDA] in this case) would have the right of first refusal for transfer of shares to any other community either inside or outside of the borough. In other words, in the case of CDQ communities, CDQ status overrides borough status in determining the definition of community for the purposes of community protection: potential transfers from a CDQ community to a non-CDQ community within the same borough would trigger the right of first refusal provisions. In the case of a non-CDQ community within a borough (for example, King Cove in the AEB), for the purposes of exercising the right of first refusal, the community would be represented by a group that was jointly selected by the community (King Cove) and the borough itself (the AEB). In this case, transfers from a non-CDQ community (such as King Cove) to another community within or outside the same borough (whether it is a CDQ community [such as Akutan] or non-CDQ community [such as Sand Point]) would trigger right of first refusal provisions. If no first or second class city exists, the borough itself is considered “the community” for the purposes of establishing and triggering this right. In any event, it is possible under the three-pie alternative for individual communities to directly own and control both harvester share (through the waiver of sea time exemption noted under the harvest sector discussion above) as well as processor quota share (through the exercise of right of first refusal, at least in non-CDQ communities).

A different right of first refusal applies to the Northern Gulf of Alaska area (defined as that portion of the Gulf of Alaska north of 56 degrees 20 minutes north latitude). In all other areas, a qualifying community has the right of first refusal on processor quota share potentially leaving that specific community (except for quota moving between plants owned by the same firm in different locations within the same region). In the Northern Gulf of Alaska area within the larger south region, qualifying communities have the additional right of first refusal for processing quota being sold in all other communities within Northern Gulf of Alaska area in addition to their own. In other words, the right of first refusal in all other areas is designed to allow a community to maintain quota share, whereas in the Northern Gulf of Alaska area the right of first refusal is designed to allow eligible communities to increase quota share (by aggregating or “sweeping up” quota from communities with less than 3 percent share of qualified fisheries).

As with the harvest sector, there will be community and social impacts resulting from changes to the processor sector as a result of a changeover from a race-for-fish to a rationalized fishery. As the plants slow down and crab processing seasons lengthen, it is anticipated that peak demands for processing workers will decline. At multi-species plants, workforces will become more stable as deliveries can be scheduled (within limits) to optimize plant operations. Overall employment may be expected to decline in terms of the number of positions needed, but theoretically this could be offset by plants operating longer, requiring fewer workers overall, but more labor hours per position. However, individual workers may work for longer periods but payments to labor may not increase proportionally as the necessity for overtime may be expected to decline. It is likely that multi-species plants will have more flexibility in responding to the longer seasons and slower pace of crab processing under rationalization, while crab specialty plants will be faced with tougher decisions

about balancing the trade-offs of increased costs of operations (due to more days of operations) with higher product values resulting from the improved ability to schedule in-season and efficiently plan all aspects of the operation.

In terms of support services changing with a slowing down of crab processing, in general plants tend to be relatively self-sufficient with respect to demand on local (private sector) support services, but longer seasons may increase demand for municipal service provision. (The types of services provided to plants, however, varies widely by community as detailed in the SIA Appendix.) That some changes will occur is clear; what specifically will change and by how much is less clear. All things being equal, municipal revenues based on processor activity would be expected to stay the same or increase as overall values should be higher under rationalization even if activity in any given period is at a lower level.

The increase in CDQ allocation under the three-pie alternative will have at least a tangential benefit to the shore processing sector. CDQ allocation will increase from 7.5 to 10 percent of all crab fisheries under the program, and while not subject to share designations and landing requirements of the regionalization program, 25 percent of the allocation (i.e., the same amount of the total allocation attributable to the increase from 7.5 to 10 percent) is earmarked for deliveries to shore based processors.

As noted in the harvester discussion, the relationship between harvesters and processors will change under the three-pie alternative. Processing quota share represents a departure from previous fishery management strategies and, as a result, some outcomes are likely to be unpredictable. Binding arbitration provisions of this alternative are designed to try to ensure a workable distribution of rents, but much would appear uncertain. Processor ownership of harvesting capability (vertical integration) would be capped at relatively low levels (with existing situations exceeding the caps grandfathered in). How these factors would translate into community and social impacts is unclear.

4.7.4 Detailed community level impacts

As noted in the introduction to this section, community and social impacts of crab rationalization are discussed both in this section and in an appendix to this volume, and these two discussions, taken together, comprise the SIA for crab rationalization. The SIA in Appendix 3 (Social Impact Assessment: Overview and Community Profiles) details the localized nature and intensity of engagement with and dependency on the crab fishery at the community level. This appendix also presents an analysis of the nature, direction, and magnitude of the social impacts likely to result from the crab rationalization alternative for the series of communities profiled, as well as for the CDQ region.

5.0 Consistency with other applicable laws

This section of the analysis examines the consistency of the crab rationalization preferred alternative with respect to the National Standards and Fishery Impact Statement requirements in the Magnuson-Stevens Act and Executive Order 12866. The EIS, in section 1.8 *Relationship of this action to federal law and action*, further identifies all of the federal laws and actions that relate to the proposed action.

5.1 National standards

Below are the ten National Standards as contained in the Magnuson-Stevens Act, and a brief discussion of the consistency of the proposed alternatives with each of those National Standards, where applicable.

National Standard 1 - Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery

Nothing in this amendment would undermine the current management system that prevents overfishing. The proposed amendment would result in the setting of TACs in affected BSAI crab fisheries. In the current race to fish, management to a specified GHL has proven difficult. Managers attempt to regulate harvests to the GHL by timing the closure of the fishery with the GHL. The use of quotas under the preferred alternative is likely to result in harvest levels that are closer to the specified optimum yields in the fisheries. See 4.1-4.5 of the EIS.

National Standard 2 - Conservation and management measures shall be based upon the best scientific information available.

The analysis in the EIS/RIR/IRFA draws on the best scientific information that is available concerning the BSAI crab fisheries. The most up-to-date information that is available has been provided by the State and Federal managers of these fisheries, as well as by members of the crab industry.

National Standard 3- To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The various BSAI crab fisheries are each managed as separate stocks. All interrelated stocks are managed as a unit or are managed in close coordination. See sections 4.1-4.5 of the EIS.

National Standard 4 - Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various U.S. fishermen, such allocation shall be (A) fair and equitable to all such fishermen, (B) reasonably calculated to promote conservation, and (C) carried out in such a manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The proposed alternatives would treat all participants in the BSAI crab fisheries the same, regardless of their residences. The allocations of BSAI crab would be based on historical harvests/participation in the fisheries without discrimination among participants. See sections 4.1.1, 4.1.2, and 4.1.3 of this document.

The total annual allocation in each fishery will be based on harvest strategies developed to promote conservation of the resource. Any changes in the fishery, as a result of the rationalization program, that

impact conservation of the resource will be taken into account when setting the TAC in a year. See section 4.1 of the EIS.

Ownership caps would prohibit any individual from acquiring an excessive share of harvest or processing privileges. In addition, options are proposed that would limit any processor from acquiring an excessive shares of harvesting privileges to prevent excessive vertical integration in any fishery. See Tables 4.1-2 and 4.1-6 of this document.

National Standard 5 - Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources, except that no such measure shall have economic allocation as its sole purpose.

The preferred alternative is proposed to improve the efficiency of utilizing the BSAI crab resources. Given the current race for fish in these fisheries, concern has been expressed that both the harvest and processing sectors operate in an inefficient manner. While the allocation of quota under all of the alternatives would have economic consequences, the primary goals are to increase efficiency and equitably distribute interests in each of the fisheries. See sections 4.3.1.1, 4.3.1.2, and 4.3.1.3 of this document.

National Standard 6 - Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

Under the preferred alternative, the available resource each year would be addressed through changes in annual allocations. These changes in allocations would be used to ensure conservation of the resource in the future. See section 4.1 of the EIS.

National Standard 7 - Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

The preferred alternative would provide a complete substitute for existing management of the BSAI crab fisheries and would not duplicate any other laws. The costs of managing the fisheries may increase under the alternatives. The costs would be due to administration of quota allocations and an increased need for inseason monitoring of harvests and observer coverage, which are necessary to ensure realization of other benefits from the preferred alternative. See section 4.3.4 of this document and 4.6.7 of the EIS.

National Standard 8 - Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities, and (B) to the extent practicable, minimize adverse economic impacts on such communities.

Implementing the preferred alternative could have impacts on fishing communities. The preferred alternative, however, contains regional and community protections specifically designed to mitigate negative impacts on communities. These regional and community protections are intended to preserve the distribution of economic activity created by the fishery.

The rationalization of the fisheries is generally intended to increase efficiency in the fisheries, which would result in more total profits generated from the fishery. Presently, some of the communities benefitting from the BSAI crab fisheries, have received benefits as a result of the inefficiencies of the race to fish under the

current management. Fishers participating in the current fishery make deliveries to locations that are closest to the fishing grounds to maximize fishing time in the derby seasons. To the extent that the community participation in the fisheries changes under the rationalization program, the change is likely to be a result from the removal of time pressures on fishers in the rationalized fisheries. This change would likely have efficiency gains as activities shift to locations that would improve returns on fishing and processing activities. See section 4.7 of this document.

National Standard 9 - Conservation and management measures shall, to the extent practicable, (A) minimize bycatch, and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

The rationalization of the fisheries could affect bycatch levels. Generally, sorting of catch by pot gear increases with the time that the gear is left on the grounds. The decrease in time pressures on fishers in a rationalized fishery should increase the time that gear is left on the grounds and is permitted to sort catch, reducing bycatch. In addition, participants in the fishery that are not under time pressures would have more time to properly handle bycatch, reducing bycatch mortality. Incentives to high grade could increase in a rationalized fishery. Increased monitoring would be necessary to determine the extent of this potential problem and to minimize its effects on the fisheries. See section 4.2 and 4.3 of the EIS.

National Standard 10 - Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The rationalization program should reduce the incentives of BSAI crab fishers to fish in inclement weather. The removal of time pressures of the race to fish could therefore reduce fishing activity in bad weather and may result in improved safety in the fisheries. Safety concerns should also be addressed through other means while working closely the U.S. Coast Guard. See section 4.6.9 of the EIS.

5.2 Section 303(a)(9) - Fisheries impact statement

Section 303(a)(9) of the Magnuson-Stevens Act requires that any management measure submitted by the Council take into account potential impacts on the participants in the fisheries, as well as participants in adjacent fisheries. The impacts of rationalization on both participants in the BSAI crab fisheries and participants in other fisheries have been discussed in previous sections of this document. Under the preferred alternative, allocations would be based on historical participation of eligible participants. Persons in without the qualifying history necessary to receive allocations could be negatively impacted.

Less obvious impacts from the proposed amendment could accrue to participants in ‘adjacent’ fisheries. The impacts would be in terms of “spillover” effects as BSAI crab vessels are able to spend more time in other fisheries after removal of the time pressures of the race to fish. These impacts were addressed in Chapters 3 and 4. Sideboard caps included in the preferred alternative would limit BSAI crab vessels to their historical participation in federal Gulf of Alaska groundfish fisheries, which are most likely to receive additional effort as a result of the implementation of the preferred alternative. These sideboards should almost fully mitigate any negative spillover impacts in those fisheries. State crab and cod fisheries, however, could be impacted in the absence of further action by the State or Council.

6.0 Regulatory Flexibility Act

6.1 Introduction

The Regulatory Flexibility Act (RFA), first enacted in 1980, and codified at 5 U.S.C. 601, et. seq., was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a Federal regulation. Major goals of the RFA are: 1) to increase agency awareness and understanding of the impact of their regulations on small business; 2) to require that agencies communicate and explain their findings to the public; and 3) to encourage agencies to use flexibility and to provide regulatory relief to small entities.

The RFA emphasizes predicting significant adverse impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts, while still achieving the stated objective of the action. When an agency publishes a proposed rule, it must either, (1) “certify” that the action would not have a significant adverse effect on a substantial number of small entities, and support such a certification declaration with a “factual basis”, demonstrating this outcome, or, (2) if such a certification cannot be supported by a factual basis, prepare and make available for public review an Initial Regulatory Flexibility Analysis (IRFA) that describes the impact of the proposed rule on small entities.

Based upon a preliminary evaluation of the proposed BSAI crab rationalization action, it appears that “certification” would not be appropriate. Therefore, this IRFA has been prepared. Analytical requirements for the IRFA are described below in more detail.

The IRFA must contain:

1. A description of the reasons why action by the agency is being considered;
2. A succinct statement of the objectives of, and the legal basis for, the proposed rule;
3. A description of, and where feasible, an estimate of the number of small entities to which the proposed rule will apply (including a profile of the industry divided into industry segments, if appropriate);
4. A description of the projected reporting, record keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities that will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
5. An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap, or conflict with the proposed rule;
6. A description of any significant alternatives to the proposed rule that accomplish the stated objectives of the Magnuson-Stevens Act and any other applicable statutes, and that would minimize any significant adverse economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives, such as:
 - a. The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
 - b. The clarification, consolidation or simplification of compliance and reporting requirements under the rule for such small entities;
 - c. The use of performance rather than design standards;
 - d. An exemption from coverage of the rule, or any part thereof, for such small entities.

The “universe” of the entities to be considered in an IRFA generally includes only those small entities that can reasonably be expected to be directly regulated by the proposed action. If the effects of the rule fall primarily on a distinct segment, or portion thereof, of the industry (e.g., user group, gear type, geographic area), that segment would be considered the universe for purposes of this analysis.

In preparing an IRFA, an agency may provide either a quantifiable or numerical description of the effects of a proposed rule (and alternatives to the proposed rule), or more general, descriptive statements if quantification is not practicable or reliable.

6.1.1 Definition of a Small Entity

The RFA recognizes and defines three kinds of small entities: 1) small businesses; 2) small non-profit organizations; and 3) and small government jurisdictions.

Small businesses: Section 601(3) of the RFA defines a “small business” as having the same meaning as a “small business concern,” which is defined under Section 3 of the Small Business Act. A “small business” or “small business concern” includes any firm that is independently owned and operated and not dominate in its field of operation. The U.S. Small Business Administration (SBA) has further defined a “small business concern” as one “organized for profit, with a place of business located in the United States, and which operates primarily within the United States, or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials, or labor. A small business concern may be in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust, or cooperative, except that where the form is a joint venture there can be no more than 49 percent participation by foreign business entities in the joint venture.”

The SBA has established size criteria for all major industry sectors in the U.S., including fish harvesting and fish processing businesses. A business “involved in fish harvesting” is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates), and if it has combined annual receipts not in excess of \$3.5 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation (including its affiliates) and employs 500 or fewer persons, on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the \$3.5 million criterion for fish harvesting operations. A wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide.

The SBA has established “principles of affiliation” to determine whether a business concern is “independently owned and operated.” In general, business concerns are affiliates of each other when one concern controls or has the power to control the other, or a third party controls or has the power to control both. The SBA considers factors such as ownership, management, previous relationships with or ties to another concern, and contractual relationships, in determining whether affiliation exists. Individuals or firms that have identical or substantially identical business or economic interests, such as family members, persons with common investments, or firms that are economically dependent through contractual or other relationships, are treated as one party, with such interests aggregated when measuring the size of the concern in question. The SBA counts the receipts or employees of the concern whose size is at issue and those of all its domestic and foreign affiliates, regardless of whether the affiliates are organized for profit, in determining the concern’s size. However, business concerns owned and controlled by Indian Tribes, Alaska Regional or Village Corporations

organized pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601), Native Hawaiian Organizations, or Community Development Corporations authorized by 42 U.S.C. 9805 are not considered affiliates of such entities, or with other concerns owned by these entities, solely because of their common ownership.

Affiliation may be based on stock ownership when: (1) A person is an affiliate of a concern if the person owns or controls, or has the power to control 50% or more of its voting stock, or a block of stock which affords control because it is large compared to other outstanding blocks of stock, or (2) If two or more persons each owns, controls or have the power to control less than 50% of the voting stock of a concern, with minority holdings that are equal or approximately equal in size, but the aggregate of these minority holdings is large as compared with any other stock holding, each such person is presumed to be an affiliate of the concern.

Affiliation may be based on common management or joint venture arrangements. Affiliation arises where one or more officers, directors, or general partners control the board of directors and/or the management of another concern. Parties to a joint venture also may be affiliates. A contractor and subcontractor are treated as joint venturers if the ostensible subcontractor will perform primary and vital requirements of a contract or if the prime contractor is unusually reliant upon the ostensible subcontractor. All requirements of the contract are considered in reviewing such relationship, including contract management, technical responsibilities, and the percentage of subcontracted work.

Small organizations: The RFA defines “small organizations” as any nonprofit enterprise that is independently owned and operated and is not dominant in its field.

Small governmental jurisdictions: The RFA defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of fewer than 50,000.

6.2 A description of the reasons why action by the agency is being considered

The Council has identified the following problem statement, which this action is intended to address:

Vessel owners, processors, and coastal communities have all made investments in the crab fisheries, and capacity in these fisheries far exceeds available resources. The BSAI crab stocks have also been highly variable and have suffered significant declines. Although three of these stocks are presently under rebuilding plans, the continuing race for fish frustrates conservation efforts. Additionally, the ability of crab harvesters and processors to diversify into other fisheries is severely limited and the economic viability of the crab industry is in jeopardy. Harvesting and processing capacity has expanded to accommodate highly abbreviated seasons, and presently, significant portions of that capacity operate in an economically inefficient manner or are idle between seasons. Many of the concerns identified by the North Pacific Fishery Management Council (NPFMC) at the beginning of the comprehensive rationalization process in 1992, still exist for the BSAI crab fisheries. Problems facing the fishery include:

1. Resource conservation, utilization and management problems;
2. Bycatch and its' associated mortalities, and potential landing deadloss;
3. Excess harvesting and processing capacity, as well as low economic returns;

4. Lack of economic stability for harvesters, processors and coastal communities; and
5. High levels of occupational loss of life and injury.

The problem facing the Council, in the continuing process of comprehensive rationalization, is to develop a management program which slows the race for fish, reduces bycatch and its associated mortalities, provides for conservation to increase the efficacy of crab rebuilding strategies, addresses the social and economic concerns of communities, maintains healthy harvesting and processing sectors, and promotes efficiency and safety in the harvesting sector. Any such system should seek to achieve equity between the harvesting and processing sectors, including healthy, stable, and competitive markets.

The BSAI crab fisheries are currently managed under the LLP. Under that management, the fisheries openings are scheduled, after which each participant races to harvest the available resource. Managers monitor harvests in-season and close the fishery when they estimate that the GHL is reached. Under this management, vessel owners, processors, and coastal communities have made investments in the fisheries, and capacity in these fisheries exceeds that necessary to harvest and process the available resources, if harvest rates are slowed. The BSAI crab stocks have also been highly variable and have suffered significant declines in recent years. Although three of these stocks are presently under rebuilding plans, the continuing race for fish complicates conservation efforts. Under current management, the fisheries are prosecuted in an economically inefficient manner with significant amounts of the capital idle between seasons. The race to fish also creates incentives for participants to compromise safety to increase catch. The problem facing the Council is to develop a management program which slows the race for fish, minimizes bycatch and associated mortalities, provides for conservation to increase the efficacy of crab rebuilding strategies, and addresses the social and economic concerns that have arisen under current management.

6.3 The objectives of, and the legal basis for, the proposed rule

Under the current regulatory structure, the BSAI crab fisheries are managed under the LLP. The rationalization alternatives proposed by the Council are intended to end the race for fish under the LLP. By ending this race, the rationalization program is expected to increase resource conservation, improve economic efficiency, and address a range of social concerns.

In January of 2004, Congress passed legislation authorizing the Secretary of Commerce to implement the preferred alternative, described in Section 4 of this document. The specific legislation authorizing this action together with the floor statement concerning that legislation are contained in the EIS Appendix 2.

6.4 A description of, and where feasible, an estimate of the number of small entities to which the proposed rule will apply

It has been estimated that approximately 236 entities own crab harvest vessels that can reasonably be assumed to be directly regulated under the alternatives being considered (Table 6.8-1). Thirteen of the entities (owning 38 vessels) are large entities, based upon SBA criteria. These entities have been defined as large because they either generated more than \$3.5 million in gross revenue during a calendar year (1998, 1999, or 2000), or they are owned by a processor that meets the large entity definition for that sector. The remaining 223 independent entities are considered “small” entities under 2002 SBA guidelines.

Table 6.4-1 Summary of small and large entities directly regulated by the proposed regulatory actions.

Entity Classes	Units	Qualified		Non-Qualified	
		Small	Large	Small	Large
Number of catcher vessels	Vessels	223	34	154	9
	Owners	211	12	128	5
Number of catcher/processors	Vessels	15	4	1	0
	Owners	13	4	1	0
Total number of harvest vessels ¹	Vessels	238	38	155	9
	Owners	223	13	129	5
Number of processors	Plants	10	28	50	0
	Owners	8	9	43	0
Number of governmental jurisdictions	Communities	As many as 13 small government jurisdictions could be directly regulated under the community protections.			

¹Owners may have both catcher vessels and catcher/processors, therefore the sum of the catcher vessel and catcher/processor owners maybe greater than the total number of owners. Also a vessel may have acted as both a catcher vessel and catcher/processor over the 1991-2000 time period.

Note: 1) The lack of ownership data makes these small and large entity determinations tenuous.
2) Catcher/processors are included in the vessel sections and not the processor section

Source: NPFMC Crab Data Set 2001 Version 1

A total of 134 small entities made at least one crab landing from 1991-2000, but do not appear to qualify for the proposed IFQ program. Five of these entities would be considered “large” by SBA standards, and 129 would be defined as “small”. The large entities owned a total of nine catcher vessels. The small entities owned total of 155 catcher vessels and one catcher/processor. For the most part, vessels that do not qualify for the IFQ program have either left the fishery or are fishing under interim LLP licenses. Depending on their qualification status under the LLP, these vessels may have been disqualified from participating in the BSAI crab fisheries in the future, even if the Council were to take no further action (i.e., adopted the status quo alternative). Therefore, the number of vessels that appear in the “non-qualified” columns do not represent vessels that would have been allowed to continue fishing in the future, in any case, and therefore cannot be said to have been impacted by the current action.

The number of qualified vessels under the no action alternative would best be represented by the “Qualified” columns. All of the IFQ or cooperative program alternatives under consideration, basically build on the LLP program by allocating the allowable harvest among the qualified fleet.

Eight small entities and nine large entities appear to qualify for processor allocations, based on having participated in 1998 or 1999. These totals exclude catcher/processors, since they were accounted for under the vessel discussion. The nine large processing entities owned 28 separate crab processing facilities, and the eight small processing entities owned 10 plants. Forty-three small processing entities (owning 50 plants) appear not to qualify for processor allocations. There are nine inshore processors considered large entities,

because they appear to exceed the “500 or more employees” threshold when all their affiliates, worldwide, are included (as required).

As many as thirteen communities that are home to BSAI crab processors may be directly regulated by the regionalization provisions under consideration. The overall impact on communities cannot be determined until the allocations of processing shares are made. However, at a minimum, St. Paul, St. George (floating processors have used this community in the past), Adak, Akutan, Dutch Harbor, King Cove, False Pass, Ninilchik, Homer, Port Moller, Cordova, St. Matthew, and Kodiak all have recorded landings in the crab fisheries under consideration for rationalization, under any of the action alternatives, and could be directly regulated. The communities where these processors are located would all be considered small governmental jurisdictions. Each of the communities has a population that is well under the 50,000 limit for being considered small entities.

Other businesses that support the operations of the BSAI crab fleet may also be impacted by this action if it leads to fewer vessels participating in the fishery. These impacts are treated in the RIR that accompanies this action, however, these businesses are not being directly regulated and, therefore, are not considered in this RFA analysis.

6.5 A description of the projected reporting, record keeping, and other compliance requirements of the proposed rule

Implementation of any of the proposed alternatives, including the preferred alternative, would change the overall reporting structure and recordkeeping requirements of the vessels and processors in the BSAI crab fisheries. Under all of the alternatives, harvest sector participants would be issued an allocation of catch. Each harvester would be required to track harvests to avoid exceeding the allocation. In other IFQ fisheries in the North Pacific, processors provide catch recording data to managers to monitor harvest of allocations. Processors would be allocated processing shares. Processors would be required to record deliveries and processing activities to aid in the administration of the Program. These requirements are similar to those currently imposed, and therefore would not be new or duplicative, in the rationalized fisheries.

NMFS would be required to develop new databases to monitor harvesting and processing (if applicable) allocations. These changes could require the development of new reporting systems, similar to those maintained in other North Pacific rationalized fisheries. The costs of NMFS monitoring of the fisheries would be passed on to participants through the proposed cost recovery program discussed in the RIR in Section 3.10.4 and in the EIS in section 4.6.7.

The preferred alternative also includes a comprehensive data collection program, under which participants would be required to submit detailed economic data concerning their participation in these fisheries. The data collection program is analyzed in detail in Section the RIR in 3.17. The data collection program is intended to provide managers with better information concerning the fisheries to aid in management and to limit negative unintended consequences arising from management decisions. Although most participants collect data similar to that which would be collected by the data collection program for making business decisions, the data collection program could impose additional recordkeeping requirements on participants in the fisheries. The detailed level of data required is likely to require some additional data compilation and reporting beyond current practices of participants. Professional assistance, such as accounting services, are likely to be necessary for most participants to comply with these requirements. All participants would be required to provide additional reporting on their activities in the fisheries.

6.6 An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap, or conflict with the proposed rule

The analysis in the RIR and EIS uncovered no Federal rules that would conflict with, overlap, or be duplicated by the proposed action.

6.7 A description of any significant alternatives to the proposed rule that accomplish the stated objectives of the Magnuson-Stevens Act and any other applicable statutes, and that would minimize any significant adverse economic impact of the proposed rule on small entities

The Council considered an extensive and elaborate series of alternatives, options, and suboptions as it designed and evaluated the potential for rationalization of the BSAI crab fisheries, including the ‘no action’ alternative. The complete set of alternatives, in various combination with the complex of options, etc., is presented in the RIR. The EIS presents four alternative program for management of the BSAI crab fisheries, namely, Status Quo/No Action (Alternative 1); a Voluntary Three-pie Cooperative Program (Alternative 2); an Individual Fisherman’s Quota (IFQ) Program (Alternative 3); and a Cooperative Program (Alternative 4). These alternatives constitute the suite of “*significant alternatives*”, under the proposed action, for RFA purposes. Each is addressed briefly below. Please refer to EIS and RIR for more detail. The following is a summary of the contents of those more extensive analyses, specifically focusing on the aspects which pertain to small entities.

Under status quo, the BSAI crab fisheries have followed the well known pattern associated with managed open access. Enticed by the prospect of capturing 100 percent of the benefits, while externalizing all but a very small “common” share of the cost of an individual fishing decision (i.e., no enforceable ownership rights to ration access) these BSAI crab fisheries have been characterized by “race-for-fish”, capital stuffing behavior, excessive risk taking, and a dissipation of potential rents. In the face of substantial stock declines, participants in these fisheries are confronted by significant surplus capacity (in both the harvesting and processing sectors), financial distress (for some, failure), and widespread economic instability, all contributing to resource conservation and management difficulties.

In response to worsening biological, economic, social, and structural conditions in many of the BSAI crab fisheries, the Council found that the status quo management structure was causing significant adverse impacts to the participants in these fisheries, as well as the communities that depend on these fisheries. As indicated in Section 6.4 of this IRFA, many suffering under current managed open access rules are small entities, as defined under RFA. The management tools in the existing FMP (e.g., time/area restriction, LLP, pot limits) do not provide managers with the ability to effectively solve these problems, thereby making Magnuson-Stevens Act goals difficult to achieve and forcing reevaluation of the existing FMP.

In an effort to alleviate the problems caused by excess capacity and the race for fish, the Council determined that the institution of some form of rationalization program is needed to improve crab fisheries management in accordance with the Magnuson-Stevens Act.

The IFQ alternative would, as the name implies, allocate individual shares of the crab TAC to harvesters, imparting a “quasi-private property interest” (in the present context, referred to as an ‘access privilege’) in that share of the TAC, thus removing the undesirable “common property” attributes of the status quo on qualifying harvesters. The rationalization of the BSAI crab fisheries would likely benefit the approximately 223 businesses that own harvest vessels and are considered small entities. In recent years these entities have

had to compete in the race to fish against larger businesses. The IFQ alternative would allow these operators to slow their rate of fishing and give more attention to efficiency. Some of these operations and the vessels they fish could be negatively impacted if the allocations they qualify for are small and cannot be fished economically. The vessels, however, would be permitted to lease or sell their allocations, and could obtain some return from their allocations. Differences in efficiency implications of rationalization by business size cannot be predicted. Some participants believe that smaller vessels could be more efficient than larger vessels in a rationalized fishery. If that is true, it is possible that some of the smaller participants in the fishery could increase their activity (by purchasing or leasing quota) in a rationalized fishery.

However, as shown in the EIS analysis, the IFQ alternative would fail to protect the economic and social interests of other participants, also dependent of these crab fisheries, namely, processor and community entities. As the analysis in the RIR demonstrates, while harvesters clearly benefit, the IFQ alternative likely would increase the negative economic impacts relative to status quo on processor and community small entities.

The Cooperative alternative yields many of the positive economic, social, and structural results cited above for the IFQ alternative. In addition, however, the Cooperative alternative holds out the promise of providing efficiency gains to both small entity harvesters and the processors. Data on cost and operating structure within each sector are unavailable, so a quantitative evaluation of the size and distribution of these gains, accruing to each sector under this management regime, cannot be provided. Nonetheless, it appears that the Cooperative alternative offers all of the same “improvements” over the status quo as does the IFQ alternative (e.g. institution of “rights-based-management” structure, reduction in uncertainty) while including another of the populations of participants the Council expressed explicit concern about protecting, in its problem statement and objectives for this action (i.e., crab processors). While, on the basis of available information, the Cooperative alternative appears to minimize negative economic impacts on small entities to a greater extent than does an IFQ alternative, and both appear to minimize negative economic impacts compared to the Status Quo, it is apparent, on the basis of the EIS and RIR analyses, that the Cooperative alternative does not extend the benefits of rationalization to the third population of small entities, fishery dependent communities.

After an exhaustive public process, spanning several years, the Council concluded that (and the analyses contained in the EIS/RIR/IRFA support) the preferred alternative under consideration best accomplishes the stated objectives articulated in the problem statement and applicable statutes, and minimizes to the extent practicable adverse economic impacts on the universe of directly regulated small entities. It does so in the following ways:

The proposed action would create a “voluntary three pie cooperative” program. The Program makes three separate allocations; one to the harvest sector, one to the processing sector, and one to defined regions. All three allocations are based on historic participation to protect investment in and reliance on the fisheries. Harvesters would receive harvest allocations, processors would receive processing allocations, and regions would receive allocations of landings and processing activity. These three separate allocations are also intended to mitigate the negative effects of the transition from a regulated open access race-for-fish to rationalized fisheries, burdens which tend to fall most heavily on small entities.

The competing interests of harvesters and processors, many of which are small entities, are balanced by allocating different portions of the total harvest to the two sectors. Harvesters would be allocated harvest shares for 100 percent of the total allowable catch (TAC). Processors would be allocated processing shares for 90 percent of the TAC. To ensure corresponding allocations to the two sectors, 90 percent of the harvest

allocation is allocated as “Class A” shares that require delivery to a processor that holds processing shares. The remaining 10 percent would be “Class B” shares that can be delivered to any processor. Under the Program, harvesters (many of whom, as noted, are small entities) would be permitted to form cooperatives to achieve efficiencies and reduce transaction costs through the coordination of harvest activities and deliveries to processors.

Small harvesters that receive allocations that are large enough to support their participation could benefit from not needing to participate in the race for fish, as with the IFQ alternative. The portion of the fishery allocated as Class B open delivery shares would also impact the effects of the Program on small harvesters, since Class B shares are likely to provide harvesters with additional power in their negotiations with processors.

Small processors appear to have been exiting the crab fishery in recent years as the harvest levels have declined and seasons have been compressed. The preferred alternative would allocate quota to processors that participated in the fishery in either 1998 or 1999. “Small” processors that plan to enter/reenter the crab fisheries (but did not participate during the qualifying years) would be allowed to process crab harvested with class B open delivery harvest shares.¹¹ Class B shares would provide a mechanism for small processors to enter the fishery without large capital outlays to purchase quota. Class B shares, however, would reduce the allocation of quota to the small and large processors that qualify for the Program. Class B quota shares therefore may negatively impact small processors, if they are unable to compete with large processors in the market place for the class B shares that are not assigned to a particular processor.

To resolve impasses in price negotiations, a potentially crippling occurrence for the smaller operators, the Program would include a mandatory binding arbitration program for the settlement of price disputes between harvesters and processors. Historically, prices have been settled by protracted, often contentious negotiations, from time to time resulting in harvesters delaying fishing (i.e., strikes), which can be detrimental to all concerned. An effective system of binding arbitration could protect the interests of both sectors in negotiations, while avoiding costly delays in fishing due to strikes.

A number of small governmental jurisdictions that would be directly regulated by, and therefore could be impacted by, the Program. All communities benefitting from these special provisions of the preferred alternative are “small”, under SBA criteria. Community interests have been explicitly considered in the preferred alternative, and special provisions have been included to minimize (to the extent practicable) adverse impacts on these small entities. Under these provisions the degree of protection would likely vary community-to-community.

The allocation to regions is accomplished by regionally designating all Class A (delivery restricted) harvest shares and all corresponding processing shares. In most fisheries, regionalized shares are either North or South, with North shares designated for delivery in areas on the Bering Sea north of 56°20' north latitude and South shares designated for any other areas, including Kodiak and other areas on the Gulf of Alaska. Figure 3 is a map showing 56°20' north latitude, by which the fisheries would be regionally divided. Share designations are based on the historic location of the landings and processing that gave rise to the shares. The Program would also increase the allocation of crab to CDQ groups from 7.5 percent to 10 percent, providing additional aid to communities (all small entities).

¹ Recall that class B harvest shares may be delivered to any legal processor. If a legal processor includes those that do not receive an initial allocation it could benefit small crab processors excluded from the initial allocation.

Community processing requirements in the first two years of the Program and community rights of first refusal would benefit communities with history supporting initial allocations and are intended to protect community interests. The right of first refusal provisions are likely to benefit communities that are more capable of exercising the right.²² Under the more general regional protection, processing activity could move between communities in a region. This is likely to benefit those communities able to attract additional processing activity from other communities in the region and harm communities that processing activity leaves. IPQ caps would benefit communities able to attract processing in years of high total harvest. Additionally, CDQ groups would be able to purchase quota share and processor quota share to increase their participation in the BSAI crab fisheries above the CDQ allocation.

The Program also contains several additional measures to protect various interests. Eligible captains would receive 3 percent of the initial allocation of harvest shares. A crew loan program would assist fishermen in purchasing harvest shares. Sideboards would limit the activity of crab vessels in other fisheries (such as the Gulf of Alaska groundfish fisheries) to protect participants in those fisheries from a possible influx of activity that could arise from vessels that exit the crab fisheries, or are able to time activities to increase participation in other fisheries. While these benefactors of this provision are not directly regulated, and therefore not counted among the entities addressed in this IRFA, they are predominantly small entities.

Fish taxes would likely be redistributed with any redistribution of processing activity. In addition, the provision of support services and associated sales taxes would likely be redistributed to some extent by redistribution of landings in a rationalized fishery. Increased efficiency in the fisheries arising from the Program could reduce the demand for support services, impacting sales tax revenues, if the fleet is able to reduce their overall costs. These impacts may occur in large and small communities. Since the redistribution of activity and the increased efficiency cannot be predicted these effects cannot be fully characterized. Additional analysis of community impacts is contained in the Social Impact Analysis, EIS Appendix 3.

²² Community protections in rationalization could reduce efficiency gains of the harvest and processing sectors in rationalization.

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APPENDIX 2

- 1) **COUNCIL REPORT TO CONGRESS ON BSAI CRAB RATIONALIZATION ALTERNATIVES, AUGUST 2, 2002.**
- 2) **COUNCIL UPDATE TO CONGRESS ON BSAI CRAB RATIONALIZATION PROGRAM, MAY 6, 2003.**
- 3) **CONGRESSIONAL RESEARCH SERVICE MEMORANDUM TO HONORABLE PATTY MURRAY, JULY 16, 2002.**
- 4) **COUNCIL LETTER TO U.S. DEPARTMENT OF JUSTICE, ANTI-TRUST DIVISION, APRIL 29, 2003.**
- 5) **U.S. DEPARTMENT OF JUSTICE, ANTI-TRUST DIVISION LETTER TO GENERAL COUNSEL, U.S. DEPARTMENT OF COMMERCE, AUGUST 27, 2003.**
- 6) **CONSOLIDATED APPROPRIATIONS ACT 2004 (Pub. Law No. 108-199), § 801.**
- 7) **PASSAGE OF THE FY2004 CONSOLIDATED APPROPRIATIONS CONFERENCE REPORT REGARDING PROVISIONS RELATED TO ALASKAN FISHERIES.**
- 8) **SENATOR STEVENS BERING SEA/ ALEUTIAN ISLANDS CRAB RATIONALIZATION STATEMENT.**

- 1) **COUNCIL REPORT TO CONGRESS ON BSAI CRAB RATIONALIZATION ALTERNATIVES, AUGUST 2, 2002.**

North Pacific Fishery Management Council

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August 5, 2002

Dear Senators and Representatives:

As part of the Consolidated Appropriations Act of 2001 (Pub. L. No. 106-554), Congress directed the Council to examine fisheries under its jurisdiction to determine whether rationalization is needed and provide an analysis of several specific approaches to rationalization. The specific legislative language is:

The North Pacific Fishery Management Council shall examine the fisheries under its jurisdiction, particularly the Gulf of Alaska groundfish and Bering Sea crab fisheries, to determine whether rationalization is needed. In particular, the North Pacific Council shall analyze individual fishing quotas, processor quotas, cooperatives, and quotas held by communities. The analysis should include an economic analysis of the impact of all options on communities and processors as well as the fishing fleets. The North Pacific Council shall present its analysis to the appropriations and authorizing committees of the Senate and House of Representatives in a timely manner.

This letter, and attachments, are intended to provide you with that analysis for the Bering Sea and Aleutian Islands (BSAI) crab fisheries, and inform you of our Council's recent actions in this regard. The Council recently completed an analysis of rationalization alternatives for the BSAI crab fisheries as requested by Congress. Relying on this analysis, the Council has concluded that these fisheries, their participants, and dependent communities would benefit from rationalization. Rationalization will improve economic conditions substantially, for all sectors of the crab industry. Community concerns and the need to provide for economic protections for hired crew will be addressed. Safety in the fisheries will be enhanced. Biological benefits will also be realized. At its June 2002 meeting, the Council, by a unanimous 11-0 vote, identified a specific rationalization program as its preferred alternative for rationalization of the BSAI fisheries. This vote followed three years of meetings and discussion by industry sectors involved in these fisheries, two years of discussion and development by the Council and its industry Advisory Panel, and nearly two years of detailed analyses by Council staff, with assistance from NMFS, ADF&G, and independent economists and fisheries consultants.

The preferred alternative, a "three-pie voluntary cooperative program", is a carefully crafted program that balances the interests of several identifiable groups that depend on these fisheries. Allocations of harvest shares would be made to harvesters, communities, and captains. Processors would be allocated processing shares. Designated regions would be allocated landings and processing activity to preserve their historic interests in the fisheries. Harvesters would be permitted to form cooperatives to realize efficiencies through fleet coordination. The novelty of the program has compelled the Council to include several safeguards into the program, including a binding arbitration program for the resolution of price disputes and extensive data collection and review programs to assess the success of the rationalization program. These safeguards, together with the Council's continuing development of the program through a series of ongoing amendments and clarifications, demonstrate the Council's commitment to a fair and equitable rationalization program, which will protect the interests of those that depend on the BSAI crab fisheries.

I have enclosed the Council's report summarizing the preferred rationalization alternative, as well as a complete copy of the detailed analyses. I have included extra copies of the summary document for your convenience. I believe our summary report and the detailed analyses demonstrate that the Council has thoroughly assessed the impacts of rationalization on these fisheries, their participants, and dependent communities. We believe that the rationalization program will benefit all of those groups and presents a significant opportunity to improve biological and economic conditions and safety in these fisheries. Implementation of this program would follow its final approval through the Environmental Impact Statement (EIS) currently being prepared for the crab FMP, which we expect to be completed for Council action early next year. Congressional authorization for this program would, of course, also be necessary.

This program is certainly not without its controversy. The adoption by the Council of processing quota shares as a fundamental part of the program is probably the most controversial aspect of the program. However, the Council believes, as reflected in its unanimous vote, that the crab fisheries in the Bering Sea/Aleutian Islands require this innovative, comprehensive management approach to adequately recognize and protect the interests of all participants. It recognizes all components of the fishery as a balanced, inextricably linked system, rather than individual, competing components. It may not be the appropriate model for other fisheries in the Nation, or even for other fisheries in the North Pacific, and is not intended to be a template for other fisheries. We do believe it is the appropriate management approach for this fishery, and we respectfully submit that Congress should allow for such regionally tailored approaches in the management process. All Councils need such flexibility as we consider development of rationalization programs for other fisheries, for the benefit of all user groups and to sustain our precious fisheries resources for the Nation.

I hope the enclosed information is useful to the United States Congress as you consider reauthorization of the Magnuson-Stevens Act, or consider other legislation affecting our fisheries. Please contact our Council, through the office of the Executive Director, if you require further information.

Sincerely,

A handwritten signature in black ink, appearing to read "David Benton". The signature is fluid and cursive, with a long horizontal stroke at the end.

David Benton
Chairman

EXECUTIVE SUMMARY

Bering Sea and Aleutian Islands Crab Rationalization Program

In recent years, substantial investments of participants in the Bering Sea/Aleutian Islands (BSAI) crab fisheries, together with stock declines, have resulted in a race for fish, complicating stock management and causing economic hardship. For several years, the North Pacific Fishery Management Council (the Council) has worked with participants to address these problems through series of working groups and management measures. In 2001, Congress directed the Council to conduct an analysis of several different approaches to rationalizing the BSAI crab fisheries, some of which are beyond the current authority of the Council, such as individual fishing quotas, processor quotas, cooperatives, and quotas held by communities. Over the course of the last year the Council conducted a comprehensive analysis of rationalization alternatives. At its June 2002 meeting, the Council, by unanimous vote, selected a preferred rationalization alternative, a “voluntary three pie cooperative,” from the several alternatives considered. The Council developed the program to address the particular needs of the BSAI crab fisheries. The primary elements of the program are:

- **Harvest shares** will be allocated for 100 percent of the total allowable catch (TAC).
- **Processing shares** will be allocated for 90 percent of the TAC.
- **Regional share designations** will apply to processor allocations and the corresponding 90 percent of the harvest allocations distributing landings and processing between specific regions.
- A **mandatory binding arbitration** program will be used to settle price disputes between harvesters and processors.
- **Voluntary harvester cooperatives** would be permitted to achieve efficiencies through the coordination of harvest activities and deliveries to processors.
- **Community Development Quota allocations** will be increased from 7.5 percent to 10 percent of the TAC.
- **Captain share allocation** of 3 percent of the TAC for exclusive use by captains and crew.
- A **crew loan program** to assist crewmember entry to the fisheries.
- **Comprehensive data collection and program review** to assess the success of the rationalization program.

Complete allocation of the total allowable catch (TAC) adds precision to stock management beyond that possible in a competitive, race for fish. The separate allocations to harvesters and processors are intended to protect the historic distribution of activities in each sector and mitigate the negative effects of the transition from competitive to rationalized fisheries. The competing interests of harvesters and processors are balanced by allocating different portions of the total harvest to the two sectors. The binding arbitration program is included to further ensure a fair distribution of returns from the fisheries to both sectors. The regional landing and processing requirements protect regional dependence that has developed in the current fishery. Community Development Quota allocations are harvest allocations to groups representing rural Western Alaska communities to facilitate fishing activity and economic development in those areas. Increasing these allocations demonstrate the Council’s commitment to economic development of the geographically isolated areas of Western Alaska. The allocation of shares to captains is intended to protect the interests of captains and crew in the fisheries, which can change as a result of rationalization.

The novelty of the program has compelled the Council to include several safeguards in the program, including extensive data collection and review programs to assess the success of the rationalization program. These safeguards, together with the Council’s continuing development of the program through a series of ongoing amendments and clarifications, demonstrate the Council’s commitment to a fair and equitable rationalization program, which will protect the interests of all sectors that depend on the BSAI crab fisheries.

**Summary of the North Pacific Fishery Management Council's
Bering Sea and Aleutian Islands Crab Rationalization Program
Submitted to the United States Congress, August 2002**

Since their inception, Bering Sea/Aleutian Islands (BSAI) crab fisheries of the North Pacific have attracted participants willing to undertake the financial and personal risks necessary to participate. In recent years, the substantial investments of participants, together with stock declines, have resulted in a race for fish in these fisheries. The shortest fishery is typically prosecuted during a 3 or 4 day season each year. Efforts of managers to protect declining stocks by reducing allowable catch have increased the economic stress on participants and communities that depend on these fisheries and increased pressure on participants to take greater risks. For several years, the North Pacific Fishery Management Council (the Council) has worked with participants to address these problems through series of working groups and management measures. In 2001, Congress directed the Council to conduct an analysis of several different approaches to rationalizing the BSAI crab fisheries, some of which are beyond the current authority of the Council, such as individual fishing quotas, processor quotas, cooperatives, and quotas held by communities.¹ Over the course of the last year the Council conducted a comprehensive analysis of rationalization alternatives. At its June 2002 meeting, the Council, by unanimous vote, selected a preferred rationalization alternative from the several alternatives considered. The Council developed the rationalization program to fit the specific dynamics and needs of the BSAI crab fisheries. The program builds on the Council's experiences with the halibut and sablefish IFQ program and the American Fisheries Act cooperative program for Bering Sea pollock. The program addresses conservation and management issues associated with the current derby fishery and would reduce bycatch and associated mortalities. Share allocations to harvesters and processors, together with incentives for cooperation, would increase efficiencies, provide economic stability, and facilitate compensated reduction of excess capacities in both harvesting and processing sectors. A binding arbitration program will be incorporated into the program developed to resolve price disputes between harvesters and processors, which in the past have delayed fishing. Community interests are protected by Community Development Quota (CDQ)² group allocations and regional landing and processing requirements. Captains are allocated a portion of the catch to protect their interests in the fisheries. The program includes a comprehensive socioeconomic data collection program that would aid the Council in assessing the success of the program and developing amendments necessary to mitigate any unintended consequences. Perhaps most importantly, the program would improve safety of participants in the fishery by ending the race for fish. The Council's motion defining the rationalization program is attached hereto as Appendix A. The complete Council analysis is attached as Appendix B. This document summarizes the results of the analysis and describes in detail the Council's preferred alternative and the potential effects of the preferred alternative on the fisheries and participating harvesters, processors, and communities.

The Council set out to develop a program that addresses several concerns in the BSAI crab fisheries. The problem statement developed by the Council highlights resource conservation, bycatch, excess harvesting and processing capacity, lack of economic stability for harvesters, processors, and coastal communities, and occupational safety as primary issues to be addressed by the rationalization program. Harvests and revenues from the fisheries suggest some of the economic problems facing the participants. Figure 1 shows the harvest pounds and gross revenues for all fisheries proposed for rationalization between 1991 and 2000. The figure shows that the revenues from harvests in 2000 (the most recent season for which data are available) are one third of the harvest revenues in 1991. The figure also shows significant fluctuations in both pounds harvested and revenues. Fluctuations in harvest levels and revenues do not coincide for a few reasons. Prices for some species have varied by as much as three-fold across years. The values of different species also differ

¹ The specific direction appears in the Consolidated Appropriations Act of 2001 (Pub. L. No. 106-554).

² Under the CDQ program, harvest allocations are made to groups representing rural Western Alaska communities to facilitate fishing activity and economic development in those areas.

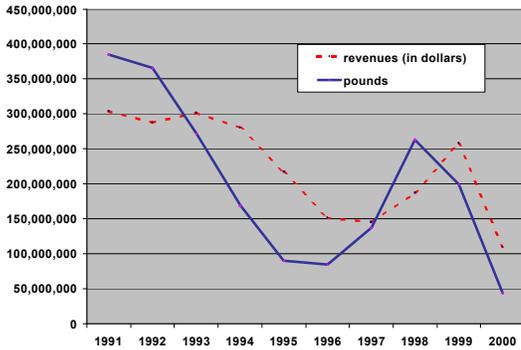


Figure 1 Harvest revenues and pounds from Bering Sea and Aleutian Islands Crab Fisheries Proposed for Rationalization
Source: NPFMC Crab Rationalization Database 2001, Version 1

substantially, with red king crab bringing the highest price and *C. opilio* bringing the lowest price. The Council examined these issues in the context of the BSAI crab fisheries, analyzing the biological and environmental conditions in the fisheries, participation patterns in the harvesting and processing sectors, and the relative dependence of those sectors and communities on the fisheries. Using the analysis, the Council developed a preferred program uniquely suited to the conditions in the BSAI crab fisheries.³ Because the program is a substantial change from current management of the fisheries and is unique in fisheries management, the Council has incorporated several safeguards into the program to mitigate possible negative impacts. In addition, the Council has developed a comprehensive data collection program and a rigorous program review process to allow the Council to

evaluate the success of the program and make any modifications necessary to prevent unintended negative consequences.

Summary of the Preferred Rationalization Program

The Council identified as its preferred alternative a “voluntary three pie cooperative” program. The program makes three separate allocations, one to the harvest sector, one to the processing sector, and one to defined regions. All three allocations are based on historic participation to protect investment in and reliance on the fisheries. To ensure protection of historic activities, the form of each allocation is the activity which the recipient participates in and relies on. Harvesters will receive harvest allocations, processors will receive processing allocations, and regions will receive allocations of landings and processing activity. These three separate allocations are also intended to mitigate the negative effects of the transition from competitive to rationalized fisheries.

The competing interests of harvesters and processors are balanced by allocating different portions of the total harvest to the two sectors. Harvesters will be allocated harvest shares for 100 percent of the total allowable catch (TAC). Processors will be allocated processing shares for 90 percent of the TAC. To ensure corresponding allocations to the two sectors, 90 percent of the harvest allocation is allocated as “Class A” shares that require delivery to a processor that holds processing shares. The remaining 10 percent will be “Class B” shares that can be delivered to any processor. Under the program, harvesters would be permitted to form cooperatives to achieve efficiencies through the coordination of harvest activities and deliveries to processors.

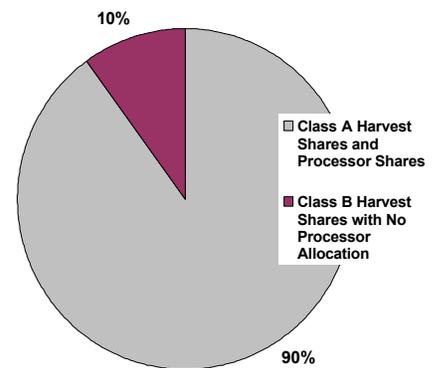


Figure 2 Allocation of harvest shares and corresponding processor shares

To further ensure a fair distribution of returns from the fisheries to both sectors, the program will include a mandatory binding arbitration program for the settlement of price disputes between harvesters and processors. Historically, prices have been settled by harvester strikes, which can be detrimental to both sectors. An effective system of binding arbitration could protect the interests of both sectors in negotiations while avoiding costly delays in fishing due to strikes.

³ The suitability of the Council’s preferred program for management of the BSAI crab fisheries is not an endorsement of the program for management of other U.S. fisheries (or even other fisheries in the North Pacific). The Council firmly believes that management of a fishery should be specific to the conditions and circumstances in the fishery.

Primary Components of the Preferred Rationalization Alternative

- Harvesters Allocated 100 percent of the TAC as IFQs
- Processors Allocated 90 percent of the TAC as IPQs
- A voluntary cooperative program to achieve efficiencies through fleet coordination
- Mandatory binding arbitration program for settlement of price disputes
- North/South regionalization of landings and processing to protect communities
- Increase in CDQ allocations from 7.5 percent to 10 percent
- Captain share allocation of 3 percent
- A loan program to assist crewmember entry to the fisheries
- A data collection program and program review to evaluate the

The allocation to regions is accomplished by regionally designating all Class A (delivery restricted) harvest shares and all corresponding processing shares. In most fisheries, regionalized shares are either North or South, with North shares designated for delivery in areas on the Bering Sea north of 56°20' north latitude and South shares designated for any other areas, including Kodiak and other areas on the Gulf of Alaska.⁴ Figure 3 is a map showing 56°20' north

latitude, by which the fisheries would be regionally divided. Share designations are based on the historic location of the landings and processing that gave rise to the shares. The program would also increase the allocation of crab to CDQ groups from 7.5 percent to 10 percent, providing additional aid to communities.

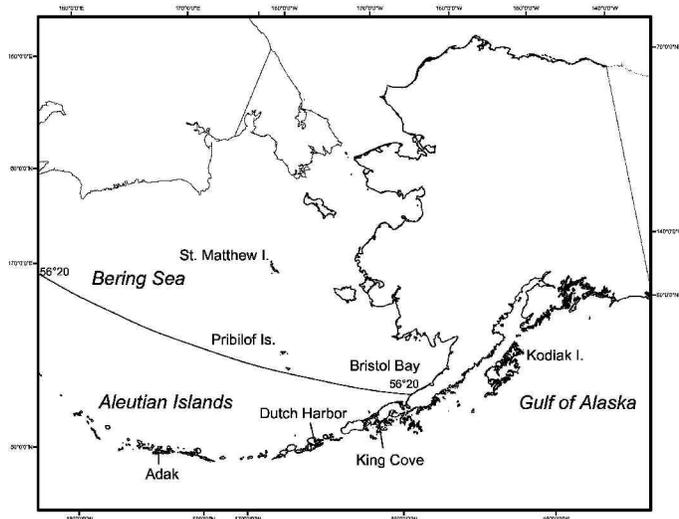


Figure 3 North and south regional designations.

The program also contains several additional measures to protect various interests. Eligible captains will receive 3 percent of the initial allocation of harvest shares. Sideboards would limit the activity of crab vessels in other fisheries (such as the Gulf of Alaska groundfish fisheries) to protect participants in those fisheries from a possible influx of activity that could arise from vessels that exit the crab fisheries or are able to time activities to increase participation in other fisheries.

The Council considered several other rationalization alternatives, including an IFQ program that would allocate harvest shares only, a two pie IFQ program that would allocate harvester shares and processing shares, and several cooperative programs that would allocate shares to harvesters with different levels of

delivery commitments from harvesters to processors. In the estimation of the Council, each of these other alternatives would inadequately protect the interests of historic dependents on the fisheries, neglecting either the interests of an entire group or an identifiable segment of a group.

⁴ In the Western Aleutian Islands (Adak) golden king crab fishery, the designation is based on an east/west line to accommodate a different distribution of activity in that fishery.

The Impacts of Rationalization on Fisheries

The preferred alternative would rationalize all of the large crab fisheries in the BSAI. The following fisheries would be included in the rationalization program:

Bristol Bay red king crab
Western Aleutian Islands (Adak) golden king crab - West of 174° W
Eastern Aleutian Islands (Dutch Harbor) golden king crab - East of 174° W
Western Aleutian Islands (Adak) red king crab - West of 179° W
Pribilof blue and red king crab
St. Matthew blue king crab
Bering Sea *C. opilio* (snow crab)
Bering Sea *C. bairdi* (Tanner crab)

Since these fisheries are currently managed under the License Limitation Program, harvester entry is limited. Individual harvests, however, are determined by the harvests in competitive race for fish. Since the seasons in most of the fisheries selected for rationalization do not conflict, most participants are active in several of the fisheries, moving from one fishery to another throughout the year. Notwithstanding these opportunistic movements from fishery to fishery, equipment is often idle for several months of the year, suggesting substantial overcapitalization. In addition, several participants report that they are unable to breakeven in the fisheries at current harvest levels. The fisheries to be included in the program are fully developed with their grounds well identified. The full development of the BSAI crab fisheries and the idle equipment and facilities make these fisheries suitable for rationalization. A rationalization program would allocate individual quotas to participants, limiting entry and facilitating an orderly and compensated exit of capacity from the fisheries. Trading of shares within the rationalization program should improve efficiency in the fisheries, as the more efficient participants purchase shares from higher cost producers. In addition, the system of revocable privileges would create a system of allocation, removing the race to fish, yet allowing participants to change participation levels in response to changes in conditions of the fisheries or individual circumstances. The comprehensive nature of the program (i.e., including all of the large BSAI crab fisheries) allows participants to coordinate their activities across all of these fisheries, permitting greater levels of efficiency.

The Bristol Bay red king crab, the Bering Sea *C. opilio*, and the Bering Sea *C. bairdi* fisheries are the largest of the BSAI crab fisheries and have received the most fishing effort. Stock declines in the Bristol Bay red king crab and the Bering Sea *C. opilio* have led to short derby seasons of a few days or weeks suggesting substantial overcapitalization. The Bering Sea *C. bairdi* fishery has been closed for the past several seasons. The

Benefits of the Rationalization Program

Biological Benefits

- Improved stock management through use of a TAC
- Reduced overharvests through individual allocations
- Reduced discards through longer soak times and better sorting of undersized crab by gear
- Improved handling of discards by ending derby fishery

Economic Benefits

- Compensated reductions in capitalization through voluntary share transactions
- Economic stability for the harvesting and processing sectors and communities

Social Benefits

- Preservation of regional distribution of economic activity
- Facilitated entry to the fishery for crew
- Protection of historical interests of captains

Safety Benefit

- Improved safety by ending the derby fishery

Pribilof blue and red king crab⁵ and the St. Matthew blue king crab fisheries have been closed in recent years due to stock declines. When open, these fisheries also received substantial effort, primarily from vessels that also participate in the largest BSAI crab fisheries. The Aleutian Islands golden king crab fisheries have received less effort than most of the other BSAI crab fisheries due to their remote grounds and the need for specialized gear for participation. Participation in these fisheries has increased in recent years and would likely increase further, if they were omitted from the rationalization program. The Western Aleutian Islands (Adak) red king crab fishery has been closed in recent years. Harvest strategies are currently being developed to open this fishery. The fishery is relatively small and would likely experience an influx of capacity, if the fishery were omitted from the rationalization program.⁶

Rationalization should benefit crab stocks and their habitat. The rationalized fisheries would be managed with a total allowable catch (TAC), which sets a specific catch limit, instead of a guideline harvest level (GHL) as is currently used. GHLs set target catch as a range as opposed to a specific target catch set by a TAC. This more precise management of harvests should benefit stocks. In addition, the individual allocations in a rationalized fishery also increase accountability and decrease the chance of overharvests from the fishery. In the current derby fisheries, managers monitor harvests by in season reports and attempt to time the closure of the fishery with completion of the harvest of the GHL. The GHL is often exceeded through no fault of the managers because inseason monitoring cannot keep pace with harvests during the short seasons. To ensure that harvest goals are not exceeded in the rationalized fishery, any overharvest would be forfeited. In addition, penalties would be imposed for any overage in excess of 3 percent of a person's allocation. Individual allocations in a rationalized fishery permit this level of accountability and should ensure that harvest goals are met but not exceeded.

The Council and the State of Alaska⁷ are committed to revising the inseason management appropriately to improve protection of the crab resource under rationalization. Pot limits may be relaxed in a rationalized fishery, allowing pots to soak longer. Longer soak times allow crab pot escape mechanisms to function, reducing harvests and discards of undersized and female crab. Seasons in most fisheries will be extended, with closures to protect crab during molting and mating seasons and possible limits to facilitate monitoring. The monitoring program in the fisheries will be adapted to address potential changes in fishing practices under the rationalization program and improve knowledge of stocks in slower paced fisheries. High grading (or the retention of only the highest value catch) can occur when the benefit of discarding low value catch and replacing it with higher value catch exceeds the cost of reharvesting. Rationalization will remove the time pressures of a derby fishery, which could increase the incentives to high grade, since harvesters would not sacrifice a share of the fishery when discarding catch. Additional monitoring will be necessary to determine the potential for high grading and to enforce regulations developed to minimize detrimental impacts of changes in fishing practices on stocks. Vessel Monitoring Systems and increased observer coverage and shore side monitoring are anticipated under the rationalization program. Additional onboard observer coverage and

⁵ The Pribilof blue and red king crab have been harvested in a combined fishery for several years. Managers protect the two different stocks through area closures and season scheduling. Continued management in the combined fishery is thought to be appropriate to protect the two stocks and to maintain consistency of operations for the current participants.

⁶ A few federal fisheries are excluded from the program, most notably the Norton Sound red king crab fishery, which is operated under a "super exclusive" permit program intended to protect the interests of local, small vessel participants. Under the permit program, participants in the Norton Sound fishery are not permitted to participate in any other BSAI crab fishery minimizing the relationship between this fishery and the overcapacity that has occurred in the other fisheries.

⁷ The BSAI crab fisheries are subject to joint federal and state management with certain elements of oversight, including monitoring, in-season management, and observer coverage deferred to the State of Alaska. The Council contemplates that the joint management relationship would continue in the rationalized fishery.

dockside sampling are needed to determine if changes in fishery selectivity occur. The preferred rationalization program requests that the State of Alaska Department of Fish and Game, the State of Alaska Board of Fisheries and the State of Alaska Board of Fisheries/North Pacific Fishery Management Council Joint Protocol Committee address concerns of discards, highgrading, incidental catch, and the need for bycatch reduction, improved retention, and inseason monitoring under the program. Although resource concerns could arise in a rationalized fishery, the reduction of time pressures creates the opportunity for improving understanding of stocks, discard reductions and improved handling. The Council and the State of Alaska are committed to realizing these opportunities.

The Harvest Sector

Harvesters would be allocated quota shares (QS) in each fishery rationalized by the program. QS are a revocable privilege that allow the holder to receive an annual allocation of a specific portion of the annual TAC from a fishery. These annual allocations are referred to as Individual Fishing Quotas (IFQs). QS will be designated as either catcher vessel shares or catcher/processor shares, depending on whether the vessel that created the privilege to the shares processed the qualifying harvests on board. Catcher vessel QS and IFQ would also be issued in two classes, Class A shares and Class B shares. Class A shares, which will require delivery of harvests to a processor holding processor quota, will be issued for 90 percent of the TAC in each fishery. Class A shares will also be subject to regionalization, under which harvests will be required to be delivered within an identified region. Class B shares, which will permit delivery of harvests to any processor (except catcher/processors) and would not be regionally designated, will be issued for the remaining 10 percent of the TAC. The issuance of Class B shares is intended to provide harvesters with additional market leverage for negotiating prices for landings of crab. The ratio of Class A to Class B shares is intended to balance the interests of processors and communities in continuing participation in the fisheries with the interests of harvesters in having a free market in which to sell harvests.

To receive a QS allocation in a fishery a harvester must hold a valid, permanent, fully transferable License Limitation Program (LLP) license endorsed for the fishery. Since LLP licenses are the current qualification for participation in the fisheries, their use for defining eligibility in the rationalization program will maintain the current fishery participation and are consistent with prior measures by the Council to reduce effort in the fisheries. Reliance on LLP licenses will also streamline administration of the program since the adjudication of most licenses is complete. Use of other criteria would entail additional eligibility adjudication which could be time consuming and inconsistent with current participation requirements.

A harvester's allocation of QS for a fishery would be based on landings in that fishery (excluding landings of deadloss). Specifically, each allocation is the harvester's average annual portion of the total qualified catch during a specific qualifying period. Qualifying periods were selected to balance historical participation and recent participation. Different periods were selected for different fisheries to accommodate closures and other circumstances in the fisheries in recent years. The most recent seasons were excluded in part to limit the effectiveness of efforts by participants to obtain a larger allocation by increasing participation in recent seasons when it was apparent that allocations would be based on historic harvest levels. Qualifying periods for the various fisheries are shown in Table 1.

Table 1 Qualifying periods for harvest shares for each fishery.

Fishery	Qualifying years
Bristol Bay red king crab	1996 - 2000 (best 4 of 5 seasons)
Bering Sea <i>C. opilio</i> (snow crab)	1996 - 2000 (best 4 of 5 seasons)
Bering Sea <i>C. bairdi</i> (Tanner crab)	1991/92 - 1996 (best 4 of 6 seasons)
WAI (Adak) golden king crab	1996/97 - 2000/01 (all 5 seasons)
EAI (Dutch Harbor) golden king crab	1996/97 - 2000/01 (all 5 seasons)
WAI (Adak) red king crab - West of 179° W	1992/93 - 1995/96 (best 3 of 4 seasons)
Pribilof blue and red king crab	1994 - 1998 (best 4 of 5 seasons)
St. Matthew blue king crab	1994 - 1998 (best 4 of 5 seasons)

Generally, qualified catch is the catch of the vessel that created the privilege to the LLP license on which eligibility is based. In some circumstances, the catch of other vessels could be considered qualified catch. Since LLP licenses (and permits under the vessel moratorium program that preceded the LLP) are transferrable from vessel to vessel, catch on the vessel on which a license was used would be included in determining the allocation associated with a license. Because the use of license on a vessel was not recorded during the first two years of the LLP, the number of persons that qualify for this provision is not known with precision. The consistency of participation in the fishery suggests that the provision applies to a small number of participants. An additional provision would permit a person that purchased a LLP license to continue to participate in a fishery to receive an allocation based on the history of the vessel on which the license was used. Less than 12 participants would qualify for this provision. Finally, a provision would permit persons that owned vessels that sank and were replaced under the LLP license qualification rules to credit 50 percent of their average annual

history in qualifying years that the vessel participated, for years that the vessel or its replacement was unable to participate. Less than 10 participants would qualify for this provision. In general, provisions for crediting qualifying catch from a vessel other than the vessel that created the LLP privilege are intended to reward participation in compliance with the LLP or limit the hardships that arise from circumstances outside of a participant's control.

The initial allocation of shares varies from fishery to fishery because of different levels of participation and participation patterns. Figures 4, 5, and 6 show the estimated initial allocation in the different fisheries.

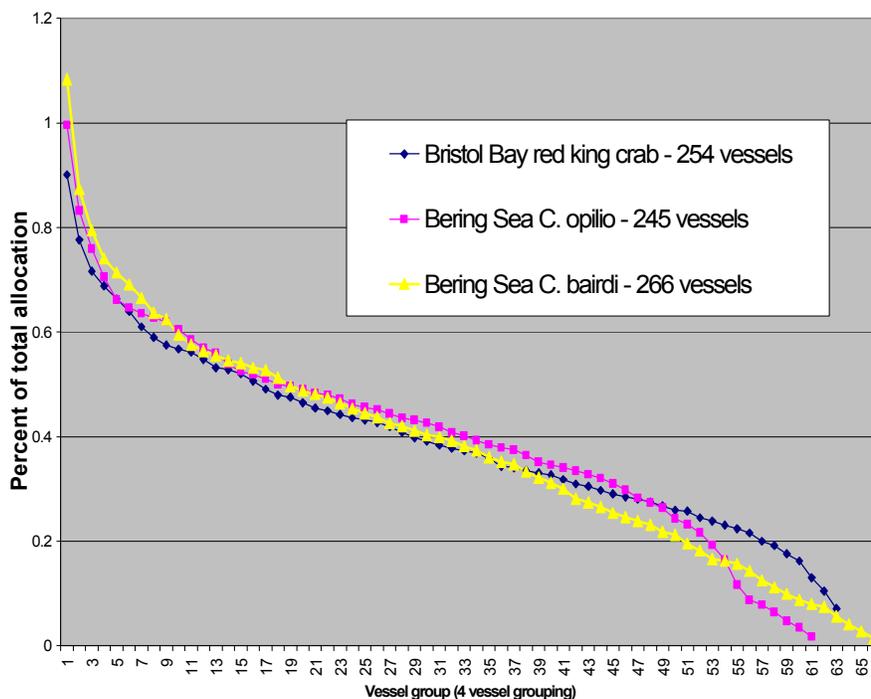


Figure 4 Harvest share allocation for Bristol Bay red king crab and Bering Sea *C. opilio* and *C. bairdi* crab fishery

Source: NPFMC Crab Rationalization Database 2001, Version 1

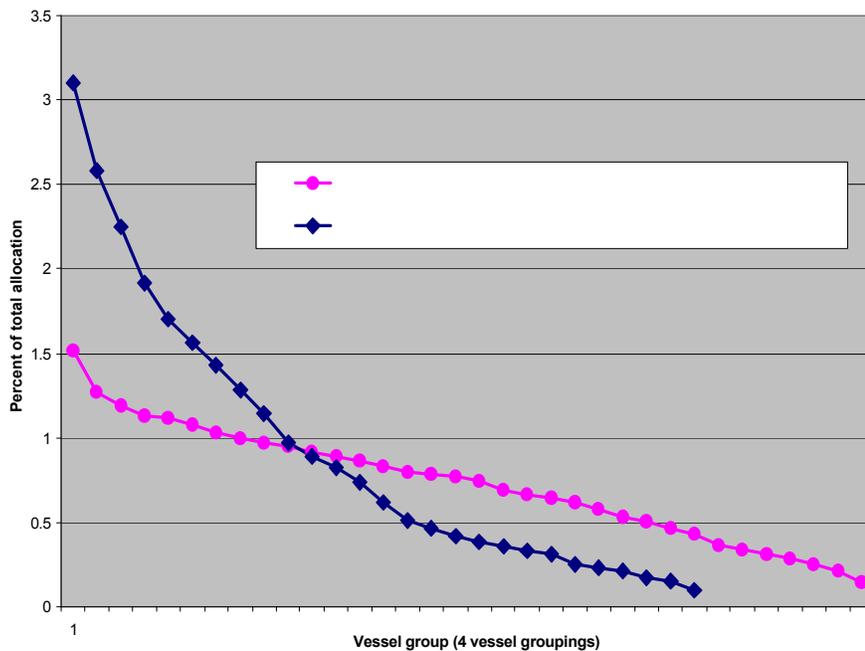


Figure 5 Harvest share allocation for St. Matthew blue king crab and Pribilof Island red and blue king crab fishery

Source: NPFMC Crab Rationalization Database 2001, Version 1

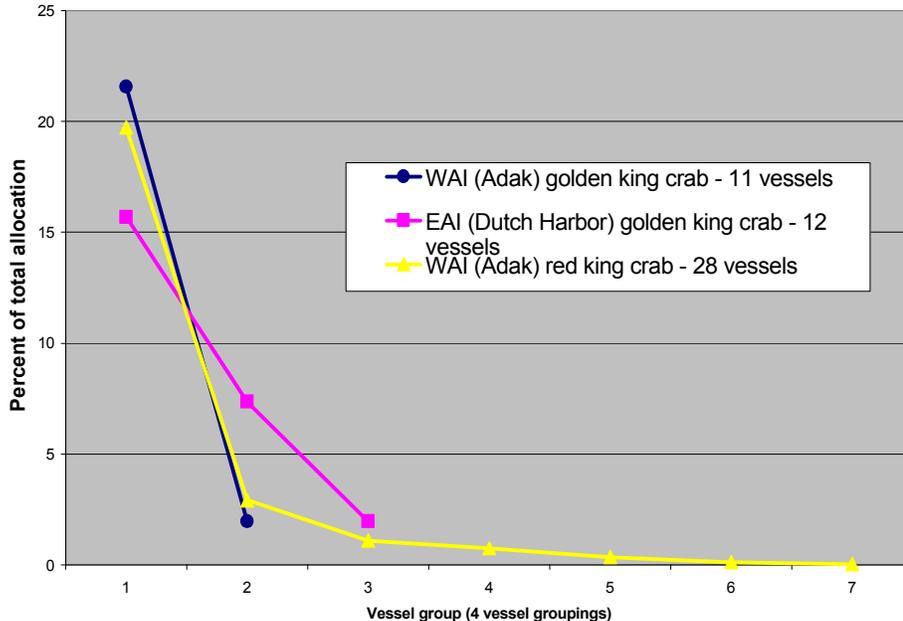


Figure 6 Harvest share allocation for WAI golden and red king crab, and EAI golden king crab fishery

Source: NPFMC Crab Rationalization Database 2001, Version 1

Eligibility and distributions were estimated on a vessel basis.⁸ Since some participants may own interests in multiple vessels and licenses the estimates may not be totally accurate. Confidentiality of vessel and license ownership information prevent more detailed disclosure of the allocations.⁹

To protect confidentiality, the allocations are shown in groups of 4 vessels, with vessel groupings made in descending order from the largest estimated allocation to the smallest allocation. The last and smallest grouping contains between 4 and 7 estimated allocations, since at least 4 persons' activities must be included under confidentiality rules. The estimated allocation shown for each 4 vessel group is the average allocation to members of that group. Allocations are shown as shares of the total harvest allocation. Each legend shows the total number of vessels that would receive an allocation in each fishery. Because allocations are averages, it is possible, particularly in the grouping with the largest allocation, that the largest allocation to a single vessel is significantly different from the average of those four vessels.

⁸ If a vessel engaged in activity that met the eligibility requirements for a distribution, the distribution was estimated using only the activity of the vessel that met the eligibility requirements. Amendment 10 to the LLP creates some exceptions that would entitle some persons to LLP licenses that do not meet these requirements. Records concerning the qualification of persons under the Amendment 10 exceptions to the LLP requirements are not yet available, so that currently, the most complete analysis is based on activities of single vessels. These exceptions are likely to result in the inclusion of more vessels in the allocation. In addition, the suboptions related to license transfers could result in some allocations being larger than the estimated allocations represented here.

⁹ The data collection program included in the preferred rationalization program would require participants to submit ownership information from which individual interests in the fisheries could be analyzed.

The figures and table show that the allocations vary significantly from fishery to fishery. Differences in the allocations arise from the different patterns of participation and catch history in the different fisheries. The Bering Sea *C. opilio* and *C. bairdi* and the Bristol Bay red king crab fisheries have the greatest estimated number of eligible vessels (between 245 and 266) and the least concentrated distribution. In these fisheries, the average of the largest four allocations is approximately 1 percent of the total allocation. The median allocation is approximately 0.4 percent of the total allocation. The allocation in the St. Matthew blue king crab fishery is slightly more concentrated, with 138 vessels estimated to receive an allocation. The average of the largest four allocations in these fisheries would be approximately 1.5 percent of the total allocation. The median allocation would be approximately 0.8 percent. In the Pribilof red and blue king crab fishery 110 vessels are estimated to receive an allocation. The average of the four largest allocations is estimated to be approximately 3 percent. The mean allocation in this fishery is approximately 0.6 percent (slightly less than the median allocation in the St. Matthew blue king crab fishery). The allocations in the Aleutian Islands fisheries are the most concentrated. These fisheries are the most distant from processing and other support facilities, discouraging some participation. The golden king crab fisheries also require additional gear for longlining pots and have limited grounds, complicating entry to those fisheries. Approximately 30 vessels would receive an allocation in the Western Aleutian Islands (Adak) red king crab fishery, which has been closed for several year but is showing signs of recovery. The four largest allocations in this fishery are estimated to average almost 20 percent of the total allocation. The concentration of shares in the fishery is also shown by the low median allocation, which is less than 1 percent. In the two Aleutian Island golden king crab fisheries, slightly more than 10 vessels would receive an allocation. The median allocation in the Western fishery, however, is more concentrated than the Eastern fishery. In the Western fishery, the four largest allocations are estimated to average approximately 22 percent of the total allocation. The median allocation in the fishery is estimated to be approximately 2.6 percent. In the Eastern fishery, the four largest allocations average approximately 16 percent, while the median allocation is slightly less than 8 percent.

QS and IFQ would both be transferrable under the program, subject to limits on the amount of shares a person may own or use. Leasing of QS (or equivalently, the sale of IFQs) may be prohibited, except within cooperatives, after the first five years of the program. Leasing is defined as the use of IFQs on a vessel in which the owner of the underlying QS holds less than a 10 percent ownership interest and on which the underlying QS holder is not present. Transferability of shares is necessary to reduce fleet size and remove capital from the fishery. The limit on leasing of QS (or sale of IFQs) by persons not in cooperatives would be intended to create an incentive for cooperative membership. The interim period in which leasing is not constrained is intended to allow a period of adjustment during which harvesters can coordinate fishing activities and build relationships necessary for cooperative membership.

To be eligible to purchase QS or IFQs a person would be required to be a US citizen and to have at least 150 days of sea time in US commercial fisheries in a harvest capacity. An entity would be eligible to purchase shares only if it is at least 20 percent owned by a US citizen with at least 150 days of sea time in US commercial fisheries in a harvest capacity. Initial recipients of QS and CDQ groups are exempt from these eligibility criteria. These sea time requirements are intended to ensure that the harvest sector does not evolve into a fishery owned by entities that have no fishing background.

Separate caps would be imposed on the ownership of shares by any person¹⁰ and the use of IFQs on any vessel. These caps are intended to prevent excessive consolidation of shares under the program. Limits on consolidation can be used to ensure adequate levels of market competition, facilitate entry to the fishery, protect labor markets, and ensure that the resource supports several participants. Different caps are chosen for the

¹⁰ The Council intends to clarify its position on ownership and use caps at its October meeting. The current Council motion contains only caps on share “ownership”. Since limits on IFQ ownership effectively control the use of shares, ownership caps can be interpreted as capping use. This parallels the interpretation of use caps as limiting ownership adopted in the halibut and sablefish IFQ program.

different fisheries because of different fleet characteristics and the differences in historic dependency of participants on the different fisheries. Vessel use caps would not apply to cooperatives providing an additional incentive for cooperative participation. The ownership and use caps proposed for the different fisheries in the Council's preferred rationalization alternative are shown in Table 2 below.

Ownership caps are applied individually and collectively. Under this rule all of a person's direct holdings are credited toward the cap. In addition, a person's indirect holdings are also credited toward the cap in proportion to the person's ownership interest. For example, if a person owns a 20 percent interest in a company that holds 100 shares, that person is credited with holding 20 shares for purposes of determining compliance with the cap.¹¹ These ownership rules are thought to be more effective in preventing excessive consolidation of shares. The accuracy of the analysis of ownership caps, however, is limited by the lack of availability of complete ownership data. The analysis relied on registered license holder data files, which do not show ownership holdings beyond the registered owner. Detailed ownership data necessary for full analysis of ownership is currently unavailable because of restrictions that prevent analysts from accessing detailed ownership information. Application of the rules under the program will require the submission of detailed ownership information by shareholders.

Table 2. Ownership and use caps for the crab fisheries.

	Number of owners ¹	Ownership cap	Number of owners over the cap	Number of vessels ²	Vessel use cap	Number of vessels over the cap
Western Aleutian Islands (Adak) Golden King Crab	14	0.1	*	11	0.2	*
Western Aleutian Islands (Adak) Red King Crab	38	0.1	6	28	0.2	*
Bristol Bay Red King Crab	303	0.01	10	254	0.02	0
Bering Sea C. <i>Opilio</i>	290	0.01	16	245	0.02	0
Bering Sea C. <i>Bairdi</i> (EBS Tanner Crab)	312	0.01	17	266	0.02	0
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	15	0.1	6	12	0.2	*
Pribilof Red and Blue King Crab	136	0.02	18	110	0.04	0
St. Matthew Blue King Crab	163	0.02	*	138	0.04	0

Sources: NPFMC Crab Rationalization Database, Version 1, 2001 and NMFS, RAM license registration files (2001).

1. Allocations to vessels are aggregated based on LLP license ownership files of NMFS RAM.

2. Allocations are on a vessel basis without aggregation.

Table 2 also shows the estimated number of registered license holders that would be allocated shares in each fishery under the rationalization program and the number that would exceed the applicable ownership caps. Initial allocations of shares above the cap would be grandfathered. The number of allocations over the specified levels varies from fishery to fishery with the number of participants and the differences in participation patterns. The Aleutian Islands fisheries, which have the least participants, are the most concentrated. In two of the three Aleutian Islands fisheries, six owners would receive allocations in excess of 10 percent of the total allocation. The number of vessels receiving allocations in excess of 20 percent cannot be shown in any fishery because of confidentiality restrictions. The St. Matthews and Pribilof Islands fisheries between 40 and 50 owners would receive allocations in excess of one percent of the total allocation. In the Pribilof Islands fishery, the number of persons receiving an allocation in excess of 5 percent cannot be shown, while no owner would receive an allocation in excess of 5 percent in the St. Matthew fishery. In the Bristol Bay red king crab, the Bering Sea C. *opilio*, and the Bering Sea C. *bairdi* fisheries no owners would receive an allocation in excess of 5 percent and less than 20 would receive an allocation in excess of 1 percent.

To protect independent vessel owners and processors that are not vertically integrated, processor ownership of harvest shares will also be limited by caps on vertical integration. A processor's ownership of QS is limited

¹¹Because use caps are applied on a vessel basis, no similar issue arises in applying use caps.

to 5 percent of the QS pool on a fishery basis. These caps are applied using a threshold rule for determining whether the shares are held by a processor, and then the individual and collective rule for determining the extent of share ownership. Under the threshold rule, any entity with 10 percent or more common ownership with a processor is considered to be a part of that processor. Any direct holdings of those entities would be fully credited to the processor's holdings. Indirect holdings of an entity would be credited toward the processor's cap in proportion to the entity's ownership. The rules for applying the caps on vertical integration are thought to be appropriate for limiting consolidation of harvest shares by processors. Initial allocations of shares above the cap would be grandfathered. The analysis of vertical integration relied on ownership data provided to the analysts by major processors that participate in the BSAI crab fisheries. These data were voluntarily submitted to assist Council staff with the analysis and were fully disclosed during the Council proceedings.

Table 3 shows the number of processors with affiliated vessels, the number of vessels affiliated with processors, and allocations to those vessels. A vessel and processor with 10 percent common ownership are considered affiliated, as required by the threshold rule in the Council's preferred alternative. Vertical integration varies by fishery. The three Aleutian Islands fisheries have a single processor affiliated with a single participating vessel. In the Pribilof and St. Matthews fisheries, four processors are affiliated with 9 and 10 vessels. These processor affiliated vessels will receive between 8 and 12 percent of the total allocation. In the Bristol Bay and Bering Sea fisheries, six processors are affiliated with between 25 and 35 vessels. These vessels will receive slightly more than 12 percent of the total allocation in these fisheries. Confidentiality restrictions prevent the disclosure of the number of allocations over specific levels.

Table 3. Number of processor/vessel affiliations by fishery.

Fishery	Number of processors affiliated with vessels	Number of vessels affiliated with processors	Number of vertically integrated allocations over 2.5%	Number of vertically integrated allocations over 5%	Total allocation to processor affiliated vessels
Western Aleutian Islands (Adak) Golden King Crab	1	1	0	0	*
Western Aleutian Islands (Adak) Red King Crab	1	1	0	0	*
Bristol Bay Red King Crab	6	31	*	*	0.125
Bering Sea C. Opilio	6	25	*	0	0.122
Bering Sea C. Bairdi (EBS Tanner Crab)	6	33	*	*	0.127
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	1	1	*	0	*
Pribilof Red and Blue King Crab	4	9	*	*	0.117
St. Matthew Blue King Crab	4	10	*	0	0.086

* Withheld for confidentiality.

Sources: NPFMC Crab Rationalization Database, Version 1, 2001 and processor vessel ownership information (2001).

The Processing Sector

The preferred rationalization program would also create a processing privilege, which would be allocated to processors, that is analogous to the harvest privilege allocated to harvesters. These allocations to processors are intended to protect processor investment in the fisheries and balance the bargaining power of processors with harvesters receiving harvest shares. Processors will be allocated processing quota shares (PQS) in each fishery rationalized by the program. PQS are a revocable privilege to receive deliveries of a specific portion of the annual TAC from a fishery. These annual allocations of processing privileges are referred to as Individual Processing Quotas (IPQs). IPQs would be issued for 90 percent of the allocated harvests, corresponding to the 90 percent allocation of Class A harvest shares.¹² The annual IPQ allocation would equal the percent of the total PQS pool held by a processor times 90 percent of the TAC, the portion of the TAC for which processor shares are allocated. Leaving the remaining 10 percent of processing unallocated, and therefore deliverable to any processor, is intended to strike a balance of bargaining power between the harvesting and processing sectors. In addition, this unallocated 10 percent of processing would allow entry to that sector.

Processors that processed crab in either 1998 or 1999 would be eligible for an initial allocation of PQS. Under a hardship provision, a processor that failed to meet this requirement but that processed *C. opilio* in all years from 1988 to 1997 and invested in excess of \$1 million dollars in processing equipment and improvements after 1995 would be eligible for an allocation. The use of these eligibility criteria are intended to prevent reentry of processors that have already elected to exit the fisheries. Processing shares will be regionally designated for processing in a North or South region (corresponding to the regional designation of the Class A harvest shares).

PQS allocations would be based on processing history during a specified qualifying period for each fishery. A processor's allocation in a fishery would equal its share of all qualified processing in the qualifying period (i.e., pounds processed by the processor divided by pounds processed by all qualified processors). The qualifying periods for determining processor allocations shown in Table 4.

Table 4. Qualification Periods for Processor Share Allocations.

Fishery	Qualifying years
Bristol Bay red king crab	1997 - 1999 (3 seasons)
Bering Sea <i>C. opilio</i> (snow crab)	1997 - 1999 (3 seasons)
Bering Sea <i>C. bairdi</i> (Tanner crab)	Based 50 percent on allocation for Bristol Bay red king crab and 50 percent on allocation for Bering Sea <i>C. opilio</i>
WAI (Adak) golden king crab	1996/97 - 1999/2000 (4 seasons)
EAI (Dutch Harbor) golden king crab	1996/97 - 1999/2000 (4 seasons)
WAI (Adak) red king crab - West of 179° W	Based on allocation for WAI (Adak) golden king crab
Pribilof blue and red king crab	1996 - 1998 (3 seasons)
St. Matthew blue king crab	1996 - 1998 (3 seasons)

Allocations will made to the buyer of record on Alaska Department of Fish and Game fish tickets, except if the buyer can be determined to be an entity other than the entity named on the fish ticket, by the State of Alaska

¹²Processor privileges would not apply to the remaining 10 percent of the TAC (corresponding to the 10 percent of the TAC allocated as Class B harvest shares).

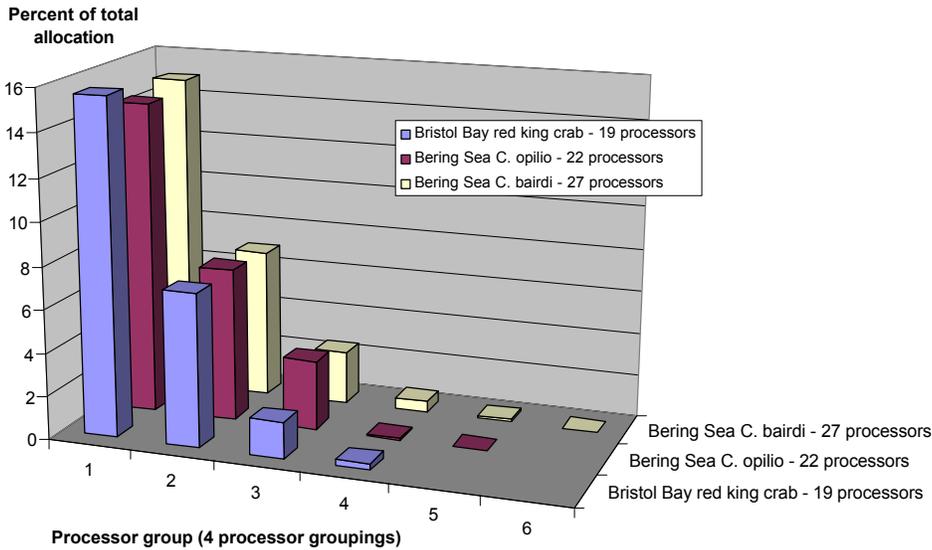


Figure 7 Processor share allocations in the Bristol Bay red king crab, Bering Sea c.opilio and the Bering Sea c.bairdi crab fisheries. Source NPFMC crab rationalization database, 2001, Version 1

Commercial Operators Annual Report, fish tax records, or other evidence of direct payments to fishermen. This rule reflects an intention to allocate shares to the entity which purchased the crab and funded the processing activity. Several processors have made “custom processing” arrangements with other processors, under which one entity processes crab on behalf of another entity. Under these arrangements, the processing activity is often funded by an entity other than the entity taking

delivery of the crab.¹³

Figures 7, 8, and 9 show the distribution of processing share allocations.¹⁴ As with harvesters, the allocations are grouped into 4 processor groupings to protect confidentiality. Processor groupings were made in descending order from the largest estimated allocation to the smallest allocation. The last and smallest grouping contains between 4 and 7 estimated allocations, since at least 4 persons’ activities must be included under confidentiality rules. The estimated allocation shown for each 4 vessel group is the average allocation to members of that group. Allocations are shown as shares of the total processing allocation. Each legend shows the total number of vessels that would receive an allocation in each fishery. Because allocations are averages it is possible, particularly in the grouping with the largest allocation,

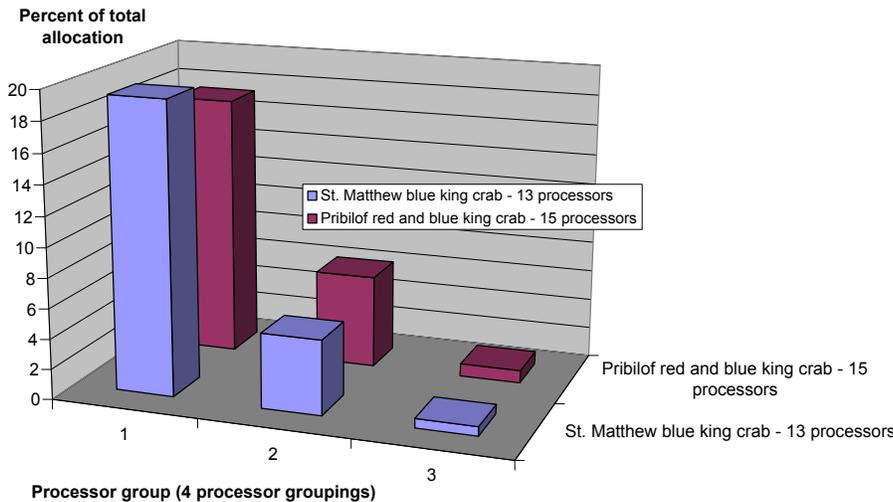


Figure 8 Processor share allocations in the St. Matthew blue king crab and Pribilof red and blue crab fisheries. Source: NPFMC crab rationalization database, 2001, Version 1

that the largest allocation to a

¹³ The quantitative analysis of the allocations relied strictly on fish ticket data, and therefore does not show custom processing relationships in the fishery. Detailed information on custom processing is not readily available. Available information shows that custom processing accounts for between 7 and 10 percent of all processing in the BSAI crab fisheries.

¹⁴ Processor allocations are aggregated at the company level based on processor facility ownership information verified with participating processors.

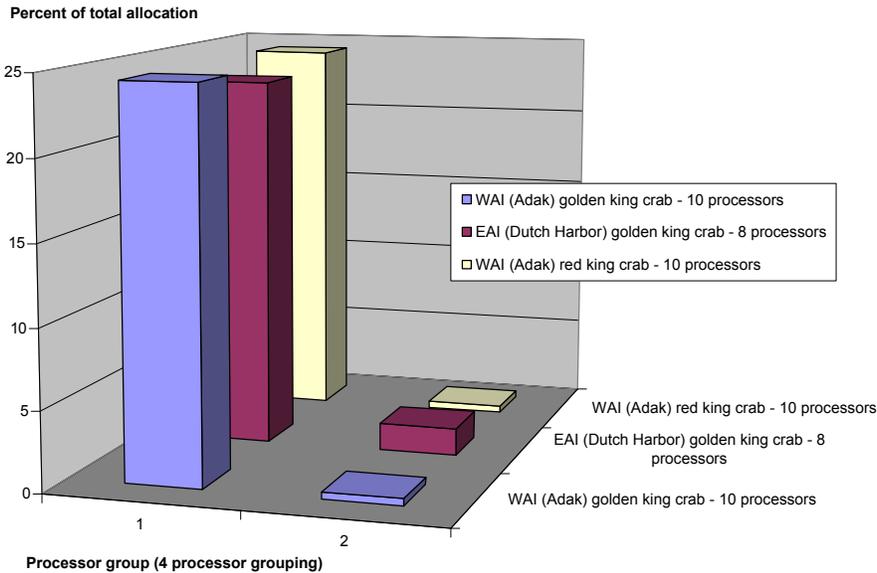


Figure 9 Processor allocations in the Aleutian Island king crab fishery
 Source: NPFMC crab rationalization database, 2001, Version 1

single processor is significantly different from the average of those four processors. In addition to the graphs, Table 5 shows the average of the four largest allocations, the mean allocation, and the median allocation under each option.¹⁵

Processor allocations are substantially more concentrated than harvester allocations. This relative concentration occurs for two reasons. First and of greater importance, there are relatively fewer processors active in the fisheries than vessels active in the fishery. Second, more complete ownership information

is available concerning processors. Processor allocations were aggregated to the company level. Company ownership of facilities was determined based on existing records with the assistance of processor representatives.¹⁶ This allowed the analysts to obtain a fairly reliable ownership aggregation of facilities. Records of vessel ownership that are reliable are not available. Allocations of processing to catcher/processors are included and are calculated in the same manner as for floating and shore based facilities, but are not aggregated at the company level because of the lack of vessel ownership data.

As in the harvest sector, processing allocation concentration varies across fisheries. The Aleutian Islands fisheries have the greatest concentration, with the four largest allocations comprising in excess of 90 percent of the total allocation. The Eastern Aleutian Islands golden king crab fishery has the largest median allocation - 6 percent. Only 8 processors will receive an allocation in this fishery, so only 4 processors would receive allocations in excess of the median. In the Pribilof and St. Matthews fisheries, the allocations are slightly less concentrated with the four largest allocations making up between approximately 70 and 80 percent of the total allocation. These fisheries have median allocations of approximately 4 percent, showing that between 6 and 7 processors would receive allocations larger than 3 to 4 percent. In the Bristol Bay and Bering Sea fisheries, the allocations to the four largest processors is approximately 60 percent of the total allocation. The low medians of these allocations together with the total number of processors receiving allocations show that approximately 10 processors would receive allocations in excess of 1 to 2 percent. In addition, the graph of the allocations in these fisheries show that approximately 8 processors would receive allocations in excess of 5 percent.

¹⁵ The mean allocation is the average allocation. The median allocation is the allocation at the midpoint in the distribution, for which half of the allocations are larger and half of the allocations are smaller.

¹⁶ The facility ownership aggregations used by the analysts appear in Appendix 3-3 of the Council analysis of Crab Rationalization, which is attached as Appendix A of this document. Some of the companies on that list have common owners. Peter Pan and Steller Sea have some common ownership, as do Westward Seafoods and Alyeska Seafoods. Depending on the rules chosen for determining ownership for purposes of applying caps, these companies with common owners might be considered a single entity. These companies were considered separate entities for purposes of the AFA.

Processor shares would be transferable, including leasing of PQS (or equivalently, the sale of IPQs) subject only to use and ownership caps. IPQs would be usable at any facility of a processor without transfer. In addition, new processors would enter the fishery by purchasing PQS or IPQs or by purchasing crab harvested with Class B shares or CDQ crab.

Ownership of PQS would be limited to 30 percent of the outstanding PQS in a fishery.¹⁷ As with vertical integration caps, PQS ownership caps would be applied using a threshold rule for determining whether the shares are held by a processor and then the individual and collective rule for determining the extent of share ownership. Under the threshold rule, any entity with 10 percent or more common ownership with a processor is considered to be a part of that processor. Any direct holdings of those entities would be fully credited to the processor's holdings. Indirect holdings of those entities would be credited toward the processor's cap in proportion to the entities ownership. Initial allocations of shares above the cap would be grandfathered. In addition, in the *C. opilio* fishery no processor would be permitted to use in excess of 60 percent of the IPQs issued in the Northern region. Processing use caps for other species and regions were not included. The number of allocations in excess of the ownership cap in each fishery are shown in Table 5.

Table 5 Processor allocation statistics and share caps.

Fishery	Mean	Median	Average of four largest allocations	Number of processors	Allocations in excess of the 30% cap
Western Aleutian Islands (Adak) Golden King Crab	0.100	0.008	0.244	10	*
Western Aleutian Islands (Adak) Red King Crab ¹	0.100	0.008	0.244	10	*
Bristol Bay Red King Crab	0.053	0.017	0.156	19	0
Bering Sea <i>C. Opilio</i>	0.045	0.020	0.145	22	0
Bering Sea <i>C. Bairdi</i> (EBS Tanner Crab)	0.037	0.006	0.150	27	0
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	0.125	0.060	0.233	8	*
Pribilof Red and Blue King Crab	0.067	0.038	0.173	15	0
St. Matthew Blue King Crab	0.077	0.043	0.193	13	*

¹ Allocation is based on the WAI (Adak) golden king crab allocation.

² Withheld for confidentiality.

Sources: NPFMC Crab Rationalization Database, Version 1, 2001.

Catcher/processor provisions

Catcher/processers participate in both the harvest and processing sectors and therefore have a unique position in the program. A few provisions of the program have been developed to address this unique position. These provisions are intended to protect the historic role and participation of catcher/processers under the program. Catcher/processers will be allocated catcher/processor QS and corresponding catcher/processor IFQs under the program. These shares will carry both a harvest privilege and an accompanying on board processing privilege. To be eligible for catcher/processor shares, a person must be eligible for a harvest allocation by holding a permanent, fully transferable catcher/processor LLP license. In addition, the catcher/processor must have processed crab in either 1998 or 1999. These requirements parallel the harvester and processor eligibility requirements. Persons meeting these eligibility requirements will be allocated catcher/processor shares in accordance with the allocation rules for harvest shares for all qualified catch that was processed on board.¹⁸

¹⁷ As noted above, the Council will clarify its position on ownership and use caps at its October meeting. If the Council intends for ownership caps to apply to IPQ holdings, these caps are effectively use caps. If interpreted as such, the use cap on North shares in the Bering Sea *C. opilio* fishery would be an exception to the 30 percent cap on share ownership and use that is proposed for other fisheries.

¹⁸ Catcher/processers that meet only the harvest eligibility requirement would receive an allocation of catcher/vessel shares for any qualified catch. Likewise, catcher processors that meet only the processing eligibility requirement would receive only processor shares.

Participants that meet one but not both eligibility requirements would be allocated shares for the sector in which they meet eligibility requirements.

Since catcher/processor shares provide both harvesting and on board processing privileges, a person holding those shares may harvest and process crab under the allocation. In addition, holders of catcher/processor IFQs may choose not to process harvested crab, instead delivering that unprocessed crab to any other processor. Use of catcher/processor shares in this manner would be akin to the use of Class B harvest shares, which do not require the receiving processor to hold IPQs. Catcher/processor shares would not have regional designations, so the delivery of these shares will not be regionally limited.

Holders of catcher/processor shares may also sever the harvesting and processing privileges, thereby creating separate Class A catcher vessel QS and PQS. These newly severed interests would create a privilege to annual IFQ allocations and IPQ allocations, which could be held by different individuals. When severed, the resulting QS and PQS must be designated for a region with both shares taking the same regional designation. Allowing the conversion of shares permits a catcher/processor shareholder to realize the full value of shares and provides greater flexibility in using the privileges. Adding a regional designation would prevent the creation of a new class of shares—Class A shares without a regional designation—for which the market would be extremely limited.

Some catcher/processors currently accept delivery of crab from catcher vessels for processing. PQS will be allocated based on this activity to the extent that vessels are eligible and have qualified processing history. In addition, catcher/processor will be permitted to purchase additional PQS for processing on board, provided that processing takes place within 3 miles of shore in the applicable region. The requirement of processing within 3 miles of shore is intended to ensure that regional benefits of processing activity are received by the region. The various rules affecting catcher/processors are intended to retain the historic role of catcher/processors in the BSAI crab fisheries, while at the same time protecting the interests of communities and other participants and beneficiaries of the fisheries.

Cooperatives

The program would permit harvesters to form voluntary cooperatives associated with one or more processors holding PQS. Cooperatives are intended to facilitate efficiency in the harvest sector by aiding harvesters in coordinating harvest activities among members and deliveries to processors. Both sectors could realize efficiencies through well coordinated activities and flow of product. Harvesters can benefit by the cooperative relationship through which shares can be quickly traded under prearranged terms and conditions. These trades help harvesters consolidate small portions of their allocations on a single vessel when a small portion of each vessel's allocation is remaining. In the pollock cooperatives organized under the American Fisheries Act, harvesters have effectively coordinated harvests so that less than 1 percent of the TAC is unharvested. In the halibut and sablefish fisheries, which are managed with IFQs with limited leasing, harvesters have left more than 5 percent of the TAC unharvested. Processors can also benefit from cooperatives, which can coordinate deliveries so that processing crews and equipment have less down time between deliveries. Delivery coordination can also reduce queuing of harvesters waiting to offload their harvests, reducing deadloss of harvested crab.

A minimum membership of four unique QS holders would be required for cooperative formation. Cooperatives would be required to file a cooperative agreement with the Secretary of Commerce annually, after Council review. Once the filing is made, the cooperative would receive the annual allocation of its members in the applicable fisheries. Cooperative members would be permitted to leave a cooperative at any time after one season. Departing members would be permitted to retain their QS and the associated IFQ allocations, which they could bring to other cooperatives. Processors that associate with cooperatives would not be members of the cooperatives but would remain independent. A cooperative would not be bound to deliver any harvests to

an associated processor provided that the cooperative complies with any delivery requirements of the program associated with the harvest and processing shares. Processor association, however, is intended to facilitate delivery coordination.

Harvesters within a cooperative would be permitted to transfer shares freely and vessels on which cooperative shares are fished would not be subject to use caps. Shares would also be freely transferable between cooperatives, but these transfers would require filing with NOAA Fisheries Restricted Access Management office before shares could be fished.

New processors would be permitted to enter the fishery by purchasing PQS or IPQs, by purchasing crab harvested with Class B shares (which do not require delivery to a processor holding IPQs), or by purchasing CDQ crab. Entering processors would be permitted to associate with a cooperative and take delivery of crab harvested with Class A shares to the extent that they own IPQs to process that crab. Custom processing would be permitted under the cooperative program to facilitate greater efficiency in the processing sector.

Binding Arbitration

BSAI crab fisheries have a history of contentious price negotiations. Harvesters have often acted collectively to negotiate an ex vessel price with processors, at times delaying fishing to pressure price concessions from processors. Participants in both sectors are interested in ending that practice in the rationalized fishery. Because the rationalization program is novel, the effects on price negotiations cannot be fully predicted. To ensure fair price negotiations under the new program, the Council has included a provision for binding arbitration for the settlement of price disputes. The binding arbitration system is intended to compel shareholders to offer reasonable terms and, if necessary, establish reasonable price when a negotiated price cannot be reached. In a system with a one-to-one relationship of harvest and processing shares, the market of persons for a shareholder to transact with will be limited. The concern is most acute for the shareholders from each sector that are last to contract for their shares. The system of arbitration would be available to settle price disputes between holders of Class A harvest shares (that restrict delivery to holders of unused IPQs) and holders of processor shares, because these are shares for which markets are limited. The Council has appointed a committee that is currently developing detailed options for the system of binding arbitration. After analysis, the Council will select a preferred arbitration option to incorporate into the rationalization program. The committee's primary objective in developing an arbitration program has been to ensure that the system is adequate to protect all participants in the fisheries. Under all of the options, each processor would act independently in its price negotiations with harvesters to prevent collusive behavior on the part of processors. Harvesters could act collectively as permitted by the 1934 Fishermen's Marketing Act.

NOAA General Council identified two concerns related to binding arbitration, which the committee has made significant efforts to address. The first concern is that administration of the arbitration program by National Marine Fisheries Service (NOAA Fisheries) or another federal agency would be very cumbersome, as each program change would require public decision making and the use of the related public notice and procedure for adopting the change. The committee has identified an approach to management, under which the Council and NOAA Fisheries would approve the framework and structure of the program. Direct program administration could be accomplished by participants. The program could be monitored through a series of reporting requirements, which could be relied on together with the public Council process to identify areas of program modification and adaptation. The second stated concern of NOAA General Counsel could also be addressed by this framework structure and monitoring approach. The second concern is that the program would entail over-involvement of the agency in private contracting and markets. The indirect management and monitoring of the arbitration process suggested by the committee would enable adequate oversight of the arbitration process, without over-involvement of the agency in private transactions. In short, the committee believes that it has developed a system of oversight and monitoring of the arbitration process that preserves an adequate and acceptable level of government involvement. A similar administrative system used for the

oversight of AFA cooperatives has proven highly successful. The committee believes the suggested framework would achieve similar success.

Captains Shares and the Crew Loan Program

To protect captains' historical interests in the fisheries, eligible captains would be allocated 3 percent of the TAC under the program. To be eligible for an allocation a captain would be required to demonstrate both historical dependence on the fishery and recent participation. Allocations to captains would be based on participation in landings during the same qualifying years applicable to QS allocations. To ensure that these captain share allocations benefit at sea participants in the fisheries, holders of the underlying QS would be required to be on the vessel harvesting the IFQs. Additional provisions concerning the allocation of shares to captains, including rules governing eligibility for an allocation and transferability, are to be developed by a committee to be considered by the Council for incorporation into the rationalization program.

To further aid captains and crew a low interest loan program (similar to the loan program under the halibut and sablefish IFQ program) would be created. This program would be funded by 25 percent of the funds collected under the fee program applied to shareholders in the BSAI crab fisheries.

Regionalization

To protect communities from the disruption of the current pattern of landings and processing that might be caused by changing the management of the BSAI crab fisheries, the Council has included a regionalization program as a part of its preferred alternative for rationalization. Completely constraining the geographic movement of activities would likely overly restrict consolidation of activities that might be desirable for reducing capacity and gaining efficiency in both the harvesting and processing sectors under rationalization. The regionalization program that the Council developed divides the fishery into two regions, allowing movement of activities within each region. The limited restraint on consolidation is intended to balance community interests against the need for consolidation and efficiency that motivated the change to a rationalized fishery.

Class A harvest shares (which require delivery to a processor holding unused IPQs) and processor shares would be regionally designated under the program. Crab harvested with regionally designated shares would be required to be delivered to a processor in the designated region. Likewise, a processor with regionally designated shares would be required to accept delivery of and process crab in the designated region. Class B harvest shares would not be subject to regional landing requirements. Crab harvested with Class B shares could be landed at any location under the program. Permitting harvesters greater latitude for landing crab harvested with Class B shares is intended to both simplify the logistical restrictions created by the regionalization program and provide harvesters with a broader market for that crab.

Two regional designations would be created in most fisheries. The North region would be all areas on the Bering Sea north of 56°20' N latitude. The south region would be all other areas. The regional designation is intended to preserve the historic geographic distribution of landings in the fisheries. Communities in the Pribilof Islands are the prime beneficiaries of the regionalization of the program.

Shares of both sectors would be designated based on the location of the activity that gave rise to the allocation. For example, qualified catch delivered in a region would result in shares designated for that region. Discrepancies in the North/South allocations in the two sectors would occur because of the differences in qualified catch caused by the qualification requirements and differences in qualification years for the sectors. This discrepancy would be corrected by redesignation of a portion of the harvest sector allocation. Only persons receiving harvest share allocations in both regions would have a portion of their shares redesignated. The number of a person's shares redesignated would be proportional to the total allocation in the region.

The Council's rationalization program would create exceptions to the North/South regional designations. In the Western Aleutian Islands (Adak) golden king crab fishery, 50 percent of the Class A shares and processing shares would be designated as Western shares. The remaining 50 percent of the Class A share and processing share allocations would have no regional designation and would not be subject to a regional delivery requirement.¹⁹

A second exception to the regionalization program would be the Bering Sea *C. bairdi* fishery, which would have no regional designation. This fishery is anticipated to be conducted primarily as an incidental catch fishery with the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries making any regional designation operationally difficult and potentially overly restrictive. The regional distributions of the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries are likely to determine the regional land pattern in the Bering Sea *C. bairdi* fishery.

Table 6 shows the distribution of shares under the regionalization program in fisheries with the North/South regionalization. Certain processing activity could not be regionally designated for this report. This processing took place on floating processors and catcher/processors, both of which are mobile, complicating the regional designation. The table shows that processing in the two Aleutian Islands fisheries was conducted almost exclusively in the South region. Processing in the Bristol Bay red king crab fishery is also almost exclusively conducted in the South, with less than 10 percent of processing in the North. Processing in the Bering Sea *C. opilio* fishery is split almost evenly between the two regions. Processing in the Pribilof red and blue king crab and the St. Matthew blue king crab fisheries are more concentrated in the North region, where between 65 and 75 percent of all harvests are landed and processed.

Table 6 North/South Regionalization distribution of shares.

Fishery	Region	Share	Number of processors	Number of vessels
Western Aleutian Islands (Adak) Red King Crab	South	1.00*	8	24
	Unknown	*	2	6
Bristol Bay Red King Crab	North	0.095*	2	12
	South	0.905	15	245
	Unknown	*	7	46
Bering Sea C. Opilio	North	0.462	7	197
	South	0.468	18	209
	Unknown	0.070*	5	72
Eastern Aleutian Islands (Dutch Harbor) Golden King Crab	South	1.000	8	11
Pribilof Red and Blue King Crab	North	0.675*	4	74
	South	0.325	11	76
	Unknown	*	3	13
St. Matthew Blue King Crab	North	0.724	4	113
	South	0.276*	9	78
	Unknown	*	2	29

* Value suppressed for confidentiality. All asterisked values are combined in a single cell for each fishery.

Source: NPFMC Crab Rationalization Database, Version 1, 2001

Community Protection Options

In addition to the regionalization component, the Council action currently contains several different options intended to further protect communities. These will be evaluated as part of a trailing amendment package, including provisions requiring payments to communities by processors that wish to relocate processing activity, limits on pounds of IPQs that could be allocated in any season, and a first right of refusal to CDQ groups or community organizations for IPQs. If adopted these provisions would be intended to protect and grant benefits to individual communities (as opposed to regions) under the program.

¹⁹ The Council could apply this designation either to all individual allocations regardless of landings history or based on historical landings of individual participants.

Community Development Allocation

The program would also make changes in the allocations under the Community Development Quota program. The program would be broadened to include the Eastern Aleutian Islands (Dutch Harbor) golden king crab fishery and the Western Aleutian Islands (Adak) red king crab fishery. In addition, the allocations in all crab fisheries covered by the program would be increased to 10 percent from its current level of 7.5 percent.²⁰ CDQ groups would be required to deliver at least 25 percent of the allocation to shore based processors.

The Council motion also provides that an allocation would be made to the community of Adak from the Western Aleutian Islands (Adak) golden king crab fishery in an amount equal to the unused resource during the qualifying period. This allocation, however, would be capped at 10 percent of the total allocation in that fishery. Since approximately 12 percent of the GHL was unharvested during the qualifying period, the 10 percent cap would apply. This allocation to Adak is thought to be appropriate because that community was excluded from the CDQ program because of its history as a military community. The allocation to Adak is intended to stimulate economic activity, since the military has left the community leaving it with little economic base.

Sideboards to Protect Participants in Other Fisheries

Rationalization of the BSAI crab fisheries will affect the fishing patterns of current participants. Some participants may sell or lease their shares. Other participants could change the timing of their fishing. In either case, rationalization could allow BSAI crab fishers to increase participation in other fisheries. To protect participants in these other fisheries, the Council will evaluate sideboards in a trailing amendment package. Sideboards will be considered for the Gulf of Alaska groundfish fisheries and the Bering Sea Korean haircrab fishery, the fisheries that are most likely to experience an influx of effort as a result of the rationalization program.²¹

Crab harvests by vessels that participate in the Bering Sea pollock fisheries are currently limited by sideboard restrictions established under the American Fisheries Act. Likewise, the quantity of crab processed by entities that participate in the Bering Sea pollock fisheries are also limited by sideboards established under the AFA. Since the crab fisheries would be rationalized, these sideboard restrictions would be removed under the crab rationalization program.

Rationalizing the BSAI crab fisheries will likely provide the opportunity for fishing and processing firms to consolidate their BSAI crab operations. As firms consolidate, some assets may be freed up to participate in fishing or processing activities they have not historically, or they may increase their levels of participation in fisheries outside the crab rationalization program. To protect the historic participants in those other fisheries, the Council is considering placing limits on the BSAI crab industries participation in fisheries outside the rationalization program. These limits are referred to as sideboards.

After an initial review of the opportunities that firms participating in the BSAI crab fisheries would have to expand into other fisheries, the Council has asked for additional analysis of potential impacts on the Gulf of

²⁰ The increase would not apply in the Norton Sound fisheries, which are excluded from the rationalization program.

²¹ The Korean hair crab fishery is a small fishery that is not included in the Federal Management Plan. The fishery is currently managed by the State of Alaska.

Alaska groundfish fisheries and the Bering Sea Korean hair crab fishery. Other fisheries were determined to be adequately protected, given the current management measures²² already in place.

An analysis of the spillover impacts on the GOA fisheries (with emphasis on Pacific cod) as well as the Korean hair crab fisheries will be conducted prior to the release of the initial review draft of the EIS/RIR/IRFA in October 2002. Based on that analysis the Council will then be in a position to make a decision on the need for sideboard protections when it makes its final decision on the crab rationalization program. Sideboard protections could then be implemented as part of the overall crab rationalization program.

Data Collection

The Council approved the development of a comprehensive, mandatory data collection system as part of the rationalization program. As envisioned, the program will mandate the collection of data (including cost, revenue, ownership, and employment data) from both harvesters and processors that participate in the BSAI crab fisheries. The data would provide analysts, managers, scientists, and the Council with adequate information to study the impacts of the rationalization program and develop any future amendments to the program.

A group of economists and other fisheries managers has been working with industry to develop the data collection program. The inter-agency workgroup has developed the following recommendations for the program.

1. Statutes be changed to require (or at a minimum allow) NOAA Fisheries and the NPFMC to collect these data from fish harvesters and processors.
2. The requirement to collect these data should include a time certain start date when the data collection would commence.
3. The requirement to collect historic data should be included in any legislation authorizing this program.
4. Authority to protect the confidential data from forced public release should be included in the legislation.

Each of these points is discussed in more detail.

Implementing the proposed program would require changes to the Magnuson-Stevens Act as well as other laws governing the collection of data from fishermen and processors. Changes to the Magnuson-Stevens Act would be required in Section 303(b)(7) and Section 402(a). Section 303(b)(7) prohibits the Council and NOAA Fisheries from collecting economic data from fish processors. Section 402(a) prohibits the Council from requesting that the Secretary implement an information collection program for the fishery which would provide the types of "information that would disclose proprietary or confidential commercial or financial information regarding fishing operations or fish processing operations". Because other laws may also prohibit the Council and NOAA Fisheries from collecting these data, it may be appropriate to include a general statement that the authority and requirement to collect these data would supercede other Federal laws that may be in conflict.

Providing a time certain start date for the collection of these data would help to ensure that the program is implemented quickly. The goal of the program is to gather the data necessary to provide an understanding of

²²These measures include the License Limitation program (BSAI groundfish and scallop fisheries), Pacific cod allocations by gear type in the BSAI, AFA rationalization of the BSAI pollock fishery, and vessel length and gear restrictions in several State waters fisheries.

how crab rationalization changed the fishery and the impacts it has had on the participants²³. To accomplish this goal a time series of data that starts well prior to the implementation of the program is needed. Starting the program as soon as possible will help meet this objective.

Also related to the need to have adequate data on the fishery prior to implementation of crab rationalization is the request that NOAA Fisheries and the Council be authorized and required to collect historic data. Currently NOAA Fisheries and the Council are unable to require the submission of data related to the activity of harvesters and processors in previous years. The authority and requirement to collect these data would provide the information needed to better understand the pre-rationalization fishery. Requiring that the data are submitted would also help to protect the confidentiality of the data.

To provide persons supplying these data with an assurance that these data will be held as confidential, strong protections on their release need to be implemented. Members of industry have expressed concern that the sensitive data being requested might be released to persons²⁴ who were not initially intended to access the data. Alleviating these concerns is an important part of developing the data collection program. Authority to protect these data from forced release once collected by NOAA Fisheries and the Council would help reduce the concerns of industry. Well defined limits on the release of the data could also help the agencies in developing their data sharing agreement.

Program Review

Given the novelty of the program, the Council is acutely sensitive to the need for monitoring the program's success. Under the program, NOAA Fisheries Restricted Access Management in conjunction with the State of Alaska would be directed to produce annual reports concerning the program and a preliminary report on the program at three years. A full review of the program would be undertaken at the first Council meeting in the fifth year after implementation of the program. This fifth year review would be intended to objectively measure the success of the program in addressing the concerns and achieving the goals and objectives specified in the Council's problem statement and the Magnuson-Stevens Act standards. Impacts of the program on vessel owners, captains, crew, processors, and communities would be examined. The review would include an assessment of options to mitigate negative impacts of the program. Additional reviews would be conducted every five years.

Conclusion

In recent years, participants of the BSAI crab fisheries have experience economic hardships because of stock declines and overcapitalization. The Council has worked hard to address these problems, evaluating a variety of management changes over several years. Recognizing the problem, Congress directed the Council to evaluate several different rationalization alternatives, including individual fishing quotas, processor quotas, cooperatives, and the allocation of quotas to communities. In response, the Council developed a suite of alternatives for rationalization of the BSAI crab fisheries. After thorough analysis of the options and nearly three years of discussion by industry and Council committees, the Council selected a preferred alternative for rationalization of these fisheries. The preferred alternative is a carefully crafted program that balances the interests of several identifiable groups that depend on these fisheries. The program is a "voluntary three pie cooperative" with protections to harvesters, processors, communities, and captains. The novelty of the program has compelled the Council to include several safeguards into the program, including a binding arbitration program for the

²³ Participants include harvesters, processors, communities, and crew. To the extent possible impacts on related business would also be considered.

²⁴ Persons other than the staffs of federal and state agencies directly involved in the management of the fisheries under the Council's authority and their contractors.

resolution of price disputes and extensive data collection and review programs to assess the success of the rationalization program. These safeguards, together with the Council's continuing development of the program through a series of ongoing amendments and clarifications, demonstrate the Council's commitment to a fair and equitable rationalization program, which will protect the interests of all sectors that depend on the BSAI crab fisheries.

- 2) **COUNCIL UPDATE TO CONGRESS ON BSAI CRAB RATIONALIZATION PROGRAM, MAY 6, 2003.**

North Pacific Fishery Management Council

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May 6, 2003

Dear Senators and Representatives:

In June 2002, the North Pacific Fishery Management Council, by a unanimous 11-0 vote, identified a specific rationalization program as its preferred alternative for rationalization of the Bering Sea/Aleutian Islands (BSAI) crab fisheries. The identification of a preferred rationalization program for these fisheries occurred at the behest of stakeholders and Congress, who had directed the Council to analyze several specific approaches to rationalization, as part of the Consolidated Appropriations Act of 2001 (Pub. L. No. 106-554). In August 2002, the Council provided you the requested analysis of the rationalization alternatives. At that time, the Council also informed you that it had delayed specification of certain provisions of the preferred rationalization program to allow for additional input from communities, participants, and the public. The new provisions complete identification of the “three-pie voluntary cooperative program,” the Council’s preferred alternative, for rationalizing the BSAI crab fisheries. The new provisions address several critical aspects of the program, including:

1. A **binding arbitration program** developed by a stakeholder committee, establishes a procedure that will guarantee all harvesters and processors a fair ex vessel price and at the same time reduce price disputes. This multi-stage approach includes setting a preseason fleet wide benchmark price, a period of normal price negotiations, and final offer binding arbitration for participants unable to agree on terms of delivery. The determination of the non-binding benchmark price, which would inform negotiations and binding arbitration, would utilize a process suggested by the “Steele Amendment” under which the arbiter would consider high prices from the previous season’s binding arbitration. A clarification that only independent harvesters would receive B shares (which can be delivered to any processor regardless of processing share holdings) would further strengthen the independent harvester component of the fleet.
2. A **suite of community protections** including:
 - ▶ a two-year “cooling off period” during which processing shares must be processed in the communities where processing was historically conducted.
 - ▶ a right of first refusal in processing shares granted to community and Community Development Quota (CDQ) groups to protect communities that rely on crab processing.
 - ▶ a cap on the annual allocation of processing shares in the primary fisheries, which will increase competition for landings among processors and communities in years of high total harvests, without sacrificing the stability to processors and communities provided by processing share allocations.
 - ▶ community purchase rights that permit community and CDQ groups to purchase harvest and processing shares for the benefit of a community.
 - ▶ increased harvest share ownership caps for CDQ groups to permit CDQ groups to develop a larger interest in the fisheries to benefit their communities.

3. **The details of the captain and crew share (C share) allocation** including stringent “owner-on-board requirements” to ensure that C shares benefit active captains and crew.
4. **The details of sideboards** that will prevent participants in the crab fisheries from unfairly increasing their activities in other fisheries and protect communities dependent on these other fisheries
5. **The details of a comprehensive data collection program** to provide extensive information that will allow the Council to evaluate the impacts of the program in the future.

The arbitration program is one of several critical aspects of the program. The binding arbitration program is developed to balance the interests of the harvesting and processing sectors and to minimize price disputes. The negotiation process begins with a comprehensive market analysis and announcement of a non-binding benchmark price intended to inform both price negotiations and individual binding arbitration proceedings. The market report and price announcement provide an industry-wide indicator of a reasonable price. Use of that price to guide future binding proceedings will ensure that prices in individual transactions reflect industry standards and practices. A negotiation period follows these announcements during which parties are free to agree a price for deliveries. If the parties cannot reach a successful settlement, harvesters can unilaterally initiate a binding arbitration proceeding with any processor holding uncommitted processing shares.

The Council recognizes the importance of the binding arbitration system to all participants in the fishery. Because of the importance of the arbitration program to a fair balance of interests between the sectors, several arbitration structures were analyzed and considered by the Council, including a fleet wide arbitration program and the Steele Amendment, which would apply a highest arbitrated price to all arbitrated deliveries in each fishery. The arbitration system selected by the Council is a hybrid of several systems, including the fleet wide model and the “Steele Amendment”.

If the preferred arbitration program does not function as intended, the Council is committed to using a different arbitration structure to provide a fair price setting environment. Because of the completed analyses of these different structures, an alternative structure, such as the “Steele Amendment,” could be expeditiously adopted as part of the binding arbitration program should Council review of the program suggest that the arbitration program is not working as intended. If Congress approves this program, such explicit authority could be provided to the Council to ensure timely action to address problems that might arise.

Without doubt, this rationalization program is controversial. Yet, much of this controversy is generated by the Council’s insistence on recognizing and protecting the varied interests of those that depend on the fisheries, many of which would be neglected by a less comprehensive approach. While recognizing several competing interests, the program’s foundation is a cooperative structure that provides the opportunity for participants to realize benefits through synergies and coordination. In adopting this program the Council believes these interdependencies, rather than competitive conflict, will facilitate maximum benefits from this common resource. Similar benefits have been observed in the Bering Sea Pollock fishery under the AFA cooperatives.

The Council’s preferred alternative is a novel and innovative management program. The Council intends to assume responsibility for addressing any difficulties that arise under the program and is committed to rigorous periodic reviews. The comprehensive economic data collection program demonstrates the Council’s commitment to monitor performance of all aspects of the program, including the binding arbitration program. We hope that Congressional authorization of the program will provide explicit direction to the Council concerning its obligation to review and amend the program should any unanticipated negative impacts arise.

I have enclosed the Council's update on the preferred rationalization program, which summarizes the amendments that the Council has identified since the June 2002 meeting. Congressional authorization for the program, of course, is still necessary for adoption and implementation of the program. I hope the enclosed information is useful to the United States Congress as you consider legislation affecting these fisheries. Please contact our Council, through the office of the Executive Director, if you require further information.

Sincerely,

A handwritten signature in black ink, appearing to read "David Benton". The signature is fluid and cursive, with a long horizontal stroke at the end.

David Benton
Chairman

**Update on Bering Sea and Aleutian Islands Crab Rationalization Program
Submitted to the U.S. Congress, April 2003**

In June 2002, the North Pacific Fishery Management Council, by a unanimous 11-0 vote, identified a specific rationalization program as its preferred alternative for rationalization of the Bering Sea/Aleutian Islands (BSAI) crab fisheries. The identification of a preferred rationalization program for these fisheries occurred at the behest of stakeholders and Congress, who had directed the Council to examine fisheries under its jurisdiction to determine whether rationalization is needed and provide an analysis of several specific approaches to rationalization, as part of the Consolidated Appropriations Act of 2001 (Pub. L. No. 106-554). In August 2002, the Council provided you the requested analysis of the rationalization alternatives. At that time, the Council also informed you that it had delayed specification of certain provisions of the preferred rationalization program to allow for additional input from communities, participants, and the public. This report is to inform you that, after receiving input from stakeholder committees and a series of meetings, the Council has completed the development of all provisions of the preferred rationalization program. This report supplements the Council's report to Congress from August 2002 by providing a brief summary of the provisions of the Council's preferred rationalization alternative selected by the Council since its June 2002 meeting.

The new provisions complete the balancing of several different interests of the preferred alternative, a "three-pie voluntary cooperative program," identified by the Council last year. While recognizing several competing interests, the program's foundation is a cooperative structure that provides the opportunity for participants to realize benefits through synergies and coordination. These interdependencies, rather than competitive conflict, will facilitate maximum benefits from this common resource.

The Council developed the preferred alternative over the course of several years. The Council appointed a broad-based stakeholder committee in December of 2000 that developed alternatives for Council consideration, including a two-pie IFQ program with regionalization, on which the preferred alternative is based. A list of committee members is included in Attachment A. After considering several draft analyses, hearing hundreds of hours of public testimony, and refining the alternatives at several meetings, the Council identified the framework and most of the details of its preferred alternative at its June 2002 meeting. At that time, the Council deferred its decisions concerning some aspects of the program to provide industry, communities, the general public and other stakeholders with further opportunity to provide input. The Council appointed committees to develop options for four different components of the rationalization program, binding arbitration, community protections, captain and crew shares, and data collection. A list of the members of these committees is also included in Attachment A. At its April 2003 meeting, the North Pacific Fishery Management Council completed the process of selecting a preferred rationalization alternative for the Bering Sea/Aleutian Islands crab fisheries. Relying on input from the committees and the public and subsequent analyses, the Council developed several additional provisions including:

- several provisions to protect community interests,
- a binding arbitration program to facilitate price negotiating and to resolve price disputes,
- a program that would allocate a portion of each fishery for the exclusive use of active captains and crew,
- measures to strengthen the independent harvester component of the fleet by allocating B shares to only independent harvesters
- a set of sideboards to protect participants in other fisheries, and

- a comprehensive data collection program to aid in Council review of the program.

These measures are discussed more fully below.

Price Setting and Binding arbitration

The Council's preferred alternative provides for the allocation of both harvest and processing shares. Class A harvest shares would be allocated for 90 percent of the total allowable catch (TAC) and would require delivery to a processor holding unused processing shares. The remaining 10 percent of the TAC would be allocated as Class B harvest shares, which can be delivered to any processor. At the April meeting, the Council took action to clarify that B shares would go only to independent harvesters. This was intended to strengthen the hand of harvesters in price negotiations and promote the economic well-being of the independent harvester fleet.

Processing shares would be allocated for 90 percent of the TAC, creating a one-to-one relationship between Class A harvest shares and processing shares. The protracted season in a rationalized fishery and the one-to-one relationship of harvest shares to processing shares limit markets available to participants in both sectors. To address potential price disputes and avoid disruptive strikes, which have occurred in the past, a broad-based industry committee developed a set of options for binding arbitration. From those options, the Council selected an arbitration program that is intended to facilitate price negotiations and minimize price disputes, while providing an effective forum for resolution of any disputes.

The arbitration program would apply only to A shares, which require delivery to a holder of processing shares. The arbitration standard, supported by a consensus of the industry committee, directs the arbitrator to identify a price that preserves the historic division of first wholesale revenues between the two sectors. Industry participants supported the historical division of revenues as a fair method of preserving the balance of interests of the two sectors in the fisheries. The arbitrator would be permitted to consider other relevant factors, such as changes in product markets and prevailing prices, when applying this standard.

The price setting and arbitration system consists of three parts. The first part is the setting of a benchmark price by an independent market analyst and arbitrator. This benchmark price would inform the second step of the process which is independent price negotiations among the participants in the fishery. These would be price negotiations similar to existing practices in the fishery. If these negotiations fail, then a binding arbitration mechanism is available to resolve disputes. The Council looked on this third step as a last resort when normal negotiations fail, and the program design reflects this intent.

The first step in the price settlement process would be the development of a market report and a non-binding price formula by an industry selected market analyst and arbitrator. The Council incorporated the methodology of the "Steele Amendment" into this stage to provide more clarity and direction in this process. In this process, the arbitrator who develops this non-binding price formula would consider the outcome of the binding arbitration proceedings from the previous year. Specifically, the highest arbitration price outcomes that apply to at least 7 percent of the market would be considered (as 7 percent of the market is viewed as sufficient to demonstrate a market trend that might appropriately affect all arbitrated prices). The non-binding price formula is intended to provide a benchmark price that will be a starting point for negotiations and minimize the number of price disputes as negotiations progress. Participants are provided with latitude to settle a price that varies from the announced non-binding price to accommodate individual circumstances, such as delivery timing and location.

After a negotiating period, if normal price negotiations fail, harvesters can unilaterally initiate a binding arbitration proceeding with any holder of uncommitted processing shares by committing deliveries to that processor. The non-binding benchmark price would inform the arbitrator as to a reasonable price for deliveries. This benchmark price, which would be using the arbitration standard and considering the methodology of the so-called Steele Amendment, would not be binding but would provide a clear baseline for consideration by the arbitrator in the binding arbitration proceedings. The final arbitrated delivery price could be changed by the arbitrator to accommodate the circumstances of the transaction after considering the benchmark price and the standards for arbitration. The arbitration proceeding would be final offer, under which the arbitrator is limited to choosing between two final offers submitted, one from each party.

Recognizing the importance of the price setting process to all participants in the fishery, the Council went beyond simple binding arbitration and adopted this multi-stage approach. Because of the importance of the arbitration program to a fair balancing of interests between the sectors, several arbitration structures were analyzed and considered by the Council, including a fleet wide arbitration program and a binding form of the Steele Amendment, under which the highest arbitrated price would apply to all arbitrated deliveries in each fishery. As noted, the Council chose to incorporate this Steele Amendment process into the development of the pre-season benchmark price. If the preferred arbitration program does not function as intended, the Council is committed to using a different arbitration structure to provide a fair price setting environment. Because of the completed analyses of these different structures, an alternative structure, such as the “Steele Amendment,” could be expeditiously adopted as part of the binding arbitration program should Council review of the program suggest that the arbitration program is not working as intended.

Summary of community protection measures

The preferred rationalization program balances the interests of several communities that have depended on the Bering Sea/Aleutian Islands crab fisheries.¹ The Pribilofs depend on the crab fisheries as their economic base and could suffer from consolidation of activities in ports in the Aleutians and Alaska Peninsula that might be stimulated by slowing the race for fish. Adak is developing its crab industry after the recent departure of the military. Dutch Harbor has long depended on the crab fisheries and is home to several processors that support fleets in many fisheries. King Cove is highly dependent on a single processor active in crab and groundfish fisheries. Kodiak, historically depended on crab fisheries in the Gulf of Alaska, has maintained an interest in the more distant Bering Sea crab fisheries through its fleet and some of its processors. The community protection measures attempt to balance these competing community interests while allowing the participants to develop efficiencies in the fisheries. In assessing community interests it is important to note that the gains of one community are the losses of another community. Many of the measures are intended to provide community protections absent in a traditional harvester-only Individual Fishing Quota (IFQ) program.

The allocation of 90 percent of the TAC as Class A harvester share, which must be delivered to a holder of processing shares, is intended to support communities' historic participation by tying quota to community-based processing. The allocation of processing shares for 90 percent of the TAC is intended to provide stability for the processing sector that maintains infrastructure in communities. The remaining 10 percent of the TAC would be allocated to harvesters as open delivery shares to provide economic opportunity for harvesters and communities that wished to compete for those deliveries. The allocation scheme is similar to the 90/10 split of the AFA pollock

¹ In addition to these community level protections, processing shares and the corresponding harvest shares are regionally designated requiring landing and processing in the region of the historic processing activity.

fishery under which each cooperative is required to land 90 percent of its harvests with its affiliated processor. The AFA structure has benefited harvesters, processors, and BSAI pollock dependent communities.

A two-year “cooling off period” would be established during which processing shares cannot be relocated from the community where the historical processing occurred that led to the allocation. The “cooling off period” is intended to provide a period of general stability for processors and communities to adjust to the program. At the beginning of share-based management, trading of shares could lead to rapid consolidation in the processing sector, as some processors choose to exit the fisheries. Although trading will be permitted during the “cooling off period,” the requirement that shares stay in a community will provide communities and processors with the opportunity to work together to determine whether activity can be maintained in the community under the new management structure. This period should allow for thoughtful long range planning on the part of communities and processors.

A right of first refusal will be granted to community and Community Development Quota (CDQ) groups from communities with significant crab processing history on the sale of any processing shares for use outside of the community. The right of first refusal is a reasonable compromise reached by a committee comprised of representatives of communities, processors, and harvesters. The provision provides flexibility for companies to consolidate operations to achieve efficiencies, while providing a community and CDQ groups with a meaningful right to intervene on behalf of a community, if a local processor intends to sell its interest in the crab fisheries. A second right of first refusal would be granted to community groups from communities in the Gulf of Alaska with significant crab processing history on processing shares that are allocated based on processing history in Gulf of Alaska communities with minor processing activity in the crab fisheries. This provision is intended to aid Gulf of Alaska communities that wish to enhance their dependence on processing in the crab fisheries.

Caps on the amount of IPQs (or the annual allocation of processing shares) would be established in the two largest fisheries, the Bristol Bay red king crab and the Bering Sea *C. opilio* fisheries. In years of low abundance processor shares will provide stability to the processing sector and historically dependent communities. As stocks increase the caps will limit the allocation of processing shares providing opportunity for new processors and/or communities to participate and limits any potential windfall to historic participants. In the Bering Sea *C. opilio* fishery, the proposed 175 million pound cap was exceeded 5 times between 1990 to 2000 (slightly less than 50 percent of the seasons). Bristol Bay red king crab 20 million pound cap was exceeded 11 times in the last 33 years (33 percent of the seasons).

Community and CDQ groups would be permitted to purchase processing shares to enhance processing activity for their communities. In communities with significant history in the fisheries, these groups would be exempt from sea time requirements allowing their purchase of harvest shares. Groups would be required to manage and use the shares for the benefit of community residents. CDQ groups, who act on behalf of the many residents of their communities, would be governed by higher ownership caps than individuals purchasing shares in the fisheries. These higher caps are intended to provide CDQ groups with the latitude necessary to develop a consolidated interest in the fisheries adequate to forward the interests of residents of the Western Alaskan CDQ communities.

The details of the captain and crew share (C share) allocation

The captain and crew share program will create a separate class of shares (C shares) that will be allocated to eligible captains. This three percent allocation will require the shareholder to be onboard the vessel fishing the shares and can be transferred only to active participants in the crab fisheries. These “owner-on-board” requirements should translate into share ownership by both captains and crew. Ownership caps enacted in the

program are intended to ensure that a reasonable number of active captains and crew benefit from C share ownership.

The details of sideboards

Sideboard protections that limit participation in groundfish fisheries will apply to all vessels that receive an allocation in the *C. opilio* fishery. The sideboards will restrict these vessels to their historic harvests in all Gulf of Alaska groundfish fisheries (except the sablefish fishery, which is subject to the IFQ program harvest limitations). Vessels with minimal *C. opilio* harvests and substantial cod harvests would be exempt from the sideboard caps. In addition, vessels with minimal total groundfish landings in the qualifying period would be prohibited from harvesting cod from the Gulf of Alaska. These sideboards should be adequate to protect groundfish participants from an influx of effort because of excess vessels being removed from the crab fisheries upon implementation of the rationalization program.

The details of a comprehensive data collection program

A program to collect economic data from harvesting and processing sectors would be used to evaluate the success of the rationalization program. The program would collect revenue, employment, and variable cost data and any fixed cost data necessary to analyze variable costs. A third party entity will collect the data and provide it to analysts in a blind format to ensure confidentiality.

Conclusion

These additional provisions demonstrate the Council's continuing commitment to balance the interests of those who depend on the Bering Sea/Aleutian Islands crab fisheries. The binding arbitration program is intended to protect both harvesters and processors from failed price negotiations by providing an alternative to strikes. Community protections are intended to safeguard those communities that relied on these fisheries to support their local economies. Requirements that holders of C shares actively fish those shares will ensure that those shares protect the interests of captains and crew. Sideboards will restrict participants in the BSAI crab fisheries from increasing harvests in other fisheries to protect historic participants in those other fisheries. The data protection program will facilitate review of the program to allow the Council to mitigate any unanticipated consequences. These new provisions are an integral part of the Council's rationalization program. The program, as a whole, is a coherent management plan for these fisheries that balances the manifold interests of those who depend on these fisheries, while maintaining the environmental integrity of the fisheries demanded by the public.

Attachment A
Update of BSAI Crab Rationalization Report to Congress
Council Committees Related to Crab Rationalization

Crab Rationalization Committee

Dave Hanson – Chairman

Gordon Blue

Paula Brogdon

Tom Casey

Terry Cosgrove

John Garner

Don Giles

Leonard Hertzog

John Iani

Kevin Kaldestad

Frank Kelty

Linda Kozak

Brent Paine

Gary Painter

Joe Plesha

Dale Schwarzmiller

Jeff Steele

Jeff Stephan

Tom Suryan

Steve Minor

Arni Thompson

Karen Wood-Dibari

BSAI Crab Binding Arbitration Committee

John Garner – Co-chairman

Jake Jacobsen – Co-chairman

Gordon Blue

Lance Farr

Walt Christensen

Terry Leitzell

Garry Loncon

Gary Painter

Joe Plesha

Joe Sullivan

Attachment A (continued)
Update of BSAI Crab Rationalization Report to Congress
Council Committees Related to Crab Rationalization

BSAI Crab Community Protection Committee

Dave Hanson – Chair
Linda Freed
John Garner
Jon Hickman
Jeff Steele
Pat Carlson
Bob Juettner
Max Malevansky
Frank Kelty
Steve Minor

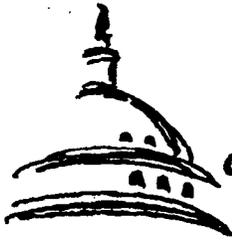
BSAI Crab Captain QS Committee

Stosh Anderson - Chairman
Tom Suryan
Rick Shelford
Coleman Anderson
Barney Olsen
Dan Jansen
Walter Christensen
David Hillstrand
John Klemzak
Tom Gibson
Kevin Kaldestad

BSAI Crab Data Collection Committee

John Garner - Co Chairman
Gary Painter - Co Chairman
Terry Cosgrove
Kevin Kaldestad
Terry Leitzell
Joe Plesha
Glenn Reed
Doug Wells

- 3) **CONGRESSIONAL RESEARCH SERVICE MEMORANDUM TO HONORABLE
PATTY MURRAY, JULY 16, 2002.**



**Congressional
Research
Service**

Memorandum

July 16, 2002

TO: Honorable Patty Murray
Attention: Anna Knudsen

FROM: Janice E. Rubin
Legislative Attorney
American Law Division

SUBJECT: Whether the Fishery Management Regime for Allocating Alaskan Crab Resources Proposed by the North Pacific Fishery Management Council Violates the Federal Antitrust Laws

This brief memorandum follows and expands upon a telephone conversation with a staff member in your office in which we were asked to review and evaluate differing assessments of the antitrust implications of a proposal for managing the Bering Sea/Aleutian Islands crab harvest. Under that proposal (greatly simplified here in the interests of time and space), put forward by the North Pacific Fishery Management Council (NPFMC or "Council") in an attempt to rationalize the issues associated with the crab harvest, including those associated with the processing of the crab harvest, individual crab fishermen would be allotted certain quotas, and directed to deliver a large proportion of those quotas to processors also subject to quotas; the proposal contemplates binding arbitration to resolve any disputes concerning the price(s) which harvesters receive from processors. In other words, NPFMC's plan would impose the quotas it proposes, obviating the ability on the part of private entities (actual or potential competitors) to agree among themselves concerning the establishment of those quotas.¹ Objections to the proposal have been raised, nevertheless, alleging that it would result in violations of the federal antitrust laws because it contemplates the kind of market division the antitrust laws prohibit. We conclude for the reasons given below that the federal antitrust laws are likely to be deemed irrelevant in the context of the subject proposal, and provide some examples of similar activity to support our conclusion.

The North Pacific Fishery Management Council was authorized in 1976 pursuant to 16 U.S.C. § 1852 (§ 301 of P.L. 94-265, (*Magnuson-Stevens*) *Fishery Conservation and*

¹ Although a complete discussion of the so-called *Noerr-Pennington* doctrine is beyond the scope of this memorandum, suffice it to say that even the concerted, anticompetitive efforts of private individuals in lobbying legislative or other governmental bodies to take actions that would violate the antitrust laws if carried out by the private entities in the absence of governmental action are immune to the antitrust laws. *Cf. Eastern R.R. Presidents Conf. v. Noerr Motor Freight, Inc.*, 365 U.S. 127 (1961), *United Mine Workers of Am. v. Pennington*, 381 U.S. 657 (1965).

Management Act, 16 U.S.C. §§ 1801 *et seq.*, hereinafter *Magnuson Act*), which provides for 11 voting members, to include "the principal State official with marine fishery management responsibility and expertise in each constituent State [Alaska, Washington, Oregon] ..., the regional director of the National Marine Fisheries Service [of the National Oceanic and Atmospheric Administration]..., and members appointed by the Secretary of Commerce "from a list of individuals submitted by the Governor of each applicable constituent State."² Pursuant to 16 U.S.C. § 1854, each fishery management proposal of a Council shall be transmitted to the Secretary of Commerce, who shall, after publication in the Federal Register and opportunity for public comment, "approve, disapprove, or partially approve a plan"³ According to an Opinion of the Office of Legal Counsel advising as to the status of the Councils' litigating authority, "[t]he Councils have neither express statutory authority nor that freedom from *executive control* that would give rise to some inference supportive of their having independent litigating authority," especially given that the Councils' recommendations cannot be implemented absent approval by the Secretary of Commerce.⁴ In another Opinion, the Office of Legal Counsel concluded that the facts that "the Councils were established to execute a Federal function ... [and] to assist the Secretary of Commerce in his official endeavors ... militates toward a finding that they are 'Federal Agencies' under the Federal Tort Claims Act and are protected by that degree of immunity the Constitution and the Federal statutes provide Federal agencies."⁵

When it enacted the *Magnuson Act*, Congress stated that a primary purpose was "to establish Regional Fishery Management Councils to exercise sound judgment in the stewardship of fishery resources through the preparation, monitoring, and revision of such plans under circumstances (A) which will enable the States, the fishing industry, consumer and environmental organizations, and other interested persons to participate in, and advise on, the establishment and administration of such plans, and (B) which take into account the social and economic needs of the States."⁶

While we are aware of no direct language to the effect that the federal antitrust laws are not applicable to the Federal Government or its agencies, there is sufficient indirect case language to establish that fact. In a landmark case in which several oil companies were charged with (and found guilty of) price fixing on account of their attempts to stabilize gasoline prices by means of removing excess supply from the market, the Supreme Court said,

[as] to knowledge or acquiescence of officers of the Federal government little need be said. The fact that Congress through utilization of the precise methods here employed could seek to reach the same objective sought by respondents does not mean that respondents or any other group may do so without specific Congressional authority.⁷

In a case involving a challenge to actions of the Interstate Commerce Commission's approval of certain motor-carrier mergers, which mergers would probably have constituted violations of the antitrust laws if undertaken solely by the private carriers, the Court's language is

² 16 U.S.C. §§ 1852 (b)(1)(A), (b)(1)(B), (b)(2)(C).

³ 16 U.S.C. §§ 1854(a)-(c).

⁴ 4B Op. O.L.C. 780 (1980) (emphasis added).

⁵ 1 Op. O.L.C. 240 (1977).

⁶ 16 U.S.C. § 1801(b)(5).

⁷ *U.S. v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 195 (1940).

instructive and not distorted by substituting "Secretary" for "Commission," "proposal" for "consolidation," and "marine management" for "transportation":

"In short, the Commission must estimate the scope and appraise the effects of the curtailment of competition which will result from the proposed consolidation and consider them along with the advantages of improved service, safer operation, lower costs, etc., to determine whether the consolidation will assist in effectuating the over-all transportation policy.⁸

In a footnote to a case concerning allegations that certain labor union activities constituted a violation of the antitrust laws, the Court noted that

... clearly the law was inspired by the predatory competitive tactics of the great trusts and its primary purpose was the maintenance of the competitive system in industry.⁹

Supreme Court language in the context of its line of "state action" cases, establishing both that the federal antitrust laws are not applicable to either the states themselves, or to private individuals or entities acting either at the direction of the state or pursuant to its authorization, is also instructive. In *Parker v. Brown*, generally considered to be the seminal "state action" case, for example, the Court was reviewing the antitrust legality of a California prorate plan for the marketing of raisins. Pursuant to the plan, as set out in the California Agricultural Prorate Act, a 9-member Agricultural Prorate Advisory Commission (eight of whose members were appointed by the governor and confirmed by the State Senate, the State Director of Agriculture being the ninth member, *ex officio*)¹⁰ was given authority to grant the petition of at least 10 producers for creation of a prorate marketing plan and to approve or modify the prorate plan formulated by a Commission-appointed program committee upon making a finding that the plan was "reasonably calculated to carry out the objectives of the Act" (not at all unlike the mandates in 16 U.S.C. § 1651(a) that "[a]ny fishery management plan prepared, and any regulation promulgated to implement any such plan ... shall be consistent with [each of several enumerated] national standards for fishery conservation and management"; and in 16 U.S.C. § 1854(b)(1) that the Secretary evaluate NPFMC's proposed regulations to assure their "consistency with the fishery management plan"). The Court found no violation, emphasizing that

... it is plain that the prorate program was never intended to operate by force of individual agreement or combination. It derived its authority and its efficacy from the legislative command of the state and was not intended to operate or become effective without that command.¹¹

Even if the primary action is considered to be that of the affected private entities, given that it would be mandated (or at least authorized) by a governmental entity, the case law militates in favor of a finding of probable antitrust legitimacy. In *California Retail Liquor Dealers Assn. v. Midcal Aluminum, Inc.*, a case involving the wine-pricing system mandated by state statute, which required all wine producers and wholesalers to file price schedules with

⁸ *McLean Trucking Co. v. U.S.*, 321 U.S. 67, 87 (1944).

⁹ *Apex Hosiery Co. v. Leader*, 310 U.S. 469, 493 (fn. 11) (1940) (Citations omitted).

¹⁰ The Commission at issue in *Parker* was, seemingly, not entirely dissimilar to the NPFMC.

¹¹ *Parker v. Brown*, 317 U.S. 341, 350.

the state, and which schedules were solely the products of the producers and wholesalers with no input or supervision of the state, the Court refused to grant the exemption:

The state simply authorizes price setting and enforces the prices established by private parties. The State neither establishes prices nor reviews the reasonableness of the price schedules The State does not monitor market conditions or engage in any 'pointed reexamination' of the program.¹²

According to the State of Alaska, the North Pacific Fishery Management Council recognizes its "continuing obligation to review program performance ... and ... WILL make necessary adjustments to achieve stated goals and minimize unintended consequences."¹³

To summarize, NPFMC was established in a federal statute; is considered an agency of the Federal Government; its proposal (1) contemplates no private, anticompetitive action and (2) must be approved by the Secretary of Commerce before it can become effective; the federal antitrust laws are applicable neither to the federal nor state governments; and, even in the event that any private action occurs or is required, it is exempt from antitrust scrutiny if it is the product of a "clearly articulated" legislative policy and is "actively supervised" by an official entity. Although it is undoubtedly true that the quota system envisioned will result in a *de facto* division of markets for crab harvesting and processing, it is not a result, therefore, that would appear to violate the antitrust laws.

You have asked that we provide some examples of other, similar programs that have been, or are currently, in effect. The raisin prorate program created by the California Agricultural Prorate Commission has already been cited and discussed above. In addition, we note the existence of the scheme of milk marketing orders promulgated pursuant to the *Agricultural Marketing Agreement Act of 1937 (AMAA)*,¹⁴ pursuant to the policy objectives set out in 7 U.S.C. § 602, *inter alia*, in order to regulate prices in an otherwise price-disorderly market. The Supreme Court, in 1939, in *U.S. v. Rock Royal Co-op, Inc.*, recognized the Act's constitutionality (challenged as violating the Commerce Clause):

The Act authorizes and the Order [being challenged] undertakes the fixing of minimum prices for the purchase of milk 'in the current of interstate or foreign commerce, or which directly burdens, obstructs, or affects, interstate or foreign commerce' in milk. ... The challenge is to the regulation 'of the price to be paid upon the sale by a dairy farmer who delivers his milk to some country plant.' It is urged that the sale, a local transaction, is fully completed before any interstate commerce begins and that the attempt to fix the price or other elements of that incident violates the Tenth Amendment, U.S.C.A. Const. But where commodities are bought for use beyond state lines, the sale is a part of interstate

¹² *California Retail Liquor Dealers Assn. v. Midcal Aluminum, Inc.*, 445 U.S. 97, 105-06 (1980) (footnotes omitted). In other words, the Court found, in order for the exemption to apply, the activity must not only be one "clearly articulated and affirmatively expressed," it must also be "actively supervised" by the state itself. 445 U.S. at 105.

¹³ Issue Papers for the Bering Sea/Aleutian Islands Crab Rationalization Program adopted by the NPFMC, June 2002.

¹⁴ 7 U.S.C. §§ 601 *et seq.*

commerce. ... Power to establish quotas for interstate marketing gives power to name quotas for that which is to be left within the state of production.¹⁵

In the course of its opinion, the Court also spoke to the issue of "lobbying" by affected entities:

If ulterior motives of corporate aggrandizement stimulated their activities, their efforts were not thereby rendered unlawful.¹⁶

¹⁵ 307 U.S. at 369-370 (citations omitted).

¹⁶ *Id.* at 360.

- 4) **COUNCIL LETTER TO U.S. DEPARTMENT OF JUSTICE, ANTI-TRUST DIVISION, APRIL 29, 2003.**

North Pacific Fishery Management Council

David Benton, Chairman
Chris Oliver, Executive Director



605 W 4th Ste 306
Anchorage, AK 99501-2252

Telephone: (907) 271-2809

Fax: (907) 271-2817

Visit our website: www.fakr.noaa.gov/npfmc

April 29, 2003

Mr. Roger Fones, Esq.
Chief, Transportation, Energy, and Agriculture Section
Antitrust Division
U.S. Department of Justice
950 Pennsylvania Avenue, N.W.
Washington, D.C. 20530

Dear Mr. Fones:

I am writing with regards to a pending antitrust analysis being prepared at the request of NOAA Fisheries and the North Pacific Fishery Management Council. In a letter dated January 9, 2003, James Walpole of NOAA General Counsel, on behalf of the Council, requested the Department of Justice, Antitrust Division to provide an opinion concerning the legality of certain aspects of a binding arbitration program under existing antitrust law. The binding arbitration program is a component of the Council's preferred management program for the Bering Sea/Aleutian Islands crab fisheries. Specifically, the Council requested an opinion concerning the potential sharing of historic price information by processors in the arbitration process. Lacking the specialized expertise to address this question, NOAA General Counsel referred the inquiry to the Department of Justice, Antitrust Division.

Our staff has had several discussions with representatives of the Antitrust Division since the initiation of their review of this question. These discussions have left us concerned about the scope of the proposed analysis, and the potential for that analysis to be misconstrued. Our request was for an analysis of the legality of certain provisions of the binding arbitration program under existing antitrust law. We have been informed that in addition to the requested legal analysis, the Antitrust Division intends to provide a 'competition advocacy letter', in essence a narrowly constructed economic analysis of market efficiency and competition relative to the proposed management program (particularly focusing on processor shares).

We respect the role of DOJ's Antitrust Division in this regard, and appreciate that such information can be very useful to agencies and the public. I note also that we had very cordial discussions with representatives from your office on this issue last week, and they acknowledged the limited context of such an analysis, and our attendant concerns in that regard. They also noted that the competition advocacy letter would be subject to several internal reviews prior to release. However, we feel compelled to comment on that analysis in advance, because once it is released, it will likely be widely distributed and widely quoted. We want to take the opportunity therefore, to provide some additional context to this issue which will not be captured in the DOJ analysis, as we understand its scope.

The Council manages its fisheries with several objectives in mind. The Council selected its preferred management program for the BSAI crab fisheries after weighing a number of related factors, many of which relate to the distributional impacts of the management program on harvesters, processors, captains and crew, and communities. An economic analysis that examines competition, but ignores these other management

objectives, is grossly inadequate for policy making. As a consequence, I think that it is important that any economic analysis presented by the Department of Justice be very explicit as to its scope. Equally important, the analysis should be explicit as to factors that are beyond its scope (i.e., distributional impacts to harvesters, processors, captains, crew, and communities). While I am confident that the DOJ analysis will contribute to the discussion of the program, I hope that the economic analysis does not overshadow the fundamental legal question we have posed. I also trust that the scope of such an economic analysis will be clear so that discussions about this program do not ignore the other, critical aspects of the program design.

Again, we respect the role of the DOJ in examination of this issue, and look forward to the pending opinion. I hope these comments are useful in the drafting of that opinion. Please feel free to contact myself, or Dr. Mark Fina on our staff, with any questions regarding these issues.

Sincerely,

Chris Oliver
Executive Director

CC: Janet Urban, DOJ
Tom Whalen, DOJ
Lisa Lindeman, NOAA GC
Senator Ted Stevens
Senator Patty Murray
Matt Paxton

- 5) **U.S. DEPARTMENT OF JUSTICE, ANTI-TRUST DIVISION LETTER TO
GENERAL COUNSEL, U.S. DEPARTMENT OF COMMERCE,
AUGUST 27, 2003.**



U.S. DEPARTMENT OF JUSTICE
Antitrust Division

R. HEWITT PATE
Assistant Attorney General

Main Justice Building
950 Pennsylvania Avenue, N.W.
Washington, D.C. 20530-0001
(202) 514-2401 / (202) 616-2645 (fax)
E-mail: antitrust@usdoj.gov

August 27, 2003

James R. Walpole
General Counsel
United States Department of Commerce
National Oceanic and Atmospheric Administration
Washington D.C. 20230

Dear Mr. Walpole:

You have asked for the assistance of the Department of Justice Antitrust Division ("Department") in identifying antitrust issues associated with a price arbitration system that was proposed as part of a rationalization plan to manage crab fisheries in the Bering Sea and Aleutian Islands ("BSAI").¹ The plan was developed by the North Pacific Fishery Management Council ("Council") at the request of Congress to replace the current management program.² The NOAA General Counsel's Office, Alaska Region, also has asked the Department to comment on the likely effects on competition of the entire rationalization plan. The Department submits these comments in response to your January 9, 2003 letter and NOAA's request.

¹A fishery means "(1) one or more stocks of fish that can be treated as a unit for purposes of conservation and management and that are identified on the basis of geographic, scientific, technical, recreational, or economic characteristics, or method of catch; or (2) any fishing for such stocks." 50 C.F.R. 600.10.

²The Council is one of eight Regional Fishery Management Councils established pursuant to 16 U.S.C. 1852. Its region covers the States of Alaska, Washington and Oregon, and it has authority over the fisheries in the Arctic Ocean, Bering Sea and Pacific Ocean seaward of Alaska. 16 U.S.C. 1852(a)(1)(G). The functions of the Council include preparing for the Secretary of Commerce a fishery management plan for each fishery, conducting public hearings on fishery management plans, and reviewing processing in each fishery. 16 U.S.C. 1852(h). The Council was directed by the Consolidated Appropriations Act of 2001 (Pub. L. No. 106-554) to determine whether rationalization is needed in its fisheries and to analyze individual fishing quotas, processor quotas, fishermen cooperatives and quotas held by communities.

EXECUTIVE SUMMARY

The Department supports implementation of a new fishery management plan that would end the "race to fish" inherent in the current derby-style management plan. Under the current derby-style program, the season ends as soon as the total allowable catch has been fished, producing an undesirable "race to fish" among harvesters. The race to fish is economically inefficient for both harvesting and processing and likely dangerous to the participants. The Department therefore recommends that NOAA support individual fishing quotas ("IFQ") for harvesters, a reform that will end the race to fish. Provided that IFQ are easily transferable, the gains in efficiency from ending the race to fish – reducing overcapitalization and improving safety – are likely to outweigh the harm of any loss of competition among harvesters.³ The Department recommends that the plan allow easy transferability of IFQ shares; otherwise the incentive for market participants to make efficient investment decisions will be reduced.

The Department further recommends that NOAA oppose individual processor quotas ("IPQ"), because IPQ will likely reduce beneficial competition among processors with no countervailing efficiency benefit. This lost competition could deter the development of new processed crab products, reduce the incentives for processors to make efficient investment decisions and reduce welfare for consumers of processed crab products. While harvester quotas should eliminate the harmful race to fish, processor quotas are not justified by any such beneficial competitive purpose.

If the goal of using IPQ is to compensate processors for overcapitalization, we urge NOAA to consider advocating more direct solutions, such as a program to buy excess processor equipment. We also understand that there are concerns with social goals such as preserving jobs in historic fishing villages. To the extent NOAA agrees with these goals, we recommend it consider advocating more direct solutions.

The Department also urges NOAA to oppose any form of sanctioned price arbitration. Allowing an arbitrator, rather than the market, to set price may distort the incentive of processors and harvesters to make efficient investments. Further, processors and harvesters must be cautious not to use the arbitration program as a way to agree on price with their competitors, which could violate the antitrust laws.

³ The Department of Justice has supported individual fishing quotas in the past. See, e.g. *Comments of the Department of Justice in Proposed Rulemaking: Amendment 18 to the Fishery Management Plan for Alaska Groundfish Fisheries in the Bering Strait and Aleutian Islands*, Docket No. 911215-1315 (Transferrable individual fishing rights would result in an efficient allocation of limited fishery rights.); Business Review Letter to the Pollock Conservation Cooperative, February 29, 2000 (The Department is not presently inclined to initiate an enforcement action against cooperative that allocated amongst itself the fixed quota of the BSAI pollock TAC.)

The binding arbitration proposal specifies that each processor will participate in arbitration individually and not collectively. Processors' independent participation in binding arbitration will not violate the antitrust laws. In contrast, competing processors that agree on the price they will pay harvesters would be engaged in price fixing that violates the Sherman Act. Liability cannot be avoided by having a third party arbitrator set the actual price to be paid. Similarly, competing processors that agree to use the non-binding benchmark arbitration price to set ex-vessel prices (or even as a starting point for ex-vessel price negotiations) could also be liable under the antitrust laws.

Harvesters that go beyond the contemplated arbitration program and agree among themselves to sell at the arbitrated price could violate the antitrust laws. However, harvesters would be immune under the Fishermen's Cooperative Marketing Act ("FCMA") if all participants in the arbitration are members of an eligible fishing cooperative.

Finally, the arbitration plan contemplates an exchange of competitively sensitive information which, if not handled properly, could raise antitrust concerns. Voluntary exchange of the information among competing harvesters and/or processors could violate the Sherman Act if it reduces competition. Harvesters and processors should be cautious in participating in any form of voluntary price arbitration or information exchange.

The Department's analysis here considers only the effects on competition of the proposals and whether participation in the program could result in antitrust violations. We have not considered other factors generally outside the purview of the antitrust laws, such as the social goal of protecting jobs in historic fishing villages or balancing the regulatory effects evenly among harvesters and processors. The Department is not in position to evaluate such interests. In making the ultimate recommendations, NOAA and the Council may wish to take such goals into account and balance them against the competition issues discussed here.

BACKGROUND

In developing its recommendations, the Department reviewed the rationalization plan, interviewed industry participants and examined economic research on rationalization programs. It is our understanding that the current derby-style system of fishery management works as follows: Each year, under joint management with the Council and NOAA Fisheries, the State of Alaska sets the total allowable catch ("TAC") for each fishery for the year. Once the fishing season is opened, harvesters are permitted to fish until projections determine that the TAC is reached. The fishing season is then closed. The season varies by fishery but can be very short, as little as 2 to 3 days at the fishery with the shortest season. A natural result of this system is that a "race to fish" developed, which led to over capitalization among harvesters and processors and to behavior that is dangerous to harvesters and results in less precise stock management.

In 2001, Congress directed the Council to determine whether rationalization of the fisheries under its management was needed. The Council was asked to analyze, among other things, the effects of IFQ and IPQ.

The Council detailed its proposal for rationalization of BSAI crab fisheries in its August 2002 Report to Congress and its May 6, 2003, letter to Congress.⁴ Under the proposed plan, crab harvesters would be allocated IFQ "shares" for 100% of the TAC in a fishery. Ninety percent of these shares would be Class A shares that must be processed by a processor within that fishery who holds IPQ. Ten percent would be Class B shares, which could be processed by any processor.⁵ The amount of IFQ issued to a particular harvester would be based on that harvester's historical catch in a fishery, computed over a qualifying period. IFQ shares would be fully transferable to anyone meeting certain requirements, subject to a limit on the number of shares that can be held by an IFQ holder.⁶ The shares would be leasable by any IFQ holder for the first five years of the program and thereafter leasable only within harvester cooperatives.

Similarly, processors in each rationalized fishery would be allocated IPQ shares. IPQ shares would be issued for 90% of the allocated harvest, corresponding to harvester Class A shares. The amount of IPQ issued to a particular processor would be based on that processor's historical processing activity, computed over a qualifying period. No processor would be allowed to hold more than 30% of the IPQ in its fishery. The proposed rationalization plan includes a number of community protection provisions that limit the liquidity of processor shares.

The proposal includes a plan for binding arbitration to determine the price paid by a processor to harvesters for raw crabs, the ex-vessel price,⁷ if the parties cannot reach mutually

⁴The Council plan would apply to eight fisheries, which constitute all the large Alaskan Crab fisheries.

⁵The Council also proposes creating Class C shares to distribute 3% of the TAC to fishing vessel captains. This 3% will be allocated first, with the remaining 97% of the TAC being allocated to the remaining harvesters. For the first three years fishing vessel captains may sell their catch to anyone they wish. After three years, the captains must sell 90% of their 3% to IPQ holders, and may sell the other 10% of their 3% to any processor

⁶To be eligible to purchase IFQ a person would have to be a U.S. citizen and have at least 150 days of sea time as a harvester in a U.S. fishery. Share limits vary by fishery and are between 1% and 10% of the TAC. However, various methods exist to allow IFQ holders to combine shares. For example, subject to vessel caps, more than one IFQ holder may fish off of a single boat. In addition, there is no limit to the amount of IFQ that can be controlled by a cooperative.

⁷The "ex-vessel" price is the price paid for fish offloaded directly from the fishing vessel.

agreeable terms. The Council's preferred arbitration method is a "last best offer plan" under which the arbitrator's primary goal is to set a price that preserves the historical division of revenues between harvesters and processors.⁸ The Council also proposes a pre-season, non-binding fleet-wide arbitration to develop and announce a guideline ex-vessel price for each fishery⁹ that will "inform price negotiations between the parties, as well as the Last Best Offer arbitration in the event of failed price negotiations."¹⁰

ANALYSIS

I. INDIVIDUAL FISHING QUOTAS

The current derby-style management of the crab fisheries has led to a race to fish. With the TAC fixed, harvesters must fish quickly to maximize their share of the harvest, and thus they overinvest in crew, equipment and boats, and they engage in behavior that is dangerous to harvesters and makes product management more difficult. Similarly, because the catch is spoilable, processors overcapitalize so that they can accept and process the catch in a very short amount of time. This overcapitalization by harvesters and processors is economically inefficient.

The source of the overinvestment problem for both harvesters and processors is the incentive to race for the crabs. One way to solve these kinds of problems is to create permanent property rights in the harvest, as in the proposed IFQ program. Such programs have demonstrably lengthened the harvesting season and reduced capacity in many other fisheries, for example, in the halibut and sablefish markets.¹¹

⁸Our understanding of the Council's binding arbitration proposal is based on the February 2, 2003, Council Motion on Crab Rationalization.

⁹On April 5, 2003, in a Council Motion on C-2 Crab Rationalization, the Council added the proposal for pre-season non-binding arbitration. Our understanding of the non-binding arbitration is based on the April 5, 2003 Council Motion on C-2 Crab Rationalization, the April 2003 Council *News and Notes*, and the May 6, 2003 Council letter to Congress. It is unclear from the language in those documents whether the non-binding arbitration will produce one benchmark price for all crab fisheries or whether it will produce a separate benchmark price for each fishery.

¹⁰April 5, 2003 Council Motion on C-2 Crab Rationalization. In the May 6, 2003, letter to Congress the purpose of non-binding arbitration is described as follows: "The non-binding price formula is intended to provide a benchmark price that will be a starting point for negotiations and minimize the number of price disputes as negotiations progress."

¹¹General Accounting Office, *Individual Fishing Quotas* (GAO-03-159, December 2002) at 20.

If the race to fish were ended, harvesters (and processors) would be left with an excess of capital investments. Endowing harvesters with tradeable shares would compensate them for these investments. Each harvester would receive a permanent property right to fish based loosely on his investment in capital. Those harvesters who leave the market could sell their shares and therefore receive compensation.¹²

The Council has proposed to allocate IFQ to harvesters based on a harvester's historical participation in a fishery. We have no reason to believe that such allocation will result in an unreasonably inefficient distribution of IFQ. If shares are made transferable, so that they could be sold or leased to more efficient harvesters, any inefficiencies in the initial distribution should be temporary.

IFQ programs have the potential to reduce capital investments below the optimal level. Ideally, a rationalization program would preserve the competition that incentivizes participants to make optimal investments and remove the incentive to overinvest. However, in a quota program, participants may inefficiently underinvest in capital, since they no longer can increase their profits by competing shares away from others. Efficiency can be preserved by creating a liquid market for quota shares. In other words, the ability to buy and sell IFQ freely guarantees that the most efficient market participants will harvest the catch. Rather than taking share from competitors, a firm buys (or leases) shares from less efficient firms, allowing the market to realize the efficiency gains. As the market for quota becomes less liquid, such as restrictions on leasing or absentee-owner provisions, inefficiencies will arise.¹³

The proposed rationalization plan has provisions limiting liquidity, such as the prohibition on leasing IFQ outside of cooperatives after the fifth year. To the extent NOAA supports goals other than economic efficiency, it should weigh those goals against the potential for reducing economic efficiency and urge that those goals be accomplished in a manner least harmful to the market.

¹²The Department offers no view on whether harvesters (or, as we discuss later, processors) should be compensated for overcapitalization, but urges NOAA to consider the effects on economic efficiency of the compensation plan. For example, auctioning the initial shares instead, which would not compensate harvesters, could improve efficiency. In addition, an auction would capture for the public some of the value from the scarce resource, which could be used for public purposes. The proceeds could, for example, be reinvested in the fisheries, used to fund conservation programs or used to partially compensate harvesters and/or processors for overcapitalization.

¹³The market would also not function efficiently if harvesters had strategic reasons for holding shares, for example to prevent entry.

II. INDIVIDUAL PROCESSOR QUOTAS

The second part of the proposed rationalization plan is to issue IPQ, which no fishery in the United States to date has implemented. Using IPQ likely will reduce competition among processors, which could discourage efficient investments, limit new product development, and undercut competition in selling processed crab products. With IFQ, any efficiency losses are balanced against efficiency gains – eliminating incentives for harvesters *and* processors to overcapitalize as well as improving stock management and safety. In contrast, there are no such IPQ benefits. Thus, we urge NOAA to oppose processor quotas, because of their anticompetitive effect, and to accomplish the program's other goals in ways that do not limit competition.

A. Effect on Competition of IPQ

1. Inefficient investment

In a market without IPQ, when a processor invests in technology to lower its costs, it can increase profits by offering harvesters a slightly higher ex-vessel price and thereby win a greater share of the catch. Under an IPQ program, the same investment may not be profitable because it will lower costs only on the processor's quota share of the market. The processor cannot earn further profits by taking share from other processors. Thus, some efficiency enhancing investments that would have been profitable in the absence of IPQ may not be made under this proposed program.

The current proposal also does not take full advantage of ways to mitigate these inefficiencies. First, the creation of Class B IFQ shares could preserve some of the investment incentives for processors. However, preserving competition for the small percentage of the harvest represented by Class B shares is unlikely to preserve fully the incentive to make optimal investments. Second, these inefficiencies could be mitigated by making the market for IPQ as liquid as possible. However, the current plan appears to impose significant restrictions on the liquidity of IPQ. We understand that many of the limitations are designed to protect the historic interests of fishing communities. NOAA and the Council should address these conflicting goals.

2. Fewer new products

IPQ could also stifle new product development. What new products might appear under different regulations is difficult to predict, but some markets changed to IFQ-only programs have developed in positive ways. For example, ending the race to fish in the halibut fisheries may have contributed to an expansion in the delivery of fresh halibut.

Market participants expect similar product innovations in processed crab. But issuing IPQ could curtail the creation of such new products. First, new entrants that might to develop new products may have difficulty acquiring IPQ, either because of the limitation imposed on their transferability or because existing processors want to deter entry. Only the 10 percent of the

market covered by Class B shares is fully available to competition. Second, some existing processors might be better positioned to create new products, but limited by their endowed IPQ and constraints on acquiring additional shares. Third, any processor's incentives to make investments in new products is limited by its endowed share of IFQ and constraints in the market for IPQ. While increasing the liquidity of IPQ could mitigate some of these concerns, we see no countervailing efficiency benefit from IPQ to justify these potential problems.

3. Less competition

Crab processors produce multiple products for different consumers using different techniques. Market participants we interviewed stated that ending the race to fish would only increase product differentiation because processors would have more time to work with the crabs. The likely result is that more of the harvest will be devoted to higher value products and that prices of these products will fall. Endowed processor shares and transferability limits might reduce this competition by altering processors' incentives to invest in capital that would lower their costs, a benefit that could be passed to consumers, or by altering product mix.

B. Arguments by IPQ Proponents

Proponents seem to make two arguments in favor of implementing IPQ. First, they argue that, if harvesters are to be endowed with IFQ to compensate them for stranded capital, then processors should also be compensated by endowing them with IPQ. They state that overcapitalized processors will bid up the ex-vessel price, shifting economic rents from processors to harvesters. In response, it is likely that overcapitalization is a short-run problem,¹⁴ and thus creating a permanent property right to compensate processors is an inefficient solution. If NOAA believes that processors should be compensated, a direct one-time buyback of capital from processors would be more desirable.

Second, IPQ proponents argue that any rationalization plan must make all participants no worse off than under the current regime. Undoubtedly, some participants will benefit from changes while others will not, but the experience of other fisheries suggests that long run winners and losers are hard to predict. For example, the GAO concluded that the halibut IFQ-only program had a varied effect on processors; some were better off and some worse off.¹⁵

¹⁴Without compensation, many processors will likely be worse off in the time it takes for processors to remove unprofitable capital from the crab markets. How quickly capital adjusts to its optimal level will depend on the ex-vessel price and the value of alternative uses of that capital.

¹⁵General Accounting Office, Individual Fishing Quotas (GAO-03-159, December 2002) at 4.

III. ARBITRATION AND INFORMATION EXCHANGE

You have specifically asked us whether the system of binding arbitration as described in the Council Motion on Crab Rationalization, dated February 2, 2003, would violate the antitrust laws if it were not legislated but instead were instituted by agreement among harvesters and processors. Below we address the legality of participating in the binding and non-binding arbitration, the economic effects of the proposed arbitration, and whether sharing the information submitted to the arbitrator among harvesters and processors could violate the antitrust laws.

Based on the documents cited in footnotes 9 and 10, we understand that the arbitration process will work as follows: Prior to the harvesting season, harvesters and processors in each crab fishery will jointly appoint a market analyst/arbitrator to review harvester and processor data and market conditions and announce a pre-season formula for setting a non-binding ex-vessel price. The stated purpose of developing a non-binding price is to guide the individual negotiations between processors and harvesters and later to guide the arbitrator in the binding arbitration process. After the non-binding price is announced, processors and harvesters may then negotiate contracts, subject to the amount of IPQ and IFQ they hold. Harvesters can make joint or individual bids. Harvesters that are unable to make a contract with a processor through negotiation may choose to use binding arbitration (or wait and later use the price that is developed in others' arbitrations). In the arbitrations that do proceed, separate and independent arbitration using a "last best offer" method is conducted for each processor.¹⁶ All harvesters who entered arbitration with a processor will receive that processor's arbitrated price.¹⁷ Harvesters who earlier waited and did not arbitrate can then choose a processor and will receive the price that was developed in the binding arbitration conducted with other harvesters.¹⁸

¹⁶If several groups of IFQ holders have matched with an IPQ holder, each may make a last best offer.

¹⁷The Council's recommended arbitration proposal charges the arbitrator with establishing a price that "preserves the historic division of revenues in the fisheries" while considering elements including current ex vessel prices; consumer and wholesale product prices for the processing sector; innovations, developments, efficiency and productivity of the different sectors; and the interest of maintaining financial health of the different sectors.

¹⁸ Of course, harvesters may choose a processor only until that processor's IPQ is filled. It is not clear how harvesters who did not arbitrate will be matched to processors with remaining IPQ. If the ex-vessel price developed in arbitration for one processor is high, there may be excess demand by harvesters to opt into this arbitrated price. How that excess demand will be rationed is unclear.

A. Legality of Participating in Arbitration

As we understand the proposed arbitration program, participation by harvesters and processors is voluntary. For a harvester and processor to independently choose to use arbitration to develop the price at which they will agree to trade crabs would not violate the antitrust laws. However, if processors agree among themselves to use arbitration or to adhere to a price developed in arbitration, that agreement likely would violate the antitrust laws. The same is true for harvesters, except that harvesters may have immunity under the FCMA. These liability and immunity questions are discussed below

1. Horizontal Agreements on Price

An agreement by a group of harvesters or processors to trade crabs at a price set by an arbitrator could be viewed as a naked agreement not to compete on price and thus an automatic or "per se" violation of Sherman Act §1, 15 U.S.C. §1. It is well established that an agreement for the purpose of "raising, depressing, fixing, pegging, or stabilizing" price is illegal per se. *United States v. Socony-Vacuum Oil Co.*, 310 U.S. 150, 223 (1940).¹⁹ Even if the agreed price is set by a third party such as an arbitrator, all that matters for liability is that competitors agreed to charge that same price. In addition, liability here would extend to harvesters that agree among themselves to participate in the arbitration process and harvesters who later join that agreement by opting in once the arbitrator sets a price; they too would be fixing the ex-vessel price by agreeing with their competitors to abide by the arbitrator's decision.

Harvesters or processors may violate the antitrust law even if they agree with competitors only to use the pre-season benchmark price as a starting point for negotiations.²⁰ If ex-vessel prices were affected by the non-binding arbitration (as the rationalization plan intends), a court could reasonably infer that the non-binding arbitration was part of an illegal price fixing agreement.

¹⁹In some limited circumstances, an agreement to set price could be examined under a "rule of reason," which requires the court to "assess and balance a restraint's harms benefits and alternatives". VII Phillip E. Areeda & Herbert Hovenkamp *Antitrust Law* ¶1508a (2nd ed. 2003) For a discussion of analyzing agreements among competitors, see *Antitrust Guidelines for Collaborations Among Competitors* (Federal Trade Commission & U.S. Department of Justice, April 2000).

²⁰*Plymouth Dealers' Association of Northern California v. United States*, 279 F.2d 128, 132 (9th Cir. 1960) ("The competition between the Plymouth dealers and the fact that the dealers used the fixed uniform list price in most instances only as a starting point, is of no consequence. It was an agreed starting point; it had been agreed upon between competitors; it was in some instances in the record respected and followed; it had to do with, and had its effect upon, price." [footnote omitted]).

Under the proposed binding arbitration, processors will not violate the antitrust laws so long as each participates individually, as required by the Council's arbitration proposal. Harvesters will not violate the antitrust laws so long as each participates individually or as part of an FCMA cooperative.²¹

2. Antitrust immunity for fishermen's cooperatives

Harvesters can avoid antitrust liability for the conduct described above by joining a fisherman's cooperative. Under the Fishermen's Cooperative Marketing Act, 48 Stat. 1213 (1934), 15 U.S.C. §521, harvesters that join a cooperative and set prices in a manner consistent with the FCMA will be exempt from of the antitrust laws with respect to that price setting. *United States v. Maryland & Va. Milk Producers Assn.*, 362 U.S. 458, 466-467 (1960).²² However, the cooperatives participating in arbitration must include only members who are eligible for immunity under the statute; if a cooperative includes members who are not eligible for antitrust immunity under the FCMA, the entire cooperative loses its immunity. *National Broiler Mktg. Ass'n v. United States*, 436 U.S. 816, 828-829 (1978); *Case-Swayne Co. v. Sunkist Growers, Inc.*, 339 U.S. 384 (1967); *Hinote*, 823 F. Supp. at 1354.

a. Vertically integrated harvester-processors

An important issue is whether a harvester that is vertically integrated with a processor can be a member of an FCMA fishermen's cooperative. The Supreme Court explicitly declined to decide this issue in *National Broiler*, U.S. 436 at 828, n. 21. The *Hinote* court found that vertically integrated catfish processors were not exempt from the antitrust laws for conspiring to fix the prices of catfish products. However, the activity challenged in the case was not the processors' conduct as farmers but their conduct in selling finished catfish products. *Hinote*, 823 F. Supp. at 1358-1359. Under *Hinote* it still is possible that a vertically integrated harvester could join an FCMA cooperative and be exempt from antitrust liability with respect to its activities as a harvester, making an agreement to set the ex-vessel price of crabs. In determining whether a vertically integrated harvester can be a cooperative member without causing a cooperative to lose its immunity, a court is likely to look at a variety of factors, including the nature of its harvester and processor activities, the extent to which its activities are integrated, and the precise nature of the challenged agreement among cooperative members. *See id.*

²¹Although processors do not have immunity under the FCMA, a processor that participates in arbitration solely as a buyer should have no antitrust liability even if a group of harvesters with whom the processor negotiates are found to have engaged in non-immune price fixing.

²²The *Maryland* case, as well as other cases concerning cooperative exemptions was decided under the Capper-Volstead Act of 1922, 42 Stat. 388 (1922), 7 U.S.C. §291 which provides for the same kinds exemptions as the FCMA. Cases decided under Capper-Volstead are precedent for cases under the FCMA. *U.S. v. Hinote*, 823 F. Supp. 1350 (S.D. Miss. 1993).

b. Agreements between cooperatives and non-members

Under the FCMA, cooperatives may not combine with non-cooperatives or "restrain trade by combining with nonexempt parties to set either resale prices for the cooperative's products or purchase prices paid to their nonmember competitors." 1A Phillip E. Areeda & Herbert Hovenkamp, *Antitrust Law* ¶1508a (2nd ed. 2000) Thus, it is possible that all harvesters in a cooperative could lose their Capper-Volstead immunity if the cooperative and non-member harvesters agreed to participate in binding arbitration with the same processor.

We are unaware of any direct authority on whether a cooperative can act collectively with persons who are eligible to join but have not done so. Of course, legal immunities are narrowly construed, and antitrust immunity under the FCMA in particular has been strictly interpreted.²³ One reason that the immunity might not be read to allow agreement with non-members is that non-members are not subject to regulatory oversight. Both the FCMA and Capper-Volstead allow regulators to challenge conduct otherwise immune from the antitrust laws if the regulator believes that the price of an agricultural product is "unduly enhanced" by the activities of the cooperative.²⁴ A harvester that is not a member of a cooperative would not be subject to this oversight. Thus, it would be inconsistent with the intent of the statute to allow harvesters to enjoy the antitrust immunity afforded cooperative members.

3. Legality of information exchanges

We understand that processors and harvesters participating in binding arbitration wish to have access to all information used by the arbitrators, including information from arbitrations between other harvesters and other processors.²⁵ Thus, each harvester and processor would see the data submitted to the arbitrator by every other harvester and processor. Such exchange of competitive information could violate the antitrust laws.

²³See, e.g., *Hinote*, 423 F. Supp. at 1354 (in order to have antitrust immunity under the FCMA defendant must establish that not only was the cooperative entitled to FCMA protection, but that all entities with which defendant allegedly conspired were entitled to protection.), *Case-Swayne*, 339 U.S. at 393 (Capper-Volstead Act is a special exception to a general legislative plan and therefore Court is not justified in expanding the Act's coverage.).

²⁴The FCMA regulator is the Secretary of Commerce. 15 U.S.C. §522. The Capper-Volstead Act regulator is the Secretary of Agriculture. 7 U.S.C. §292.

²⁵The February 2, 2003, Council Motion on Crab Rationalization states "Subject to limitations of antitrust laws and the need for proprietary confidentiality, all parties to an arbitration proceeding shall have access to all information provided to the arbitrator(s) in that proceeding." We have been informed by NOAA staff and Council staff that processors and harvesters would be given data from arbitrations that they did not participate in.

Information exchanges can be procompetitive, and therefore they are not automatically illegal but are examined under a rule of reason. *United States v. Citizens & Southern National Bank*, 422 U.S. 86, 113 (1975). An agreement among competitors to exchange information can be a violation of the Sherman Act if it is found to have an anticompetitive effect. *Todd v. Exxon Corp.*, 275 F.3d 191, 198-199 (2nd Cir., 2001), even without an agreement to adhere to a particular price.²⁶

We cannot say that the transfer of any particular type of data would be benign. When price, capacity and cost data are shared among competitors, the ability to monitor a collusive agreement for "cheating" can improve significantly; thus, if the inability to monitor collusion is a significant factor in preventing an agreement, data transfers can make an agreement possible. Similarly, when firms interact repeatedly in a market, exchanges of price data can help them reach a collusive price even without an explicit agreement; thus, if processors are exchanging wholesale crab product price data, they may be able to use that exchange to reach an implicit agreement on prices for those products.²⁷

The information that would be disseminated here includes data on historical distribution of wholesale crab product revenues between harvesters and processors,²⁸ the pre-season market report (the outcome of the non-binding arbitration), other data on market prices and completed arbitrations, and data voluntarily submitted by IFQ and IPQ holders. If that data were

²⁶*United States v. Container Corp. of America*, 393 U.S. 333, 1336 (1969) ("exchange of price information seemed to have the effect of keeping prices within a fairly narrow ambit."); see also *United States v. United States Gypsum Company*, 438 U.S. 422 (1978), ("exchanges of current price information, of course, have the greatest potential for generating anticompetitive effects and although not per se unlawful have consistently been held to violate the Sherman Act").

²⁷In some cases, disseminating information to buyers and sellers can be pro-competitive if that information facilitates efficient trading. This procompetitive need for market information usually creates strong financial incentives for independent third parties to step in and provide that information. While we may be concerned that a market report could facilitate price fixing no matter who provides the information, when the competing market participants themselves organize to do it, those concerns are heightened. In the case of the market for raw crabs, the absence of third parties providing (or attempting to provide) this service currently makes us skeptical that informational problems are causing market failure; nor does the rationalization plan itself appear to create new informational problems. Finally, the benchmark price developed during non-binding arbitration does not appear to address any kind of market failure: With a stated purpose of reducing price disputes and guiding the decision of the arbitrator in the binding arbitration process, the benchmark price appears to be intended to facilitate an agreement to set prices.

²⁸February 2, 2003, Council Motion on Crab Rationalization at 4.

disseminated to processors, it could facilitate agreements to fix prices or limit capacity for processed crab products, newly developed crab products, or crabs delivered by holders of Class B shares. The shared data could also effectively suppress price competition for processed crab products even without a direct agreement. For example, if a new product is developed and processors learn each others' capacity for that product, then that knowledge could soften price competition for that product.

We have been told that some price data is already largely public, but the quality of that information is not clear.²⁹ If disseminating the data provides no new, improved or more accessible information to processors, then it likely is not problematic. However, if the exchange of data increases the quality or reliability of already public data, antitrust concerns could arise.

We were told in interviews that harvesters and processors want access to all data used by the arbitrator so that they can insure that the data is accurate. This might justify only very limited information exchanges that facilitate the arbitration process.³⁰

C. Economic Effects of the Proposed Arbitration

One likely outcome of implementing either an IFQ-only or an IFQ-IPQ program is that bargaining power of harvesters and processors in negotiating ex-vessel prices will change, resulting in a new division of the economic rents created by crab harvesting and processing. Some argue that an IFQ-only program will shift bargaining power towards harvesters. Others argue that an IFQ-IPQ program will shift it towards processors.³¹

²⁹If that data is largely "word of mouth," as we understand it is, the arbitration process could significantly improve the quality of information about prices.

³⁰The arbitration proposal does not state whether data would be disseminated as it is received by the arbitrator or only after he has announced the price. If the data submitted in a given arbitration will be disseminated to participants in that arbitration as it is received, it could serve a purpose by enabling harvesters or processors to submit "rebuttal" data. However, we see no justification for harvesters or processors seeing data from arbitrations other than the ones in which they are participating. If the data is disseminated after the arbitrator has made his decision, the absence of a right of appeal of the decision appears to mean that there is no remedy available to a harvester or processor who believes that an arbitration decision was made on the basis of incorrect data and thus no need for the data to be disseminated.

³¹Because the Council proposes endowing IFQ and IPQ, rather than selling them, we assume these endowments are designed, at least in part, to compensate market participants for overcapitalization. If issuing both IFQ and IPQ rendered IFQ worthless because all bargaining power would accrue to processors (as some believe), then the compensation scheme would fail.

The Council has made it an explicit goal of the rationalization plan to preserve the historic division of revenues between processors and harvesters, and it has chosen the binding and non-binding arbitrations as its method for preserving that division.³² Apart from the antitrust concerns, arbitration to preserve the historic division of rénts has the potential to inefficiently affect processor and harvester investment decisions. For example, processors could be deterred from making efficient investments because the arbitrator may, in the name of maintaining the historic division of revenues, transfer too much of the benefits from that investment to harvesters by setting the ex-vessel price too high. Conversely, setting the ex-vessel price too low could similarly deter harvesters from making efficient investments. When the division of rents is set by market mechanisms, the optimal investment decisions are preserved. In addition, this arbitration scheme is complex and could have many unpredictable and undesirable consequences as market participants learn how the system can be manipulated. For example, market participants have an incentive to manipulate the data they submit to the arbitrator to affect the perceived historic division of revenues or to distort (in their favor) the price required to meet this goal. Thus, there is no guarantee that arbitration can even meet its stated goal of preserving the historic division of revenues.³³

CONCLUSION

The Department endorses the proposed IFQ program. The current race to fish causes overcapitalization by harvesters and processors and results in market inefficiencies, danger to harvesters and difficulty in managing the crab population. The benefits from a system of readily tradeable IFQ in eliminating these externalities are likely to outweigh any negative effects of eliminating competition among harvesters.

The Department urges NOAA to oppose IPQ. Processor shares could deter product innovation, reduce the incentive for processors to make optimal investment decisions and raise prices for processed crab products, all without countervailing efficiency benefits.

³²Because of the difficulties of measuring the division of economic rents, the Council recommends maintaining the historic division of revenues as a proxy for rents. However, some of the criteria the arbitrator is directed to consider, such as innovations and efficiencies, make it clear that the goal is to divide economic rents. BSAI Crab Rationalization Program Trailing Amendments, Community Protection Binding Arbitration, April 2002 at 21-23.

³³We do not advocate substituting regulatory rate-making for market forces. We do note, however, that where legislators have chosen to have rates set by regulation they have instituted procedural rules that allow the quality of data used by the regulator to be tested and provide a right to appeal the regulator's decision. In the case of the proposed arbitration system no such safeguards exist.

The Department urges NOAA to oppose the proposed non-binding and binding arbitration. The proposed arbitration could be used to facilitate price fixing agreements, and participants in the arbitration who are not immune from the antitrust laws because of membership in a FCMA cooperative could be in violation of those laws. Arbitration is not a substitute for market forces and may distort the incentives of processors and harvesters to make efficient investments. It is also unwieldy and complex, and thus subject to manipulation or significant error.

Based on the competition and antitrust law concerns that we have discussed, we urge NOAA to request that the Council develop a rationalization plan that does not include IPQ or arbitration.

Sincerely,



R. Hewitt Pate

6) CONSOLIDATED APPROPRIATIONS ACT 2004 (Pub. Law No. 108-199)

H.R.2673

1. Consolidated Appropriations Act, 2004 (Enrolled as Agreed to or Passed by Both House and Senate)

DEPARTMENT OF COMMERCE AND RELATED AGENCIES

DEPARTMENT OF COMMERCE

International Trade Administration

OPERATIONS AND ADMINISTRATION

(RESCISSION)

Of the appropriations made available for travel and tourism by section 210 of Public Law 108-7, \$40,000,000 are rescinded.

National Oceanic and Atmospheric Administration

COASTAL AND OCEAN ACTIVITIES

(RESCISSION)

Of the appropriations made available for coastal and ocean activities by Public Law 106-553, \$2,500,000 are rescinded.

TITLE VIII--ALASKAN FISHERIES

SEC. 801. BERING SEA AND ALEUTIAN ISLANDS CRAB RATIONALIZATION. Section 313 of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.), as amended, is further amended by adding at the end thereof the following:

(j) BERING SEA AND ALEUTIAN ISLANDS CRAB RATIONALIZATION-

(1) By not later than January 1, 2005, the Secretary shall approve and hereafter implement by regulation the Voluntary Three-Pie Cooperative Program for crab fisheries of the Bering Sea and Aleutian Islands approved by the North Pacific Fishery Management Council between June 2002 and April 2003, and all trailing amendments including those reported to Congress on May 6, 2003. This section shall not preclude the Secretary from approving by January 1, 2005, and implementing any subsequent program amendments approved by the Council.

(2) Notwithstanding any other provision of this Act, in carrying out paragraph (1) the Secretary shall approve all parts of the Program referred to in such paragraph. Further, no part of such Program may be implemented if, as approved by the North Pacific Fishery Management Council, individual fishing quotas, processing quotas, community development quota allocation, voluntary cooperatives, binding arbitration, regional landing and processing requirements, community protections, economic data collection, or the loan program for crab fishing vessel captains and crew members, is invalidated subject to a judicial determination not subject to judicial appeal. If the Secretary determines that a processor has leveraged its

Individual Processor Quota shares to acquire a harvesters open-delivery 'B shares', the processor's Individual Processor Quota shares shall be forfeited.

`(3) Subsequent to implementation pursuant to paragraph (1), the Council may submit and the Secretary may implement changes to or repeal of conservation and management measures, including measures authorized in this section, for crab fisheries of the Bering Sea and Aleutian Islands in accordance with applicable law, including this Act as amended by this subsection, to achieve on a continuing basis the purposes identified by the Council.

`(4) The loan program referred to in paragraph (2) shall be carried out pursuant to the authority of sections 1111 and 1112 of title XI of the Merchant Marine Act, 1936 (46 U.S.C. App. 1279f, 1279g).

`(5) For purposes of implementing this section \$1,000,000 shall be made available each year until fully implemented from funds otherwise made available to the National Marine Fisheries Service for Alaska fisheries activities.

`(6) Nothing in this Act shall constitute a waiver, either express or implied, of the antitrust laws of the United States. The Secretary, in consultation with the Department of Justice and the Federal Trade Commission, shall develop and implement a mandatory information collection and review process to provide any and all information necessary for the Department of Justice and the Federal Trade Commission to determine whether any illegal acts of anti-competition, anti-trust, or price collusion have occurred among persons receiving individual processing quotas under the Program. The Secretary may revoke any individual processing quota held by any person found to have violated a provision of the antitrust laws of the United States.

`(7) An individual processing quota issued under the Program shall be considered a permit for the purposes of sections 307, 308, and 309, and may be revoked or limited at any time in accordance with this Act. Issuance of an individual processing quota under the program shall not confer any right of compensation to the holder of such individual processing quota if it is revoked or limited and shall not create, or be construed to create, any right, title, or interest in or to any fish before the fish is purchased from an individual fishing quota holder.

`(8) The restriction on the collection of economic data in section 303 shall not apply with respect to any fish processor who is eligible for, or who has received, individual processing quota under the Program. The restriction on the disclosure of information in section 402(b)(1) shall not apply when the information is used to determine eligibility for or compliance with an individual processing quota program.

`(9) The provisions of sections 308, 310, and 311 shall apply to the processing facilities and fish products of any person holding individual processing quota, and the provisions of subparagraphs (D), (E), and (L) of section 307(l) shall apply to any facility owned or controlled by a person holding individual processing quota.'

SEC. 802. GULF OF ALASKA ROCKFISH DEMONSTRATION PROGRAM. The Secretary of Commerce, in consultation with the North Pacific Fishery Management Council, shall establish a pilot program that recognizes the historic participation of fishing vessels (1996 to 2002, best 5 of 7 years) and historic participation of fish processors (1996 to 2000, best 4 of 5 years) for pacific ocean perch, northern rockfish, and pelagic shelf rockfish harvested in Central Gulf of Alaska. Such a pilot program shall: (1) provide for a set-aside of up to 5 percent for the total allowable catch of such

fisheries for catcher vessels not eligible to participate in the pilot program, which shall be delivered to shore-based fish processors not eligible to participate in the pilot program; and (2) establish catch limits for non-rockfish species and non-target rockfish species currently harvested with pacific ocean perch, northern rockfish, and pelagic shelf rockfish, which shall be based on historical harvesting of such bycatch species. The pilot program will sunset when a Gulf of Alaska Groundfish comprehensive rationalization plan is authorized by the Council and implemented by the Secretary, or 2 years from date of implementation, whichever is earlier.

SEC. 803. ALEUTIAN ISLANDS FISHERIES DEVELOPMENT. (a) ALEUTIAN ISLANDS POLLOCK ALLOCATION- Effective January 1, 2004 and thereafter, the directed pollock fishery in the Aleutian Islands Subarea [AI] of the BSAI (as defined in 50 CFR 679.2) shall be allocated to the Aleut Corporation (incorporated pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601 et seq.)). Except with the permission of the Aleut Corporation or its authorized agent, the fishing or processing of any part of such allocation shall be prohibited by section 307 of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1857), subject to the penalties and sanctions under section 308 of such Act (16 U.S.C. 1858), and subject to the forfeiture of any fish harvested or processed.

(b) ELIGIBLE VESSELS- Only vessels that are 60 feet or less in length overall and have a valid fishery endorsement, or vessels that are eligible to harvest pollock under section 208 of title II of division C of Public Law 105-277, shall be eligible to form partnerships with the Aleut Corporation (or its authorized agents) to harvest the allocation under subsection (a). During the years 2004 through 2008, up to 25 percent of such allocation may be harvested by vessels 60 feet or less in length overall. During the years 2009 through 2013, up to 50 percent of such allocation may be harvested by vessels 60 feet or less in length overall. After the year 2012, 50 percent of such allocation shall be harvested by vessels 60 feet or less in length overall, and 50 percent shall be harvested by vessels eligible under such section of Public Law 105-277.

(c) GROUND FISH OPTIMUM YIELD LIMITATION- The optimum yield for groundfish in the Bering Sea and Aleutian Islands Management Area shall not exceed 2 million metric tons. For the purposes of implementing subsections (a) and (b) without adversely affecting current fishery participants, the allocation under subsection (a) may be in addition to such optimum yield during the years 2004 through 2008 upon recommendation by the North Pacific Council and approval by the Secretary of Commerce (if consistent with the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.)).

(d) MANAGEMENT AND ALLOCATION- For the purposes of this section, the North Pacific Fishery Management Council shall recommend and the Secretary shall approve an allocation under subsection (a) to the Aleut Corporation for the purposes of economic development in Adak, Alaska pursuant to the requirements of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1801 et seq.).

SEC. 804. A Council or the Secretary may not consider or establish any program to allocate or issue an individual processing quota or processor share in any fishery of the United States other than the crab fisheries of the Bering Sea and Aleutian Islands.

This division may be cited as the 'Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, 2004'.

- 7) **PASSAGE OF THE FY 2004 CONSOLIDATED APPROPRIATIONS
CONFERENCE REPORT REGARDING PROVISIONS RELATED TO
ALASKAN FISHERIES.**

PASSAGE OF THE FY2004 CONSOLIDATED APPROPRIATIONS CONFERENCE REPORT
REGARDING PROVISIONS RELATED TO ALASKAN FISHERIES

Mr. STEVENS. Mr. President, three years ago Congress directed the North Pacific Fishery Management Council to analyze the management of the Bering Sea Crab fisheries and determine whether rationalization was necessary. The North Pacific Council completed its study and recommended a rationalization program that recognized the historical participation in the fishery of remote Alaska fishing communities, harvesters, and processors. The "Three-pie Voluntary Cooperative Program" developed by the North Pacific Council protects the resource and ends the dangerous race for fish. Section 801 of Title VIII-Alaskan Fisheries of the FY2004 Consolidated Appropriations conference report directs the Secretary to implement the North Pacific Council's crab rationalization program in its entirety.

Section 801 amends section 313 of the Magnuson-Stevens Fishery Conservation and Management Act by adding a new subsection 313(j). Paragraph 313(j)(1) directs the Secretary to approve and implement the North Pacific Council's rationalization program for the Bering Sea/Aleutian Islands crab fisheries, including all trailing amendments. It also clarifies that the Secretary may approve and implement additional trailing amendments approved by the North Pacific Council. The Secretary must implement all parts of the crab rationalization program that were reported to Congress between June 2002 and April 2003, and all trailing amendments including those reported on May 6, 2003, no later than January 1, 2005. Any further amendments approved by the Council should be corrective in nature or address unforeseen problems with the overall functionality of the crab rationalization program. Primary elements of the Voluntary Three-pie Cooperative crab program that made three separate allocations, one to the harvest sector, one to the processing sector, and one to defined regions, should not change as this was the basis of understanding of how the crab fisheries would be rationalized in the Bering Sea and Aleutian Islands. It is imperative that the deadly and inefficient race for crab in the harsh winters months in the Bering Sea ends. Congress expects the Secretary to meet the statutory deadline of implementation of the rationalization program in time for the 2005 crab fisheries. Congress does not expect the Council to revisit particulars of the crab rationalization program that were part of the initial report to Congress in June of 2002, such as individual harvest shares, processing shares, the 90/10 split of "Class A" and "Class B" shares, regional share designations, voluntary harvester cooperatives, and community development quota allocations, to name a few.

Paragraph 313(j)(2) directs the Secretary to approve all parts of the North Pacific Council's crab program, including harvester quota, processor quota, and community protections. It also includes a non-severability clause that prevents a court from overruling only certain parts of the program. If any part of the program is found to violate the law, the entire program fails and the Bering Sea/Aleutian Islands crab

fisheries will operate under their current open-access management scheme. It also prevents processors from improperly seeking crab deliveries harvested under a harvester's open-delivery quota.

Paragraph 313(j)(3) authorizes the North Pacific Council to recommend to the Secretary any necessary changes after implementation of the crab program to continue to meet conservation and management goals set out in the program for the Bering Sea/Aleutian Islands crab fisheries.

Paragraph 313(j)(4) specifies that the loan program defined under the crab rationalization program for captains and crew be authorized pursuant to relevant sections of Title XI of the Merchant Marine Act as amended for fisheries financing and capacity reduction and for direct loan obligations for fisheries financing and capacity reduction. The loan program for crab fishing vessel captains and crew members is to be a low interest loan program similar to the loan program under the halibut and sablefish IFQ program.

Paragraph 313(j)(5) authorizes \$1,000,000 each year from funds available in the National Marine Fisheries Service account for Alaska fisheries activities to implement the program.

Paragraph 313(j)(6) specifies that the antitrust laws of the United States apply to the crab program. It requires the Secretary of Commerce to work with Department of Justice and the Federal Trade Commission to develop and implement a mandatory information collection and review process to monitor the crab program and ensure no anticompetitive acts occur among persons receiving individual processing quota. If any person receiving individual processor quota is found to have violated a provision of the antitrust laws the Secretary may revoke their processor quota share.

Paragraph 313(j)(7) requires individual processor quota share under the crab program to be considered a permit and subject to sections 307 (Prohibited Acts) and 308 and 309 (penalties and criminal offenses) of the Magnuson-Stevens Fishery Conservation and Management Act. It specifies that, like individual fishing quota, issuance of individual processor quota share does not confer any compensation right if it is revoked or limited, and does not create title or other interest in or to any fish before purchase from a harvester.

Paragraph 313(j)(8) specifies that the restriction on the collection of economic data in section 303(d)(7) of the Magnuson-Stevens Act will not apply for any processor that receives individual processing quota under the crab program. In addition, the restriction on the confidentiality of information in section 402(b)(1) will not apply when the information is used to determine eligibility or verify history for individual processing quota. This is consistent with the exception to the confidentiality of information requirement under the Magnuson-Stevens Act for verifying catch under an individual fishing quota program.

Paragraph 313(j)(9) specifies that sections 308 (civil penalties and permit sanctions), 310 (civil forfeitures), and 311 (enforcement) of the Magnuson-Stevens Act will apply to the processing facilities and

fish products of any person holding individual processing quota. In addition, to ensure compliance with the crab program it may be necessary for the Secretary to inspect a processor's facilities, therefore facilities owned or controlled by a person holding individual processing quota will be subject to the prohibited acts of section 307(1) subparagraphs (D), (E) and (L) of the Magnuson-Stevens Act.

The North Pacific Council is recognized for developing novel and innovative approaches to conservation and management of the abundant fisheries in the North Pacific. The "Three-pie Voluntary Cooperative Program" for rationalizing the Bering Sea and Aleutian Islands crab fisheries is another example of that creativity. It is the product of three years of public meetings and discussion by industry sectors, citizens and affected communities, two years of discussion and development by the North Pacific Council and its Advisory Panel, and nearly two years of extensive and thorough analysis by Council staff, with technical assistance from the National Marine Fisheries Service, Alaska Department of Fish and Game, and independent economists and fisheries consultants.

The Council meticulously constructed the crab rationalization program to achieve bold conservation and management goals for the resource; but also considered the very unique reality of a high value, capital intensive, high risk fishery that is prosecuted entirely in the distant waters of the Bering Sea and Aleutian Islands. The Council has done a great job crafting the Three-pie Voluntary Cooperative crab rationalization program and it is expected to implement the program in its entirety, including all trailing amendments, as reported to Congress in June of 2002. The Council should not revisit the particulars of the crab program, but should continue to work with the Commerce Department to ensure that the crab program is implemented in its entirety in time for the 2005 winter crab fisheries.

The Magnuson-Stevens Act requires fishery management plans and amendments to provide for the sustained participation of communities in the fisheries it has historically depended on for employment and economic opportunity. Small, isolated communities like St. Paul and St. George located on the Pribilof Islands, and Adak on the Aleutian chain have become dependent on the crab resource crossing their docks. This plan slows down the pace of the fishery, achieves efficiencies in harvesting the resource, manages and conserves the resource better, and helps decapitalize the fishery.

While there will inevitably be a degree of economic dislocation in the communities dependent on the revenues. The crab rationalization program addresses these concerns by tying the crab resource to the communities that historically processed the crab. Processor quota share is a form of community protection which maintains historical processing capacity in the communities. Processor quota share should remain in those unique, isolated communities like St. Paul, St. George, King Cove and Adak; communities completely dependent on the crab fishery, that do not benefit from multi-species processing and other economic

opportunities. The North Pacific Council determined that for the crab fisheries, processor quota share was a necessary safeguard to protect the investments made by the processing sector and more importantly, to maintain the economic benefits in the communities that have historically depended on the resource.

Section 802 of Title VIII-Alaskan Fisheries directs the Secretary in consultation with the North Pacific Fishery Management Council to establish a pilot fisheries management program that recognizes the historic participation of fishing vessels and fish processors in the central Gulf of Alaska rockfish fishery. The provision delineates the years and types of rockfish that should be considered for a pilot rationalization program to allow for increased use and value in the fishery. The pilot rockfish program will expire when the North Pacific Council authorizes a comprehensive rationalization program for Gulf of Alaska Groundfish and implemented by the Secretary, or two years from the date of implementation, whichever is earlier. The pilot program contemplates new entrants into this fishery and provides a set-aside of up to five percent of the total allowable catch of such fishery for catcher vessels not eligible to participate in the program. In addition, the five percent that is available for new entrants must come into Kodiak, Alaska for processing and can be processed by processors that have not historically participated in the fishery. The North Pacific Council will establish catch limits for nonrockfish species and non-target rockfish species currently harvested along with pacific ocean perch, northern rockfish, and pelagic shelf rockfish, which should be based on historical harvesting of such bycatch species. The Gulf of Alaska rockfish pilot program should also recognize the historic fishing and processing participation of catcher-processors that have historically participated in this fishery, and should utilize the same years and species of fish considered under the provision.

The intent of the pilot program is to consider the historic participation of all of those that have been involved in the fishery. The Gulf of Alaska rockfish pilot program does not authorize individual processing quota share for processors in this fishery. The "historic participation of fish processors" under this pilot program should be considered pursuant to the cooperative model under the American Fisheries Act, or any other manner the North Pacific Council determines is appropriate. This provision in no way authorizes individual processor quota share for the comprehensive Gulf of Alaska groundfish rationalization program that the North Pacific Council is currently developing. This pilot program is intended to allow for better conservation and management of the central Gulf of Alaska rockfish and extend the work year for processing jobs in Kodiak.

Section 803 of Title VIII-Alaskan Fisheries directs the Aleutian Islands pollock allocation to the Aleut Corporation for economic development in Adak, Alaska. If the North Pacific Council opens the Aleutian pollock fishery, the allocation of pollock for economic development in Adak will be restricted by

the prohibited acts contemplated under section 307 of the Magnuson-Stevens Fishery Conservation and Management Act and subject to the penalties and sanctions under section 308 of the Act, including the forfeiture of any fish harvested or processed. Two classes of vessels may harvest this pollock allocation: vessels that are 60 feet or less in length overall and have a valid fishery endorsement can harvest the Aleutian pollock allocation and deliver it to Adak for processing; and vessels eligible to harvest pollock under section 208 of Title II of Division C of Public Law 105-277 are permitted to form partnerships with the Aleut Corporation to harvest the Aleutian Islands pollock allocation for economic development in Adak. Section 803 does not waive the requirements of the Magnuson-Stevens Act, Endangered Species Act, National Environmental Policy Act or any other federal laws. The North Pacific Council and NMFS should be cautious in implementing section 803(a) to ensure that any reopening of a directed Aleutian Islands pollock fishery is accomplished in full compliance with all applicable law, and without disrupting 2004 groundfish fisheries which have already commenced.

In an effort to gradually establish a small boat fleet in Adak, subsection (b) of section 803 provides that during the years 2004 through 2008, up to 25 percent of the Aleutian allocation may be harvested by vessels 60 feet or less in length overall. During the years 2009 through 2013, up to 50 percent of such allocation may be harvested by vessels 60 feet or less in length overall. After the year 2012, 50 percent of such allocation shall be harvested by vessels 60 feet or less in length overall, and 50 percent shall be harvested by vessels eligible under section 208 of Title II of Division C of Public Law 105-277. Establishing a small boat fleet will be critical for the economic diversification of Adak and the revenues generated from the use of the Aleutian Islands pollock allocation will allow for greater investment opportunities in this community. For purposes of implementing this section, section 206 of the American Fisheries Act (AFA) is redefined so that the allocations in section 206(b) of the AFA should only apply to the Bering Sea portion of the directed pollock fishery.

Subsection (c) of section 803 codifies one of the longest standing conservation and management measures of the North Pacific Fishery Management Council, the 2 million metric ton cap for groundfish in the Bering Sea. The optimum yield for groundfish in the Bering Sea and Aleutians Islands Management Area shall not exceed 2 million metric tons. Upon the recommendation of the North Pacific Council and approval of the Secretary of Commerce, and only if consistent with the conservation and management goals and requirements of the Magnuson-Stevens Fishery Conservation and Management Act, the allocation of Aleutian pollock for economic development in Adak, may be in addition to the 2 million metric ton optimum yield. This treatment of the Aleutian Islands pollock allocation would only be during the 2004 through the 2008 fishing years, but only if harvests in excess of the cap do not result in overfishing and then only to the

extent necessary to accommodate a directed pollock fishery in the Aleutian Islands and should not adversely affect the current participants in the Bering Sea pollock fishery in the near term. Eventually this pollock allocation will come under the combined optimum yield for all groundfish in the Bering Sea and Aleutian Islands 2 million metric ton cap by taking proportional reductions in the total allowable catches for each of the existing groundfish fisheries as necessary to accommodate the establishment of the Aleutian Island pollock fishery.

Subsection (d) of section 803 allows the North Pacific Fishery Management Council to recommend and the Secretary to approve an allocation of Aleutian Islands pollock to the Aleut Corporation for the purposes of economic development in Adak pursuant to the requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The North Pacific Council should consider pollock allocations given to the various groups that participate in the Community Development Quota program to recommend a reasonable amount of the Aleutian Islands pollock to the Aleut Corporation for purposes of economic development in Adak and in no case should this amount exceed 40,000 metric tons.

Nothing in this section requires the North Pacific Council to open the Aleutian Islands pollock fishery. The Council should not take any action in regards to this fishery which would require a new consultation under the current biological opinion or Endangered Species Act covering Steller sea lions.

Section 804 of Title VIII—Alaskan Fisheries prohibits any Regional Fishery Management Council or the Secretary from approving any fishery management plan or plan amendments to allocate or issue individual processing quota or processor share in any fishery of the United States other than the crab fisheries of the Bering Sea and Aleutian Islands.

**8) SENATOR STEVENS BERING SEA/ ALEUTIAN ISLANDS CRAB
RATIONALIZATION STATEMENT.**

SENATOR STEVENS
BERING SEA/ALEUTIAN ISLANDS CRAB RATIONALIZATION
STATEMENT

_____THE BERING SEA/ALEUTIAN ISLANDS CRAB RATIONALIZATION PLAN ACCOMPLISHES TWO PRIMARY OBJECTIVES OF IMMEDIATE CONCERN: (1) CONSERVATION AND MANAGEMENT OF THE CRAB RESOURCE AND (2) ENDING THE DEADLY AND INEFFICIENT RACE FOR FISH. ALL THE PRESS ATTENTION AND MISINFORMATION ON PROCESSOR QUOTA SHARE HAS EFFECTIVELY TWISTED A FISHERY MANAGEMENT PLAN FOR ONE FISHERY IN THE BERING SEA INTO A NATIONAL DEBATE ON THE REGIONAL COUNCIL PROCESS AND U.S. FISHERY POLICY.

I FEEL AS THOUGH I MUST REMIND MY COLLEAGUES THAT THE RATIONALE BEHIND THE MAGNUSON-STEVENSON ACT WAS TO ALLOW THE VARIOUS REGIONS TO CRAFT THEIR OWN UNIQUE FISHERY MANAGEMENT PLANS TO ANSWER THE CONSERVATION AND MANAGEMENT GOALS OF THEIR LOCALITIES. THE CRAB RATIONALIZATION PLAN IS NO DIFFERENT IN THIS REGARD. THE NORTH PACIFIC COUNCIL RECOGNIZED ALL COMPONENTS OF THE CRAB FISHERY AS A BALANCED, CONNECTED SYSTEM, RATHER THAN COMPETING PARTS. THE ONLY DIFFERENCE WITH THE CRAB PLAN IS A PROCEDURAL ONE: CONGRESS SPECIFICALLY DIRECTED THE NORTH PACIFIC COUNCIL TO DEVELOP A PLAN THAT BALANCED HARVESTERS, PROCESSORS AND COMMUNITIES, AND NOW CONGRESS MUST IMPLEMENT THE COUNCIL'S PROPOSAL.

THE NORTH PACIFIC COUNCIL VOTED UNANIMOUSLY (11-0) TO RECOMMEND THIS VOLUNTARY THREE-PIE COOPERATIVE THAT RECOGNIZES INVESTMENTS MADE BY HARVESTERS, PROCESSORS AND COMMUNITIES. IT IS A PRODUCT OF EXTENSIVE ANALYSIS WITH NUMEROUS OPPORTUNITIES FOR PUBLIC COMMENT, HUNDREDS OF HOURS OF PUBLIC TESTIMONY AND AN OPEN AND TRANSPARENT PUBLIC DEBATE BY THE COUNCIL. THE ALASKA COMMUNITIES THAT ARE DEPENDENT ON THE CRAB RESOURCE BEING PROCESSED IN THEIR PLANTS ALL SUPPORT THE PLAN. THE VAST MAJORITY OF OPPOSITION HAS COME FROM A VOCAL MINORITY THAT WANT TO RECEIVE A BETTER DEAL AND ENVIRONMENTAL GROUPS THAT DO NOT WANT ANY FORM OF RATIONALIZATION AND WOULD LIKE TO LOCK UP MARINE RESOURCES. THE STATE OF

THE BERING SEA CRAB FISHERIES ARE POOR AND THE CRAB PLAN DEVELOPED THROUGH THE REGIONAL COUNCIL PROCESS NEEDS TO BE IMPLEMENTED NOW.

OPPONENTS OF THE CRAB RATIONALIZATION PLAN RAISE CONCERNS ABOUT ANTI-COMPETITIVE EFFECTS AND POTENTIAL ANTITRUST VIOLATIONS. THE CRAB PLAN IS NOT EXEMPT FROM ANTITRUST LAWS. IN FACT THE PROVISION SPECIFICALLY STATES THE SECRETARY MAY REVOKE ANY PROCESSOR QUOTA SHARE HELD BY A PERSON FOUND TO HAVE VIOLATED ANTITRUST LAWS. THE PLAN CONTEMPLATES NO PRIVATE, ANTI-COMPETITIVE ACTION AND WILL BE “ACTIVELY SUPERVISED” BY THE COUNCIL AND THE STATE OF ALASKA.

DESPITE THE FACT THE CRAB PLAN IS NOT EXEMPT FROM ANTITRUST LAWS AND WILL BE REVIEWED BY THE COUNCIL, WHICH CAN MAKE CHANGES AS NEEDED, AND THERE WILL BE A MANDATORY INFORMATION COLLECTION AND REVIEW PROCESS DEVELOPED BY THE SECRETARY OF COMMERCE AND THE DEPARTMENT OF JUSTICE TO DETERMINE WHETHER ANY ILLEGAL OR ANTI-COMPETITIVE ACTS HAVE OCCURRED, OPPONENTS STILL POINT TO AN OPINION LETTER BY THE DEPARTMENT OF JUSTICE THAT THEORIZES ABOUT “POTENTIAL” ANTI-COMPETITIVE ABUSES. NO WHERE IN THE DOJ’S OPINION LETTER DOES IT STATE THAT INDIVIDUAL PROCESSOR QUOTA SHARES VIOLATE ANTITRUST LAWS. THE DOJ OPINION LETTER RECOMMENDS THAT IPQS NOT BE USED BECAUSE THEY ARE ECONOMICALLY INEFFICIENT. HOWEVER, THE DOJ ADMITS IT “DID NOT CONSIDER FACTORS OUTSIDE THE PURVIEW OF ANTITRUST LAWS SUCH AS THE SOCIAL GOAL OF PROTECTING JOBS IN HISTORIC FISHING VILLAGES OR BALANCING THE REGULATORY EFFECTS EVENLY AMONG HARVESTERS AND PROCESSORS.”

THIS IS WHERE THE DOJ LETTER AND MOST OPPONENTS TO THE CRAB PLAN MISS THE POINT ENTIRELY. THE MAGNUSON-STEVENSONS ACT REQUIRES THE REGIONAL COUNCILS TO CONSIDER JUST THAT: “PROTECTING JOBS IN HISTORIC FISHING VILLAGES”. THIS CONSIDERATION REQUIRED BY LAW WILL ALWAYS BE ECONOMICALLY INEFFICIENT. PURSUANT TO NATIONAL STANDARD 8 UNDER THE MAGNUSON-STEVENSONS ACT, “CONSERVATION AND MANAGEMENT MEASURES SHALL TAKE INTO ACCOUNT THE IMPORTANCE OF FISHERY

RESOURCES TO FISHING COMMUNITIES IN ORDER TO (A) PROVIDE FOR THE SUSTAINED PARTICIPATION OF SUCH COMMUNITIES, AND (B) TO THE EXTENT PRACTICABLE, MINIMIZE ADVERSE ECONOMIC IMPACTS ON SUCH COMMUNITIES.” (SECTION 301(A)(8) OF THE MAGNUSON-STEVENSON ACT) THE NORTH PACIFIC COUNCIL’S CRAB PLAN IS COMPLETELY CONSISTENT WITH THE GOALS OF THE MAGNUSON-STEVENSON ACT TO PROVIDE FOR THE SUSTAINED PARTICIPATION OF REMOTE COASTAL COMMUNITIES IN THE BERING SEA IN THE CRAB FISHERY AND MINIMIZE ADVERSE ECONOMIC IMPACTS ON THESE COMMUNITIES.

NEXT OPPONENTS ARGUE THAT THE CRAB PLAN IS PRECEDENT SETTING AND WILL SPREAD TO OTHER REGIONAL COUNCILS. IT IS A FISHERY MANAGEMENT PLAN FOR ONLY ONE FISHERY IN THE BERING SEA. IN FACT THE PROVISION SPECIFICALLY PROVIDES THAT “A COUNCIL OR THE SECRETARY MAY NOT CONSIDER OR ESTABLISH ANY PROGRAM TO ALLOCATE OR ISSUE AN INDIVIDUAL PROCESSING QUOTA OR PROCESSOR SHARE IN ANY FISHERY OF THE UNITED STATES OTHER THAN THE CRAB FISHERIES OF THE BERING SEA AND ALEUTIAN ISLANDS.”

THE CRAB PLAN IS NOT PRECEDENT SETTING, IT IS AN EXTENSION OF THE EFFICIENCIES AND SUCCESSES ACHIEVED UNDER THE AMERICAN FISHERIES ACT (AFA). HOWEVER, WHERE THE AFA HAS A CLOSED CLASS OF PROCESSORS THAT CAN PARTICIPATE IN THE BERING SEA POLLOCK FISHERY, THE CRAB PLAN PROVIDES AN OPEN CLASS OF PROCESSORS AND ALLOWS FOR NEW ENTRANTS IN THE PROCESSING SECTOR.

OPPONENTS OF THE CRAB PLAN HAVE ARGUED THAT PROCESSOR QUOTA SHARE IS NOT NEEDED TO MAKE THE FISHERY SAFER OR TO PROVIDE FOR PROTECTIONS OF THE COMMUNITIES. I SUGGEST THESE INDIVIDUALS VISIT THE PRIBILOF ISLANDS THAT ARE 800 MILES WEST OF ANCHORAGE, LOCATED IN THE MIDDLE OF THE BERING SEA, OR DUTCH HARBOR, IN THE MIDDLE OF JANUARY WHEN THE CRAB FISHERY IS IN FULL SWING. THESE COMMUNITIES ARE DEPENDENT ON THE CRAB RESOURCE AND HAVE MADE SUBSTANTIAL INVESTMENTS TO PROCESS RAPIDLY THE PRODUCT DURING THE MAD RACE FOR FISH IN THE CURRENT DERBY-STYLE FISHERY. THEY HAVE BECOME DEPENDENT ON THE CRAB RESOURCE CROSSING THEIR

DOCKS.

THE CRAB FISHERY IS A UNIQUE ONE IN THAT THERE IS A VERY HIGH DOLLAR VALUE FOR A SMALL AMOUNT OF RESOURCE THAT CAN BE PROCESSED QUICKLY. IF THE CRAB PLAN ONLY PROVIDED FOR HARVESTER-ONLY QUOTA SHARE IT WOULD ULTIMATELY RESULT IN DE FACTO PROCESSING QUOTA FOR THE EXCLUSIVE GROUP OF BOAT OWNERS THAT CONTROL THE HARVESTING RIGHTS TO THE RESOURCE. CURRENTLY IN THE BERING SEA CRAB FISHERY, THERE IS A SURPLUS OF CATCHER-PROCESSOR VESSELS AND FLOATING CRAB PROCESSORS THAT CAN BE LEASED OR BOUGHT CHEAPLY. THIS MOBILE PROCESSING CAPACITY IN COMBINATION WITH A HARVESTER-ONLY QUOTA SHARE WOULD ENABLE FISHERMEN TO FORM COOPERATIVES AND VERTICALLY INTEGRATE SUCH THAT NONE OF THE CRAB RESOURCE WOULD EVER HAVE TO COME SHORE-SIDE. SUBSTANTIAL INVESTMENTS MADE BY SHORE BASED PROCESSORS WOULD BE LOST AND COMMUNITIES SUCH AS UNALASKA, ADAK, SAINT PAUL, SAINT GEORGE, AKUTAN AND KING COVE WOULD LOSE OUT ON PROCESSING JOBS, TAXES AND ASSOCIATED REVENUES. THE NORTH PACIFIC COUNCIL UNDERSTOOD THIS AND DEVELOPED A PLAN THAT RECOGNIZED THE COMMITMENTS MADE BY ALL SECTORS OF THIS FISHERY AND TIED THE RESOURCE TO THE COMMUNITIES THAT HAVE HISTORICALLY PROCESSED THE CRAB.

SAFETY WILL ALSO BE ACHIEVED BY THIS CRAB PLAN AND THIS POINT IS IRREFUTABLE. THE REALITY IS IF WE DO NOT PASS THE CRAB PLAN IN ITS ENTIRETY NOW IT WILL BE MANY MORE YEARS, POSSIBLY EVEN 10 YEARS, BEFORE THE COUNCIL COULD DEVELOP ANOTHER RATIONALIZATION PROGRAM AND FULLY IMPLEMENT IT. THE NORTH PACIFIC COUNCIL IS DEVELOPING OTHER COMPREHENSIVE RATIONALIZATION PROGRAMS FOR THE GULF OF ALASKA GROUND FISH FISHERIES AND LIKELY WILL TURN TO BERING SEA NONPOLLOCK GROUND FISH FISHERIES AFTER THAT. THE COUNCIL CANNOT SIMPLY STOP WORK ON THESE OTHER PROGRAMS AND ADDRESS CRAB RATIONALIZATION AGAIN. IT WOULD BE EXTREMELY UNFAIR TO THOSE OTHER FISHERIES AND WOULD RESULT IN THOSE PROGRAMS HAVING TO BE COMPLETELY REDONE BECAUSE DATA AND FACTORS WILL INEVITABLY CHANGE CAUSING COUNCIL RECOMMENDATIONS AND CONSIDERATIONS TO BE VASTLY DIFFERENT. IF THE CRAB

PLAN DOES NOT MOVE FORWARD IN ITS ENTIRETY THE DEADLY RACE FOR FISH WILL CONTINUE.

IN CLOSING I BELIEVE SOME HARSH REALITIES ABOUT THE BERING SEA CRAB FISHERY WILL ILLUSTRATE WHY WE MUST IMPLEMENT THIS PROVISION IMMEDIATELY. THE BERING SEA/ALEUTIAN ISLANDS CRAB FISHERY IS RATED THE MOST DANGEROUS OCCUPATION IN THE U.S. FROM 1990 TO 2001, THERE WERE 61 FATALITIES AND 25 VESSELS WERE LOST; AND IN THE RECENT OCTOBER 2003 RED KING CRAB FISHERY, BOATS WERE LOST AND A PERSON KILLED. THIS PAST OCTOBER CRAB FISHERY WAS ONE OF THE WORST WEATHER-WISE EVER, WITH NEARLY CONSTANT GALE FORCE WINDS AND HUGE OCEAN SWELLS. UNDER THE CRAB PLAN FISHERMEN COULD HAVE CHOSEN TO WAIT UNTIL THE WEATHER CLEARED.

CONDITIONS ARE EVEN MORE EXTREME DURING THE WINTER CRAB FISHERY IN THE BERING SEA WHEN IT IS ALMOST ALWAYS DARK, EXTREMELY COLD AND THE SEAS SEND FREEZING OCEAN SPRAY THAT ICE DOWN THE CRAB VESSELS. THE DERBY-STYLE FISHERY REQUIRES DECKHANDS TO WORK ALL DAY AND ALL NIGHT, OUTSIDE ON ICY DECKS, IN ROLLING 10 TO 20 FOOT SEAS, RETRIEVING 700-POUND STEEL POTS, SORTING CRAB AND THEN DROPPING THE POTS IN NEW PLACES.

OBVIOUSLY, THIS IS VERY DANGEROUS, BUT IT IS ALSO VERY INEFFICIENT AND DAMAGING TO THE RESOURCE. THE BOATS ARE RACING TO HARVEST THE CRAB BEFORE THE GUIDELINE HARVEST LEVELS ARE REACHED WHICH REQUIRES THEM TO PULL THEIR POTS EARLY NOT ALLOWING THEM TO "SOAK" LONGER PERMITTING YOUNGER CRABS TO ESCAPE. THE RESULT IS THE YOUNGER CRABS ARE UNNECESSARILY KILLED CAUSING THE STOCKS TO SUFFER.

IF WE DO NOT IMPLEMENT THIS PROVISION LIVES WILL CONTINUE TO BE LOST AND THE RESOURCE AND THE ENVIRONMENT WILL SUFFER. THE OPPOSITION OF A VOCAL FEW THAT BELIEVE THEY DESERVE A BETTER DEAL AND ENVIRONMENTAL GROUPS THAT WANT TO TURN THE WATERS IN THE NORTH PACIFIC IN TO VAST MARINE RESERVES OR "NO TAKE ZONES" ARE BEHIND THE OPPOSITION TO CRAB RATIONALIZATION. THEIR ATTACKS ARE SHAMEFUL, SELF RIGHTEOUS AND DISINGENUOUS. WE HAVE AN OBLIGATION TO PROTECT THE CRAB RESOURCE

IN THE BERING SEA AND PREVENT ANY FURTHER LOSS OF LIFE IN THIS FISHERY. THIS IS EXACTLY WHAT CRAB RATIONALIZATION WILL ACHIEVE AND TO ARGUE ANYTHING ELSE IS JUST NOT TRUE.

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APPENDIX 3

SOCIAL IMPACT ASSESSMENT OF THE ENVIRONMENTAL IMPACT STATEMENT FOR BERING SEA AND ALEUTIAN ISLANDS CRAB FISHERIES OVERVIEW AND COMMUNITY PROFILES

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ACRONYMS

ADF&G	Alaska Department of Fish and Game
AEB	Aleutians East Borough
AEC	Aleut Enterprise Corporation
AFA	American Fisheries Act
ANCSA	Alaska Native Claims Settlement Act
APICDA	Aleutian Pribilof Islands Development Association
ARC	Adak Reuse Corporation
BBEDC	Bristol Bay Economic Development Corporation
BINMIC	Ballard Interbay Northern Manufacturing Industrial Center
BSAI	Bering Sea/Aleutian Islands
CBSFA	Central Bering Sea Fisherman's Association
CDQ	Community Development Quota
CFEC	Commercial Fisheries Entry Commission
CMSA	Consolidated Metropolitan Statistical Area
CVRF	Coastal Villages Region Fund
DCED	Department of Community and Economic Development
DOD	Department of Defense
EAI	Eastern Aleutian Islands
EEZ	Exclusive Economic Zone
EIS	Environmental Impact Statement
FAO	Food and Agriculture Organization of the United Nations
FBT	Fishery Business Tax
FMP	Fishery Management Plan
GHL	guideline harvest level
IFQ	Individual Fishing Quota
KIB	Kodiak Island Borough
LRA	Local Reuse Authority
mph	miles per hour
MSA	Magnuson-Stevens Act
NAF	Naval Air Facility
NAVFAC	Naval Facility
NMFS	National Marine Fisheries Service
NPFMC	North Pacific Fishery Management Council
NSEDC	Norton Sound Economic Development Corporation
NSGA	Naval Security Group Activity
NWR	National Wildlife Refuge
PIP	Pribilof Island Processors
PMA	Proposed Management Alternatives
QS	quota share
REIS	Regional Economic Information System
SEIS	Supplemental Environmental Impact Statement
SIA	Social Impact Assessment
TAC	total allowable catch
USDOJ	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
VFW	Veterans of Foreign Wars
WAI	Western Aleutian Islands
YDFDA	Yukon Delta Fisheries Development Association

OVERVIEW OF CRAB COMMUNITY SOCIOECONOMIC PROFILES

In addition to discussions of background, methodology, and experience with rationalization programs, this document contains profiles of selected communities that are engaged in, and substantially dependent upon, the Bering Sea/Aleutian Islands (BSAI) crab fishery. The nature of engagement with, and the level of dependence upon, the crab fishery varies from community to community.

This section is guided, in part, by National Standard 8 under the Magnuson-Stevens Act (MSA). National Standard 8 is part of a set of standards that apply to all Fishery Management Plans (FMPs) and regulations promulgated to implement such plans. Specifically, National Standard 8 states that:

Conservation and management measures shall, consistent with the conservation requirements of this [Magnuson-Stevens] Act (including the prevention of overfishing and rebuilding of overfished stocks), take into account the importance of fishery resources to fishing communities in order to (A) provide for the sustained participation of such communities and (B) to the extent practicable, minimize adverse economic impacts on such communities (Sec. 301(a)(8)).

The MSA defines a "fishing community" as "...a community which is substantially dependent on or substantially engaged in the harvest or processing of fishery resources to meet social and economic needs, and includes fishing vessel owners, operators, and crew, and United States fish processors that are based in such community" (Sec. 3 [16]). The National Marine Fisheries Service (NMFS) further specifies in the National Standard guidelines that a fishing community is "...a social or economic group whose members reside in a specific location and share a common dependency on commercial, recreational, or subsistence fishing or on directly related fisheries dependent services and industries (for example, boatyards, ice suppliers, tackle shops)" (63 FR 24235, May 1, 1998). "Sustained participation" is defined by NMFS as "...continued access to the fishery within the constraints of the condition of the resource" (63 FR 24235, May 1, 1998).

Consistent with National Standard 8, this section identifies affected regions and communities and describes and assesses the nature and magnitude of their dependence on and engagement in the BSAI crab fisheries. While this section does not contain detailed analyses of the potential impacts of individual management alternatives or options under consideration in the main body of this Environmental Impact Statement (EIS), each community profile contains a general consideration of the direction and magnitude of change likely under the main alternatives.

1.0 BACKGROUND AND METHODOLOGY

For the purposes of this social impact assessment, a two-pronged approach to analyzing the community or regional components of potential change associated with the proposed crab management alternatives was utilized. First, summary tables based on existing quantitative fishery information (and accompanying narrative discussions) were developed to illustrate patterns of participation in the various components of the fishery, and these were presented in the main body of the EIS. This analysis, contained in Section 3.4.4 of the EIS, focuses on fishery sectors (harvesters, catcher processors, and processors) and portrays the existing conditions or baseline distribution of these sectors across communities and regions. The associated analysis of alternatives (Section 4.6.5 of the EIS) discussions looks at the potential differential distribution of impacts to communities and regions that could accompany potential changes in the sectors brought about by the various management alternatives. As discussed in Section 3.4.4, however, there are substantial limitations on the data that can be utilized for these purposes, based on confidentiality restrictions. A prime example of this is where a community is the site of a single processor, or even two or three processors. No information can be disclosed about the volume and value of crab landings in those communities. This, obviously, severely

limits quantitative discussions of the potential impacts of alternatives on those communities. In short, the frame of reference or unit of analysis in Section 3.4.4 is the individual sector. Combining information on the distribution of those sectors across communities with information on alternative induced changes to the individual sectors, it is (in theory) relatively straightforward to see how impacts to any given sector may be differentially distributed across communities and regions within this framework. The practicalities of data limitations, however, serve to restrict this discussion.

The second approach to producing a comprehensive social impact assessment involved selecting a subset of BSAI crab communities for characterization to describe the range, direction, and likely order of magnitude of social and community level impacts associated with the management alternatives for the relevant crab fisheries. The approach of using a subset of communities rather than attempting detailed characterization of all of the communities in the region(s) involved was chosen due to the practicalities of time and resource constraints. As noted in the main body of the document, and elaborated below, the total set of communities engaged in the fishery is numerous and far-flung. Communities (and types of potential or likely impacts) vary based upon the type of engagement of the individual community in the fishery, whether it is through being home port of a portion of the catcher vessel fleet, being the location of shore-based processing, being the base of catcher processor or floating processor ownership or activity, or being the location of fishery support sector businesses. In short, the approach employed in this document (Appendix 3 to the EIS), uses the community or region as the frame of reference or unit of analysis (as opposed to the fishery sector as in the first approach [in Section 3.4.4 of the EIS itself]). This approach examines, within the community or region, the local nature of engagement or dependence on the fishery in terms of the various sectors present in the community and the relationship of those sectors (in terms of size and composition, among other factors) to the rest of the local social and economic context. This approach then explores the likely social and community impacts that would result from the rationalization associated changes to the locally present sectors in combination with other community specific attributes and socioeconomic characteristics.

In terms of the catcher vessel or harvest sector component of the fishery, many communities across a very wide area are involved in the fishery, but marked areas of concentration of the fleet are apparent. Table 1.0-1 summarizes the location of the fleet by crab fishery participation for all communities in the 1991-2000 period that had two or more vessels (on an annual average basis) participate in the BSAI crab fisheries included in the proposed management alternatives analyzed in this EIS.¹ In addition to the communities listed in the table, a fairly long list of communities participated in the BSAI crab fisheries over the 1991-2000 era, but

¹ In this document, "PMA crab" is used in data tables as an abbreviated reference to relevant BSAI crab species that are being considered for inclusion in the Proposed Management Alternatives in this EIS (the rationalization alternatives, along with the status quo alternative). Crab species and stocks included in the proposed alternatives include Adak (Western Aleutian Islands [WAI]) brown (golden) king crab (*Lithodes aequispina*), Adak (WAI) red king crab (*Paralithodes camtschaticus*), Bristol Bay red king crab (*P. camtschaticus*), Bering Sea opilio (snow) crab (*Chionoecetes opilio*), Bering Sea tanner (*C. bairdi*), Dutch Harbor (Eastern Aleutian Islands [EAI]) brown (golden) king crab (*L. aequispina*), Pribilof blue king crab (*P. platypus*), Pribilof red king crab (*P. camtschaticus*), and St. Matthew blue king crab (*P. platypus*). Three additional species or stocks were originally proposed for inclusion in the rationalization program but were later excluded (and do not appear in the quantitative data tables in this section) due to low levels of harvest and/or recent multi-year closures: Dutch Harbor (EAI) red king crab (*P. camtschaticus*), EAI tanner (*C. bairdi*), and WAI tanner (*C. bairdi*). The rationalization program includes Adak red king crab west of 179° W Longitude and excludes it east of this line, but the tables in this section include data for this species/stock from both sides of the line. In the tables, the "non-PMA" crab designation includes all crab species not proposed for inclusion in the rationalization program including, among others, species covered by the BSAI crab FMP but managed under state discretion via an ADF&G commissioner's permit (e.g. AI scarlet king crab [*L. couesi*]), BSAI federal waters fishery crab managed by the state and not included in the FMP (e.g., Korean hair crab [*Erimacrus isenbeckii*]), low-volume primarily state water fisheries (e.g., Aleutian District Dungeness [*Cancer magister*], or non-BSAI FMP area federal fisheries (e.g., multiple Gulf of Alaska crab fisheries).

these communities averaged less than two vessels on an annual basis.² It is important to note, as discussed in the individual community profiles in this document (Appendix 3) as well as in the main body of the EIS (in Section 3.4.4), the number of participating vessels from a given community is not necessarily indicative of the relative volume and value of harvest associated with that community.

Table 1.0-1 Average Annual Number of Vessels Participating (qualified landings) in Relevant BSAI Crab Fisheries 1991-2000 by Community (with a minimum average of two vessels)

State	City	Bristol Bay Red (BBR)	Bering Sea Opilio (BSO)	Bering Sea Tanner (BST)	BBR/BSO/ BST Combined	Other 6 PMA Crab	Total All 9 PMA Crab
Alaska	Kodiak	28.6	31.9	20.9	37.1	19.6	38.6
	Homer	6.2	7.8	5.0	8.3	4.8	8.3
	Anchorage	4.3	5.6	2.7	6.1	3.2	6.1
	Sand Point	2.9	3.1	2.1	3.8	2.6	4.5
	Petersburg	3.1	4.0	1.9	4.0	1.6	4.0
	Unalaska	1.4	2.1	0.9	3.0	2.4	3.4
	King Cove	2.3	2.1	1.6	3.1	1.4	3.1
	Cordova	1.5	1.8	1.3	2.0	0.8	2.0
Oregon	Newport	6.9	7.5	4.5	9.4	4.9	10.6
Washington	Seattle-Tacoma CMSA*	107.3	125.8	75.3	146.0	68.8	147.2
	Bellingham	1.6	2.1	1.0	2.3	0.6	2.3

Notes: Average vessel counts for combined crab categories based on 10 years. Average vessel counts for individual crab fisheries are based on the number of years 1991-2000 each was actually open (BBR 8 years; BSO, 10 years; BST, 6 years).

* Seattle-Tacoma Consolidated Metropolitan Statistical Area, comprised of King, Pierce, and Snohomish Counties.

In terms of processing, crab processors include catcher processors, floaters, and shore-based plants spread over a broad geographic base of participation, but a marked concentration of capacity analogous to that seen in the catcher fleet is also present among processors. While there are over 100 facilities throughout Alaska that process BSAI crab, most crab is processed by the relatively limited set of American Fisheries Act (AFA) qualified processors located in Unalaska/Dutch Harbor, Akutan, and King Cove (NMFS 2002). Table 1.0-2 summarizes the location of operations for processors for all communities in the 1991-2000 period that had an annual average of greater than 0.5 processors participating in the BSAI crab fisheries covered by the proposed management alternatives. In addition to the communities listed in the table, around a dozen communities participated in the BSAI crab fisheries over the 1991-2000 era but averaged less than 0.5

² In addition to the communities shown in Table 1.0-1, participation of Alaska communities by fewer than an average of two vessels (in order of participation) included Kenai, Seldovia, Yakutat, Seward, Sitka, Akutan, and Soldotna. In Washington, named places within the Seattle-Tacoma Consolidated Metropolitan Statistical Area (CMSA) that included an average greater than two vessels included Seattle, Edmonds, Bellevue, Lynnwood, and Mercer Island; communities in the Seattle-Tacoma CMSA with an average of less than two vessels included Milton, Bothell, Mill Creek, Redmond, Snohomish, Kirkland, Stanwood, Woodinville, Shoreline, Mukilteo, Gig Harbor, Issaquah, Kent, Bainbridge Island, Brier, Carnation, Monroe, Vashon, Everett, Federal Way, and Tacoma. Communities in Washington outside the Seattle-Tacoma CMSA that included an average of less than two vessels included Chehalis, Cathlamet, Olympia, Sedro Wooley, Edison, Polso, Curtis, Manson, Oysterville, Longview, Ocean Shores, Camano Island, Anacortes, Clinton, Nahcotta, Oak Harbor, and South Bend. Communities in Oregon with less than two vessels annual average participation included Prineville, Seal Rock, Cascade Locks, Warrenton, Hammond, South Beach, and Depoe Bay. Communities in other states with fewer than two vessels annual participation include Richmond CA, Stryker MT, Kailua (Kona) HI, Emmett ID, Swanlake MT, Brewster MA, Mankato MN, Lake Havasu AZ, and Lakeside MT.

processors on an annual basis.³ As shown in the table, not all processors have designating operating areas and are thus not assigned to communities. These include catcher processors, and a number of (but by no means all) floating processors. This table (Table 1.0-2) is intended to portray the geographic spread of processing by number of processing facilities; caution should be applied if this information is used for other purposes. A primary caution is that the number of participating entities in a community does not necessarily correspond to volume and value of crab processed. For example, while Kodiak is shown as the number three community in terms of average annual number of processors running BSAI crab, this represents a relatively low volume and value of crab compared with some other communities, as discussed in the Kodiak community profile. Similarly, a small number of processors does not equate to an insignificant amount of

Table 1.0-2 Average Annual Number of Processors in Relevant BSAI Crab Fisheries 1991-2000 by Community (with a minimum average of 0.5 processors)

Designation Status	City	Bristol Bay Red (BBR)	Bering Sea Opilio (BSO)	Bering Sea Tanner (BST)	BBR/BSO/ BST Combined	Other 6 PMA Crab	Total All 9 PMA Crab
Operating Area Designated	Unalaska	7.1	9.1	8.5	9.7	5.7	9.9
	St. Paul	0.9	5.9	2.0	5.9	2.4	5.9
	Kodiak	3.4	3.0	6.2	5.3	1.2	5.4
	St. Matthews	0.0	0.3	0.0	0.3	1.9	2.2
	King Cove	1.0	1.5	1.3	1.7	0.8	1.7
	Anchorage	0.5	0.7	1.0	1.2	0.6	1.3
	Port Moller	1.1	0.0	1.5	1.2	0.0	1.2
	Akutan	1.0	1.0	1.2	1.1	0.8	1.1
	St. George	0.0	1.0	0.2	1.1	0.0	1.1
Operating Area Not Designated	Catcher Processors	10.8	16.0	15.7	16.6	5.9	17.5
	Undesignated Floaters	3.4	5.1	7.0	8.3	2.3	9.0

Notes: Multiple facilities operating in the same location for the same processor were only counted once (most commonly multiple floaters).
 Facilities of the same company operating in different communities were counted in each such community.
 Floaters were counted once for each community in which they operated in any given year.
 Floaters assignable to specific locations were so assigned – others are shown as "undesignated."
 Catcher processors by definition have no specific processing location
 Averages for individual fisheries were calculated using only those years each fishery was open in the period 1991-2000.

Source: Summarized from the NPFMC Bering Sea Crab Data Base/2001_1

crab being processed. For example, while specific production figures are confidential, it is common knowledge that the single plant in Akutan is a relatively large operation, so this community may see more crab processed locally than some communities with more processing entities present. It is also important to note that although BSAI crab processing operations take place in Alaska, and Alaskan communities derive

³ In addition to the communities shown in Table 1.0-2, participation of Alaska communities with fewer than an annual average of 0.5 processors over the years 1991-2000 include Adak and Homer (0.4 average); Cordova, False Pass, and Wasilla (0.3 average); Naknek and Ninilchik (0.2 average); and Chignik and Dillingham (0.1 average). In addition to communities, Kiska (an island in the Rat Islands group in the far western Aleutians), Lost Harbor (a bay on the western side of Akun Island, in the Fox Islands group of Aleutian Islands to the east of Akutan), and Tanaga (in the Andreanof Islands group of Aleutian Islands approximately 50 miles west of Adak), three geographic areas without nearby communities/resident populations, are listed as having seen some processing activity during this time (each has a 0.1 average). The data set also shows that an annual average of 0.3 processors operated in the South Region that do not have a community associated with the processing records.

substantial benefits from these operations (through tax revenues, associated business activity, and so on), the ownership of crab processors or, perhaps more accurately, the ownership/management of the large majority of crab processing capacity is largely concentrated in Seattle.

In terms of the location of the BSAI crab fishery support sector, as discussed in the individual profiles, Unalaska/Dutch Harbor is the center of support for the fishery within Alaska, with a secondary cluster of businesses in Kodiak. In the smaller participating communities, fleet support is typically provided through processor facilities. In the Pacific Northwest, and for the fishery as a whole, the greater Seattle area is the center for the BSAI crab fishery support service sector.

As discussed in the main body of the text, the North Pacific Fishery Management Council (NPFMC) recently completed a process of evaluating several major management alternatives to rationalize the BSAI crab fisheries, including Individual Fishing Quota (IFQ) type models and fishery cooperative models. Each of these primary models included options for inclusion of processor interests and fishery community interests. The specific rationalization program developed as the preferred alternative by the NPFMC, the "three-pie" approach, has become one of the main alternatives in this subsequent EIS. A major consideration in the rationalization analysis process was the potential economic impacts to the various sectors in the crab fisheries, as well as the social and economic impacts to communities and regions dependent upon these fisheries. This focus has extended to the EIS analysis process. The purpose of the information contained in this section is to supplement the NPFMC and NMFS staff analyses with information relevant to the assessment of potential community and regional social impacts. The communities profiled in this section include:

- **Unalaska/Dutch Harbor** - as the Alaskan center of the processing and support sectors for the fishery (among other ties). Good recent information exists for the community in other NPFMC/NMFS documents but tends to be groundfish oriented. Limited fieldwork was conducted in the community to fill this gap.
- **Akutan** - as a center community in terms of processing, but with very limited engagement via direct harvest participation and/or support service sector involvement. Akutan is unique in its blend of a developed processing location and Community Development Quota (CDQ) status, and nature of the industrial enclave and traditional village distinctions seen in the community. Relevant recent material was available from earlier NPFMC/NMFS documents, but was somewhat dated. Due to logistical and other pragmatic considerations, this community profile was updated with available secondary information and supplemented with a limited amount of data gathered in a few interviews with relevant processing and municipal entity personnel in Anchorage and Seattle.
- **King Cove** - as a non-center community, but heavily involved in the fishery, primarily due to local processing, and with some local harvest engagement. There is some relevant recent material available from earlier NPFMC/NMFS documents, but much of the material is quite dated. Limited fieldwork was conducted in the community to supplement these data.
- **Sand Point** - like King Cove is a non-center community, but is involved in the fishery primarily through local harvest engagement. No BSAI crab processing has taken place in the community in recent years. Relevant recent material was available from earlier NPFMC/NMFS documents but was somewhat dated. Due to logistical and other pragmatic considerations, this community profile was updated with available secondary information and supplemented with limited data gathered in a few interviews with relevant entity personnel in Anchorage and Seattle.
- **Adak** - as a developing fisheries community, in marked counterpoint to the existing developed communities, as rationalization approaches based on historical participation would have

fundamentally different impacts in a developing rather than an established community. There is virtually no current descriptive information available on the community. This is an important study community due to the conversion from a military to a civilian community, the links of the community to the regional Alaska Native Claims Settlement Act (ANCSA) corporation, its unique position in the western Aleutians, and the importance of local fisheries development for the economic viability of the community. It is also important as a representative community of potential preclusion issues associated with rationalization. The analysis of these factors was addressed through limited fieldwork in the community.

- **St. Paul** - as the focus of the "North Region" in the crab analysis. The most recent comprehensive fisheries-oriented community profile dates from Inshore/Offshore-1 a decade ago and required updating. Limited fieldwork was conducted in the community to address this shortcoming.
- **St. George** - as a "North Region" region community with relatively low levels of historic participation in the fishery and one that is therefore potentially vulnerable to preclusion from future consideration in the fishery. St. George may also be seen as representative of communities that have benefitted from mobile but not "permanent" shore processing. Recent NPFMC/NMFS documents do not contain detailed information on the engagement of the community in the fishery, and limited fieldwork was conducted in the community to address this shortcoming.
- **Kodiak** - as the Alaskan center of the harvest sector of the fishery (among other ties). There was recent material to build upon from earlier NPFMC/NMFS documents, but it was groundfish oriented, and in some cases quite dated. Limited fieldwork was conducted in the community to supplement these data.
- **Seattle** - as the economic center of the fishery, both for the Pacific Northwest as a region and the fishery as a whole. Like Unalaska/Dutch Harbor, good recent information exists from recent NPFMC/NMFS documents but is groundfish oriented. This has required updating, and some limited fieldwork was conducted as a supplement to compiling secondary data.
- **Community Development Quota region** - due to CDQ-specific program links to the fishery. This profile builds on analysis that was completed for earlier NPFMC/NMFS documents, particularly the Steller Sea Lion Protection Measures Supplemental Environmental Impact Statement (SEIS). (NMFS 2001a). This update was performed using secondary data.

A more detailed discussion of the specific methodological approach used for this section is provided in Social Impact Assessment (SIA) Attachment 1: Social Impact Assessment Study Methodology.

2.0 ALASKA COMMUNITIES

2.1 INTRODUCTION

In this section, eight Alaska communities with direct links to the BSAI crab fishery are profiled in detail. These are Unalaska, Akutan, King Cove, Sand Point, Adak, St. Paul, St. George, and Kodiak. These communities vary in their geographic relation to the fishery; their historical relationship to the fishery; the nature of their contemporary engagement with the fishery through local harvesting, processing, and support sector activity or ownership; their local governmental structures; their participation in the CDQ program; and their contemporary social and economic structures. Each of these factors alone and in combination influences the direction and magnitude of potential social impacts associated with the BSAI crab fishery proposed management alternatives. These alternatives are mentioned in overview in this introductory section and are developed as appropriate and relevant in the individual community profiles. Additionally, with respect to the rationalization alternatives, there have been "lessons learned" through experience with other instances of fisheries rationalization programs, notably the halibut and sablefish IFQ programs and the pollock cooperatives institutionalized under the provisions of the AFA. These are also mentioned in overview in this introduction section and detailed where appropriate in the individual community profiles. Finally, this introduction contains an overview of the likely social impacts of the crab fishing capacity reduction program that is occurring in parallel with this proposed management alternative analysis effort.

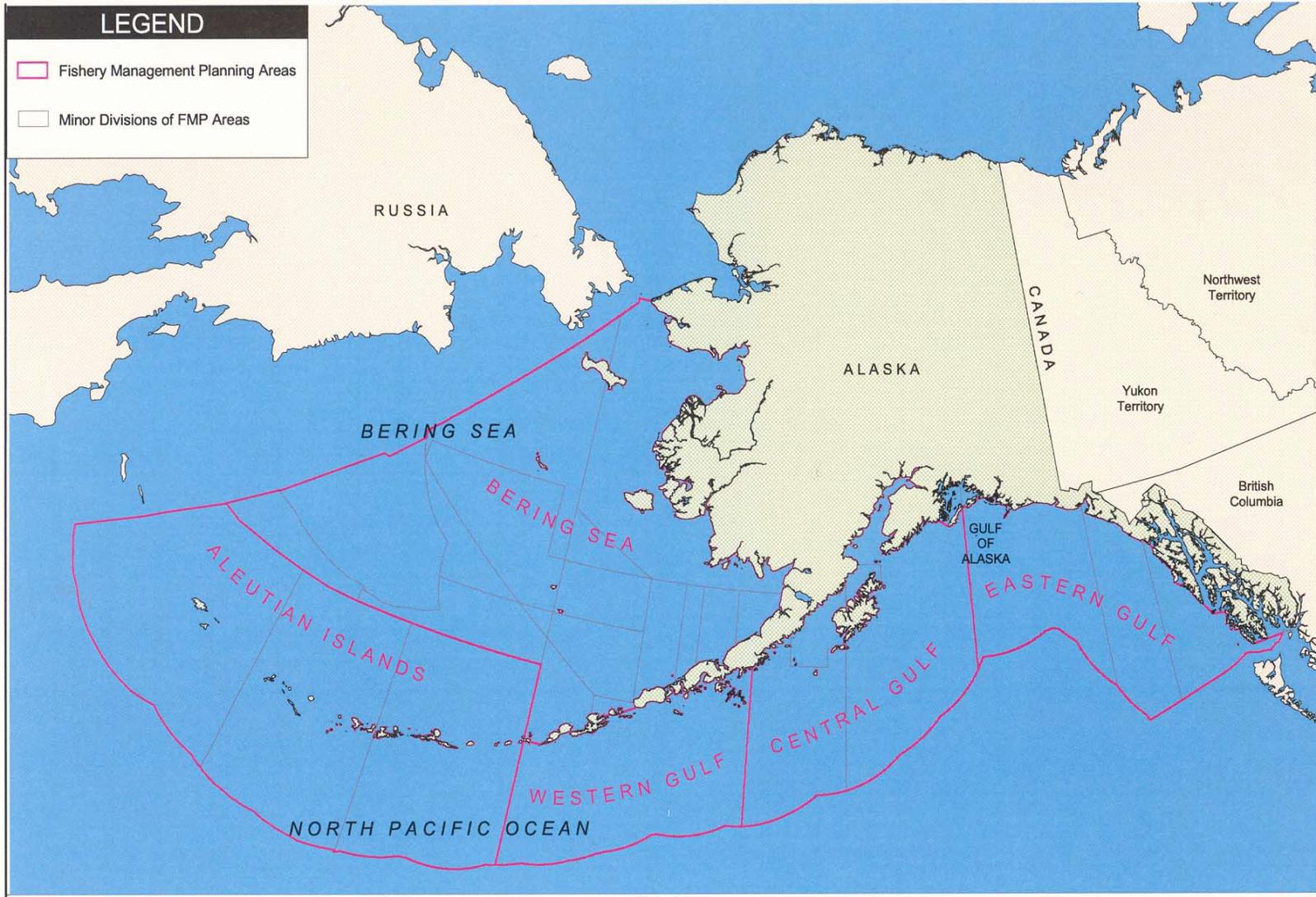
Community Variability

The communities involved in the BSAI crab fisheries vary along a number of important dimensions that serve to differentiate the present communities in terms of their engagement in and dependency on the fisheries and that would serve to influence the differential distribution of impacts that would result from the various proposed management alternatives. These dimensions are briefly summarized in this section and include location and historical ties to the fishery, local governmental structures, participation in the CDQ program, and the contemporary social and economic structure of the communities.

Location and Historical Ties to the Fishery

BSAI crab fishery communities are spread over a wide geography. St. Paul and St. George, located in the Pribilof Islands, are literally in the middle of the Bering Sea. Unalaska, Akutan, and Adak, on the Aleutian Chain, are located on the southern rim of the Bering Sea. King Cove, Sand Point, and Kodiak, on the Alaska Peninsula, Popof Island, and Kodiak Island, respectively, are located on the Gulf of Alaska; nonetheless, significant BSAI commercial fishery processing takes place in these communities. In general, Aleutians East Borough (AEB) communities on or near the Alaska Peninsula, such as King Cove and Sand Point, have typically accessed fishery resources in both the Bering Sea and the Gulf of Alaska, whereas the Aleutians West Census Area communities have focused more on Bering Sea (and Aleutian Islands) area fishery resources. While this theoretically gives the AEB communities an increased range of flexibility, in practical terms it means that these communities are also vulnerable to downturns of fisheries in either major area. Kodiak vessels and plants have historically harvested and processed more distant BSAI resources as well as geographically more readily accessible Gulf of Alaska resources. Figure 2.1-1 shows the location of the FMP areas for the Bering Sea, Aleutian Islands, and Gulf of Alaska. Figure 2.1-2 shows the location of the communities in the Aleutians West Census Area and the AEB. Figure 2.1-3 shows the location of the communities within the Kodiak Island Borough.

NPFMC Crab Rationalization
IK20714P/Alaska_fmpp.apr 1/17/02 (ch)



Sources: ESRI, NOAA



Scale: 1"= 300 Miles

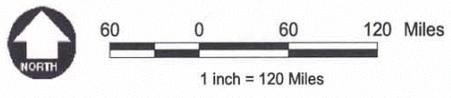
Fishery Management Planning Areas of Alaska

NPFMC Crab Rationalization
 1K207GISsuprs\alekaprd\aprr_1/17/02 (csh)



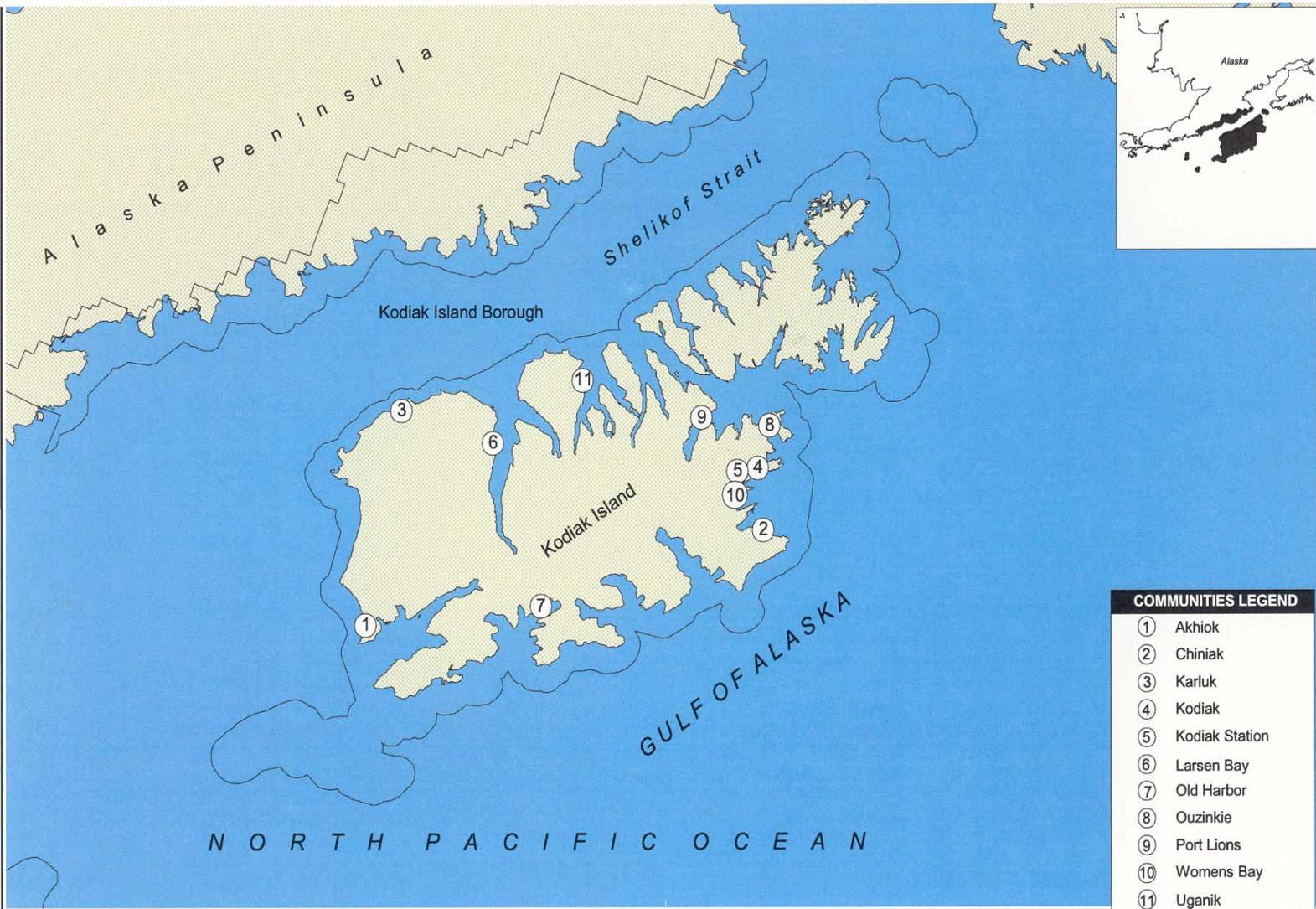
COMMUNITIES LEGEND	
① Adak	⑦ Nelson Lagoon
② Akutan	⑧ Nikolski
③ Atka	⑨ St. George
④ Cold Bay	⑩ St. Paul
⑤ False Pass	⑪ Sand Point
⑥ King Cove	⑫ Unalaska/ Dutch Harbor

Sources: ESRI, ProximityOne

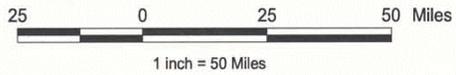


**Alaska Peninsula/Aleutian Islands
 Area Communities**

NPFMC Crab Rationalization
14207/GIS/apsr/akko.apr 1/17/03 (ch)



Sources: ESRI, ProximityOne



Kodiak Island Communities

These communities profiled have very different histories with respect to the Bering Sea and Aleutian Islands crab fisheries. Early in the development of these fisheries, Kodiak was the center of crab processing. Somewhat later, Unalaska/Dutch Harbor emerged as the center of both processing and fishery support activity, a position it has held since the crab boom years of the late 1970s. Akutan, as a village proper, has had little direct involvement with the commercial fisheries of the region, but it has also been the site of commercial trapping, whaling, and fisheries activity for over a century. King Cove, a community with a substantial fisheries-based economy for the better part of a century, has emerged as a multispecies-dependent community wherein crab plays a major role. Sand Point has a history similar to that of King Cove, but it has seen no processing engagement with BSAI crab in recent years. St. Paul and St. George have quite a different historical relationships to local commercial natural resource utilization than Unalaska, Akutan, King Cove, or Sand Point. Both St. Paul and St. George were founded upon and for decades were sustained by a commercial harvest of marine mammals rather than fishery resources. Further, these Pribilof communities face fishery development challenges not seen in the other communities profiled. Despite being adjacent to waters where a great deal of crab harvest activity takes place, St. Paul has seen little onshore commercial fisheries-related development, due to a lack of adequate harbor facilities and infrastructure as well as logistical challenges inherent in a location that is relatively remote from major transportation routes and the environmental constraints of more extreme weather and ice conditions resulting from its northerly location. St. George has seen considerably less shore-based processing activity than St. Paul and faces even greater harbor challenges than its larger neighbor.

Adak has yet a different historical relationship to the fishery. Like St. Paul and St. George, Adak historically did not have a commercial fisheries-based economy. While some commercial fishing related activity has taken place over the years, Adak was first and foremost (and virtually exclusively) a military community until very recently. This has meant that the recently emerged civilian community is essentially attempting to build a fisheries-based local economy from scratch. Kodiak, which early in the development of the Bering Sea crab fishery was at its economic if not geographic center, has in more recent years effectively been pushed to the periphery of this fishery by the development of crab harvesting, processing, and fishery support capacity elsewhere. These varying historical relationships with the fisheries have served to shape the contemporary involvement with the BSAI crab fisheries and will influence the way that social impacts resulting from crab fishery management decisions will be differentially distributed between and within communities.

Changes in the pattern of distribution of BSAI crab harvesting, processing, or ownership of (or effective access to) quota could have both direct and indirect economic consequences for any or all of the principal ports. While it is clear that changes in overall quota would have an impact on these communities (and have in the past), major shifts in the way even a constant quota or total allowable catch (TAC)/guideline harvest level (GHL) is pursued could serve to effectively shift resources between and among sectors and associated communities. In addition to the historical/structural differences between communities, these impacts would not be uniform in distribution across the eight communities profiled, owing to proximity to fishing grounds, differing natures of resident and nonresident fleets that make local and non-local deliveries, locally owned or locally sited processing plant capacity and capability differences, availability and variety of support facilities offered, and intermediate and final markets served, among other factors.

Local Governmental Structures and the Aleutians East Borough

Beyond the differences in the localized structure of the fisheries and the associated private sector businesses in the communities that tend to channel fishery management-related social or socioeconomic impacts, there are also differences in public sector structures and these also influence the nature and magnitude of potential localized social impacts. The communities have somewhat different local government structures, and this, in turn, influences the distribution of public revenues that accrue from the crab fishery. Unalaska/Dutch Harbor, Adak, St. Paul, and St. George are municipalities outside of organized boroughs. Akutan, King Cove,

and Sand Point are part of the AEB, and Kodiak is part of the Kodiak Island Borough. Whether or not communities are within a borough has a direct impact on the way that fishery-associated tax revenues are distributed among and between communities, including regional communities not directly involved with the fishery. This is nowhere more obvious than in the AEB, where Akutan, King Cove, and Sand Point are the primary drivers of the fisheries-based portion of the borough economy. The Kodiak Island Borough is discussed in overview in the Kodiak community profile which notes the borough participates in the BSAI crab fisheries to a very large degree through the community of Kodiak itself. Since the AEB spans three major communities that participate directly in the open access BSAI crab fisheries and others that participate in the CDQ portion of the fisheries, some additional information on the AEB itself is presented here.

While local (community) revenues are discussed in the individual community profiles, the following is a brief description of the interrelationships of revenues within the AEB structure:

- According to the AEB Manager (Juettner, personal communication, 2001⁴), the AEB will receive a total of \$1.4 million as its share of the Fishery Business Tax (FBT) for the 2000 fishery from all species including groundfish, crab, salmon, and other fisheries processed in the AEB. The State of Alaska shares the FBT (calculated generally as 3 percent of ex-vessel value) as follows:
 - 1.5 percent goes to the state
 - 1.5 percent (i.e., one-half of the 3 percent collected) goes to the local governments in whose jurisdiction the processing occurs, which in turn is split 50 percent to the city and 50 percent to the borough⁵
- All of the processing in the AEB takes place within cities in the borough, and therefore the borough shares all of the FBT 50-50 with the city in which the processing occurs. Therefore, the AEB's \$1.4 million FBT revenue represents 0.75 percent of the total ex-vessel value processed in the AEB (with the other 0.75 percent [i.e., the other half of the 1.5 percent the state shares with local governments] going directly to the cities). Dividing \$1.4 million by 0.0075 yields an estimated \$187.7 million total ex-vessel value of processing in the AEB. Unfortunately for the purposes of further analysis, information from the AEB indicating species-specific ex-vessel values is confidential and cannot be released.
- In addition to the State FBT, the AEB and each community within the AEB collects local fish taxes of 2 percent, except for Akutan, which taxes at a 1 percent rate. Thus, all processors in the AEB (with the exception of Akutan) pay 5.5 percent of ex-vessel value in taxes, and for Akutan the analogous figure is 4.5 percent. Assuming that roughly 50 percent of the total tax revenue was generated in Akutan and 50 percent in other communities within the AEB, the average fish tax collected in AEB communities is 5 percent of the total ex-vessel value.

It is also important to note that significant impacts through loss of fishery-related revenue that could result from fishery management actions would be felt in all AEB communities, not just those communities directly engaged in the fishery. This is the case because communities without major processing plants (Cold Bay,

⁴ Juettner, Robert, Borough Manager, Aleutians East Borough, AK. Personal communication 7/01

⁵ If processing occurs outside of any local government jurisdiction (for example, when a floating processor operates in Beaver Inlet on Unalaska Island), the state shares the taxes with all communities in the "unorganized borough" (i.e., all communities in the state outside of organized boroughs). This includes communities such as Unalaska and Adak (and many other communities throughout the state), but not King Cove or others within the AEB.

False Pass, and Nelson Lagoon) normally benefit from borough expenditures that are made possible by collection of fishery-related revenue in communities with major plants (Akutan, King Cove, and Sand Point). Given that changes in tax revenue resulting from changes in crab landing patterns in one community within the borough are directly linked to expenditures in other communities in the borough (for example, a decline in fish tax revenue in King Cove paid to the AEB would impact Nelson Lagoon if it were large enough to necessitate reductions in school expenditures), the borough structure would serve to distribute impacts to communities in a different way than seen in the rest of the region that has no such structure. A recently released report commissioned by the AEB (McDowell Group 2001) underscores the importance of commercial fisheries to the AEB as a whole by noting that seafood industry accounts for approximately 99 percent of the AEB's basic economic employment, 76 percent of all employment, and – through fish taxes – 40 percent of the operating budget for the AEB government. An additional AEB commissioned report regarding groundfish trawling restrictions (Noble 2000) provides additional quantitative detail on borough fisheries engagement as do two recent studies on groundfish related assessments (Northern Economics 2001a, 2001b).

While quantitative data on fish taxes from individual communities within the AEB are subject to confidentiality restrictions, Table 2.1-1 presents direct fish tax revenue data for the borough as a whole for all fisheries. As shown, there is considerable variability from year to year, ranging between \$3 million and \$5 million over the span 1990 to 2001. Because of the limited number of processors for some individual species, it is not possible to break out the relative importance of species for revenues to communities, but some detail on the relative importance of crab relative to groundfish and salmon for the harvest fleet at the borough level and for selected communities may be found in a study recently commissioned by the Southwest Alaska Municipal Conference (Northern Economics 2001c), and individual fleet characteristics with respect to the crab fishery itself are discussed in the individual community profiles in the following sections of this document. Public testimony from the AEB before the NPFMC during the BSAI management alternative selection process suggests that crab ranged from slightly under one-tenth to over one-third of the borough's fish tax revenue from year to year since FY 1994, with a cumulative total of roughly one-quarter of annual borough fish taxes over this time period.⁶

⁶ The AEB (and some of its constituent communities) have also released species and community-specific data during the public testimony process that cannot be presented in the body of this document due to confidentiality restrictions. Some of these data were presented in written form and were available at NPFMC meetings in 2002 and will likely appear in the compendium of public comments that will accompany this EIS.

Table 2.1-1 Aleutians East Borough Selected Fisheries-Related Revenues (in dollars), Fiscal Years 1990-2001

Fiscal Year	Selected Fishery Revenue Source				Four Source Total
	Borough Raw Fish Tax	State Raw Fish Tax	State Extra-territorial Fish Tax	State Fish Landing Tax	
FY 1990	\$2,004,264	\$1,080,522	\$0	\$0	\$3,084,786
FY 1991	\$2,923,085	\$1,386,428	\$0	\$0	\$4,309,513
FY 1992	\$2,418,881	\$2,392,602	\$0	\$0	\$4,811,483
FY 1993	\$3,083,980	\$1,792,032	\$0	\$0	\$4,876,012
FY 1994	\$2,557,500	\$2,424,754	\$54,877	\$0	\$5,037,131
FY 1995	\$2,340,656	\$1,834,575	\$57,358	\$0	\$4,232,589
FY 1996	\$2,423,460	\$1,179,272	\$61,214	\$0	\$3,663,946
FY 1997	\$2,183,802	\$1,367,815	\$59,745	\$0	\$3,611,362
FY 1998	\$2,236,242	\$989,420	\$97,193	\$135,370	\$3,458,225
FY 1999	\$2,543,559	\$1,212,391	\$92,098	\$97,535	\$3,945,583
FY 2000	\$3,255,513	\$1,132,709	\$108,599	\$33,877	\$4,530,698
FY 2001	\$2,348,939	\$1,409,784	\$127,668	\$17,448	\$3,903,839

Source: Aleutians East Borough General Fund Statement of Revenues, Expenditures and Changes in Fund Balance - Budget and Actual, summary sheets supplied by AEB staff, October 15, 2002

Participation in the CDQ Program

Another factor that serves to differentiate the potential crab rationalization-related impacts to communities is the CDQ program. Relatively thorough summaries of the CDQ program, including its origins, historical and current structure, and present allocations within CDQ fisheries have been presented in recent NPFMC and NMFS documents (e.g., the Inshore/Offshore-3 analysis [NPFMC 1998a] and the Steller Sea Lion Protection Measures SEIS [NMFS 2001a]) and will not be recapitulated here. While the actual standards are more complex, in general to qualify as a CDQ community, a community must meet the following criteria: (1) be recognized as an Alaska Native village under the terms of the ANCSA, (2) be located within the CDQ qualifying region, defined as a swath within 50 nautical miles of the Bering Sea coast (but even within this area the community cannot be located on the Gulf of Alaska coast), and (3) not have previously developed harvesting or processing capability sufficient to support substantial participation in the groundfish fisheries of the Bering Sea (but the community must still consist of residents that conduct more than one-half of their commercial or subsistence fishing effort in the Bering Sea or waters around the Aleutian Islands).⁷ Unalaska, King Cove, and Sand Point, although ANCSA communities and within the geographic CDQ region, did not

⁷ Full qualification criteria are found in Sec. 305(i)(1)(B) of the Magnuson-Stevens Act.

qualify as CDQ communities due to preexisting commercial fisheries development,⁸ and King Cove and Sand Point had the additional disqualifying factor of being located on the Gulf of Alaska coast. Kodiak, also an ANCSA community, did not qualify as it was outside of the CDQ region (even if it were within the region, it would not have qualified due to existing fishery development). Adak, which falls within the CDQ region and arguably does not have a substantial/developed fishery, did not qualify for CDQ membership because it did not qualify as an ANCSA village.⁹ St. Paul did qualify as a CDQ community and is the sole community in the Central Bering Sea Fishermen's Association CDQ group. St. George also qualified as a CDQ community but unlike St. Paul is included within the Aleutian Pribilof Islands Community Development Association (APICDA). Akutan went through a somewhat more complicated process but did eventually attain CDQ status and, like St. George, is part of APICDA.¹⁰ As a result of their CDQ status, Akutan, St. Paul, and St. George participate in different ways in the crab fishery (and other CDQ species fisheries) than do the other communities profiled.

Community Social and Economic Structure

A final major factor in the differentiation of likely social impacts of BSAI crab rationalization between communities is the basic social and economic structure of the communities themselves. As detailed in the individual community profiles, the communities vary widely in their demographic structures and their local economies. In terms of demographics, the communities range from predominantly Alaska Native populations to those with populations more ethnically diverse in proportion to their total population than large metropolitan areas such as Seattle. They also vary widely with respect to the degree to which the labor for direct fisheries as well as support sector businesses is drawn from a local labor pool or imported from other communities or regions. In terms of local economies, some communities are relatively diversified and some are not. Further, the communities vary widely in how relatively important BSAI crab is in terms of the overall local fishery economic sector, as well as how important commercial fisheries in general are relative to the overall local economy.

Community Experience with Other Contemporary Fisheries Rationalization Programs

In terms of a general level of overview of potential impacts from the BSAI crab fishery proposed management alternatives, this section will not dwell on either the status quo alternative but, rather, will focus on the

⁸ As discussed in the Unalaska community profile, Unalaska is an *ex officio* member of the local CDQ group, the Aleutian Pribilof Islands Development Association (APICDA), and as a result Unalaska residents do derive at least some indirect benefits of the program, such as access to training programs and some monetary support for expenses incurred by the Unalaska Native Fisherman's Association in order to remain an active participant in the fishery management process.

⁹ Although Adak currently has a population that is over one-third Alaska Native and is essentially managed by the Aleut Corporation, the Aleutian/Pribilofs regional ANCSA corporation, it was a non-Native military community at the time of the passage of ANCSA [1971]).

¹⁰ Initially (in 1992), Akutan was (like nearby Unalaska) deemed not eligible for participation in the CDQ program based upon the fact that the community was home to "previously developed harvesting or processing capability sufficient to support substantial groundfish participation in the BSAI . . ." although they met all other qualifying criteria. The Akutan Traditional Council initiated action to show that the community of Akutan, per se, was separate and distinct from the seafood processing plant some distance away from the residential concentration of the community site, that interactions between the community and the plant were of a limited nature, and that the plant was not incorporated in the fabric of the community such that little opportunity existed for Akutan residents to participate meaningfully in the Bering Sea pollock fishery (i.e., it was argued that the plant was essentially an industrial enclave or worksite separate and distinct from the traditional community of Akutan and that few, if any, Akutan residents worked at the plant). With the support of APICDA and others, Akutan was successful in a subsequent attempt to become a CDQ community and obtained that status in 1996.

rationalization alternatives. The communities that would potentially experience social impacts from the BSAI crab fishery proposed management alternatives have experienced impacts related to rationalization efforts in other commercial fisheries in recent years. While some of the experience will be useful in anticipating impacts of crab rationalization, there are distinct differences between existing fishery rationalization programs and the components of the BSAI crab rationalization alternatives in terms of likely social impacts. The applicability of the existing programs to the proposed program is presented in overview in this section. The crab rationalization program component approaches and their analogs are as follows:

- **IFQ approach.** IFQ management is now in place for area halibut and sablefish fisheries. The relevant parts of that experience are summarized below.
- **IFQ Plus Individual Processor Quota (IPQ) approach.** Assignment of processor quota shares alone or in combination with IFQs as proposed in the "three-pie" system (or in the earlier considered "two-pie" system) is without precedent in local fisheries, so there is no analog experience from which to draw.
- **Cooperatives.** Co-ops are now used in the Bering Sea pollock fishery. The relevant parts of that experience are summarized below.
- **Regionalization.** Regionalization, or the third part of the three-pie system, is not a rationalization approach in and of itself, but it functions as part of a rationalization alternative in conjunction with what are effectively harvester and processor allocations (and co-op provisions). There is no good analog experience in local fisheries for looking at likely social impacts as a result of regionalization. There are, of course, programs in other fisheries that are intended to localize fisheries, through assigning quota to particular geographic areas and then restricting access or movement between areas, with the most restrictive of these being "super exclusive" areas where access is completely restricted to a set of harvesters committed to that area only for a particular fishery (with the typical goal of effectively eliminating outside access to a localized fishery or serving to create or protect a local, small, or underdeveloped fishery set aside). In the proposed "three-pie" alternative, however, the BSAI crab regionalization provision is structurally quite different from harvest restriction areas in that it is a geographically directed processing rather than harvesting initiative. In some ways, it is like the processing component of the three-pie structure given that it is a processing lock-in for whatever entities are operating in the area. In other ways it functions like a CDQ structure (in terms of essentially guaranteeing a community or region a revenue stream based on exclusive access to a portion of the TAC/GHL) but on the processing rather than harvesting side of the fishery, and with the more-or-less ensured revenue being realized in the form of municipal revenues rather than as income of one form or another to the CDQ group.

The following subsections summarize the local IFQ and co-op experience relevant to potentially similar social impacts that could result from the "three-pie," IFQ, or co-op approaches to rationalizing the BSAI crab fishery. Limitations of the applicability of the "lessons learned" are also noted.

IFQ Experience

The communities that would experience social impacts as a result of the selection of a rationalization approach for the management of the crab fishery have already experienced an IFQ rationalization of the halibut and sablefish fisheries. Some aspects of this experience are relevant in attempting to anticipate likely social impacts that could result from a similar style of crab fishery management, or an alternative that includes a component that is a functional equivalent of IFQs. However, there are limitations of what is actually known in terms of specific impacts from the transition of the halibut and sablefish fisheries to an IFQ system. In its

comprehensive document *Sharing the Fish: Toward a National Policy on Individual Fishing Quotas*, the National Research Council, reviewing the Alaska halibut fishery came to the following conclusions regarding "Economic and Social Outcomes for the Fishery":

"Due to lack of studies and data it is not possible to quantify the net economic impact of the IFQ programs . . . Although the season length has increased from 5 days to 245 days per year for both species and landings are now broadly distributed throughout the season, it is uncertain how costs and revenues have been affected. . . . The effect of the IFQ programs on halibut ex-vessel price and on costs and revenues for processors, communities, and consumers are even less well understood. There is anecdotal evidence that an increasing number of halibut fishermen are bypassing traditional processors and marketing directly to wholesalers and retailers, but the magnitude and impact of this phenomena has not been documented" (National Research Council 1999:77).

One comment commonly received from processors in this and other work for the NPFMC/NMFS is that their profit margin on halibut has declined dramatically since IFQs, implying that fishermen are gaining more of the rent from the fish. The numbers involved have not been disclosed, nor is the systemic impact of this change in relative leverage documented, e.g., how much of this in turn goes to pay for (capitalize) the transfer of IFQs. Given this lack of solid information, it is difficult to generalize this experience to likely crab IFQ impacts, other than to note that the change in relative bargaining position would be a likely outcome.

One of the main differences between the halibut and IFQ sablefish experience and the likely crab experience under a rationalization program is the limitation on season lengths. Whereas the pursuit of halibut, a single species fishery, can be expanded to a large proportion of the year, the multispecies crab fisheries have shorter windows of opportunity, even under ideal biological conditions, which would tend to limit at least some of the theoretical community level gains made possible by slowing the fishery. The possibility of bypassing traditional processors in an IFQ system is an expressed concern of crab processors, but the National Research Council found that at the community level at least for the higher volume ports, redirection of landings did not result in wholesale shifts between communities.

"The top five halibut ports have remained the same, with occasional reordering. . . The top sablefish ports have also been generally consistent . . . The quota share market has been active, with more than 3,800 permanent transfers in the halibut fishery and more than 1,100 in the sablefish fishery. These transfers have led to some consolidation. The number of quota holders declined by 24 percent in halibut and 18 percent in sablefish between January 1995 and August 1997. However, the number of quota shareholders still exceeds the annual maximum number of participants in the pre-IFQ fisheries. In both fisheries, the bulk of consolidation that has occurred has taken place in smaller holdings. There is anecdotal evidence that fishermen have reduced crew size and that quota shareholders are crewing for each other. However, since there are few data on pre-IFQ crewing practices, it is difficult to determine the magnitude of changes or the opportunity costs of crew who are no longer in these fisheries" (National Research Council 1999:77).

Looking at community-specific impacts, this same study noted that a lack of data prevented a definitive analysis. Under the heading "Economic and Social Outcomes for Fishery-Dependent Communities" the National Research Council concluded:

"The economic and social outcomes of the halibut and sablefish IFQ programs for dependent communities are largely anecdotal. Continued low prices for salmon have made halibut and sablefish catches increasingly important for regional fishing economies. The regional

impacts of reduction in crew size are unknown because information on crew participation in the pre-IFQ fisheries, their residencies, demographics, and opportunity costs is limited and has not been compiled adequately" (National Research Council 1999:77).

More recent studies have looked at the broad trends of change that have occurred under the halibut and sablefish IFQ programs. A study conducted for the Food and Agriculture Organization of the United Nations (FAO) (Hartley and Fina 2001) noted that while capacity reduction in the halibut and sablefish fisheries had occurred, it had not occurred to the extent that many had predicted prior to the implementation of the program.

There are several reasons why capacity in the sablefish and halibut fisheries has not declined as much as theoretically possible. The primary reason is that the majority of participants has viewed the sablefish and halibut fisheries as a means of supplementing income from other major fisheries such as the salmon, crab, and groundfish fisheries, for which many of the vessels were built. These other fisheries are also seasonal, and participants are able to fish sablefish and halibut without disrupting their participation in the other fisheries. For most participants, the sablefish and halibut fisheries are two of several seasonal fisheries in which the vessels participate. A second, very important reason that large-scale fleet reductions have not occurred is that NPFMC, which designed the systems, wished to maintain the existing nature of the fisheries, and to that end, created restrictions that prevent excessive consolidation (Hartley and Fina 2001).

A different feature of the crab fishery in terms of consolidation is that there is currently a directed effort at fleet consolidation that is separate but parallel with the rationalization effort. This program is described below, but it is important to note at this point that likely consolidation within the crab fleet would occur not only because of consolidation incentives inherent in a functional equivalent of an IFQ system, but also because of a co-occurring program explicitly designed to remove excess capacity from the fleet. The FAO study noted that within the halibut and sablefish fisheries the consolidation/reduction of quota share (QS) holders, vessels, and direct fishery participants (crew members) each happened at different rates. The number of halibut QS holders declined by 25 percent in the first 5 years of the IFQ program, and the number of sablefish QS holders declined slightly more than 10 percent. Fleet size change occurred at a different rate.

In the first year of the IFQ program, the number of vessels participating in the halibut fishery dropped by more than one-third. By the fifth season, the number of vessels had dropped to less than half of the pre-IFQ vessel participation. In the sablefish fishery, the number of vessels dropped by more than 50 percent in the first year of the program. Reduction in the sablefish fleet has occurred slowly since then, with fleet size remaining more than one-third of the pre-IFQ fleet size in the fifth season. This decline suggests that the concentration in the fleet has increased efficiency in the fishery, reducing overcapitalization from the pre-IFQ fishery. The decline in number of vessels is particularly notable, given the broadly inclusive method of the initial allocation. Despite the issuance of QS to all fishers who were active in the fisheries at any time during several years, the number of active vessels has declined every year since program implementation (including the program's first year) (Hartley and Fina 2001).

Crew participation also declined. However, there were apparently gains made by crew members who remained in the fishery.

Although there are no official counts of crewmembers who participate in sablefish and halibut trips, the willingness of QS holders to team with others is thought to reduce the

number of active crewmembers in these fisheries. With IFQs and the resulting change from a "race for fish," the number of crewmembers on a typical trip is believed to have fallen from a range of 3 to 6 to a range of 2 to 4 (including the skipper) . . . This decline, however, has not necessarily reduced the returns to crewmembers active in the fisheries. It is in fact estimated that payments per individual crewmember have increased under the IFQ program (Hartley and Fina 2001).

Additionally, because of concerns regarding potential exclusions of long-time crew members from the fishery through fleet or quota consolidation, the halibut and sablefish IFQ programs have a condition that allows transfer only to holders of initial allocations or bona fide crew members. However, it is important to note that the restriction to bona fide crew members applies to crew members in any U.S. fishery, not just the halibut and sablefish fisheries. In fact, the number of crew members participating in the halibut fishery has declined sharply:

Combined with the decrease in the number of active vessels, estimates of the number of active crewmembers in the halibut fishery fell from 10,500 in 1994 to 3,200 in 1999. While the number of crewmembers has declined, if the number of trips per vessel is factored in, total halibut crewmember trips appear to be approximately equal for the two years, at about 15,500 (Hartley and Fina 2001).

Of potential relevance to processors under an IFQ type of system is the fact processors of different scales may be able to do well, whereas under a derby type of fishery, larger operations were necessarily in an advantageous position. As the FAO study notes, however, this reached its logical extreme in the halibut fishery with exceptionally short openings.

Before the IFQ program, processors wishing to be active in halibut and sablefish markets had to be able to handle large quantities of fish at a time. Fishers needed to bring their catch to processors able to handle it. Since the rush of fish to processors was intense, fishers had little choice of processors. Since processors were in high demand due to the intensity of the processing immediately after the short season, fishers had little leverage for negotiating a price for their catch. This circumstance was a greater concern in the halibut fishery, where almost all of the vessels participating in the opening tried to offload their catch immediately after the 24-hour period (Hartley and Fina 2001).

In the halibut fishery in particular, subsequent to the implementation of IFQs, the halibut market changed in ways that changed the relative advantages of some communities over others. With the longer seasons, it is now possible to get fresh halibut to market for a good part of the year. The logistics of the fresh market favors landings in ports with easy accessibility to multi-modal transportation systems giving, for example, road-connected Homer a potential advantage over more isolated ports than was the case when halibut was by necessity more of a frozen product fishery. The direct applicability of this type of shift for BSAI crab fisheries managed under an alternative with IFQ-like features is less than clear, however, given that the halibut fishery has a very different geographic base, stretching from the Eastern Gulf of Alaska to the Bering Sea. As noted in the main body of this document, and as debated at NPFMC meetings during the alternative formulation process, there is currently no clear consensus of how applicable the effective decline of processor rents in the halibut and sablefish fisheries under the existing IFQ system in those fisheries would be to a crab rationalization context, and therefore the likely measure of consolidation or shifts between communities that would occur due to those circumstances is unclear.

In terms of regional differences, the IFQ experience of the halibut fishery suggests that different circumstances lead to different fleet consolidation outcomes. Table 2.1-2 provides information on the number

of active halibut vessels by year by management area. As shown, in some areas proportionately larger reductions took place than in other areas.

Table 2.1-2 Number of Active Halibut Vessels by Management Area, 1992-1999

Management Area	1992	1993	1994	1995*	1996	1997	1998	1999
Southeast	507	391	488	378	378	326	296	283
West Yakutat	266	196	249	228	218	218	176	162
Central Gulf	588	462	562	326	294	273	241	226
Western Gulf	103	29	19	86	81	79	66	63
Aleutian Islands	27	33	33	53	50	47	26	27
Bering Sea	72	40	31	55	49	41	28	20
Total (unique vessels)	1,123	915	1,139	517	503	504	449	433

* 1995 is the year the IFQ program was initiated.

Note: Cells in columns are not additive because some vessels fish more than one area.

Source: M. Fina, NPFMC

The Alaska Commercial Fisheries Entry Commission (CFEC), in a study on the changes seen under the halibut IFQ program (CFEC 1999), attempted to ascertain changes among different classes of quota holders. The distinction was drawn between (1) Alaska Rural Local, (2) Alaska Urban Local, (3) Alaska Rural Non-local, (3) Alaska Urban Non-local, and (4) Non-resident quota holders. When examined on an area-by-area basis, for each classification of quota holder, quota holdings were up on some areas and down in others. This same study looked at regional differences in halibut delivery patterns. For the Aleutians/Alaska Peninsula/Bering Sea area, for the 5 years before IFQ implementation (1990-1994), the percentage of total deliveries ranged from 12.0 percent in the low year to 16.8 percent in the high year. During the post-implementation years from 1995 through 1998, deliveries ranged from 11.8 percent to 16.1 percent of the total fishery per year with no clear directional trend of change. For the Kodiak Island Borough, annual deliveries in the 1990-1994 period ranged from 21.2 percent to 26.0 percent of total fishery deliveries, while in the post-implementation 1995 through 1998 period, the annual figures ranged between 17.5 and 23.0 percent. As in the Aleutians/Alaska Peninsula/Bering Sea area, there has not been an unidirectional trend each year post-IFQ implementation in the Kodiak Island Borough, but for both areas 1998 (the most recent year covered by the study) was the lowest percentage delivery year of the reported 1990-1998 period.

Co-op Experience

There are a number of the communities likely to experience social impacts under a BSAI crab rationalization alternative that also have experience with a co-op type of rationalization approach in the form of the pollock fishery co-ops that were institutionalized under the auspices of the AFA. As with the halibut and sablefish IFQs, there are limits to the direct applicability of the pollock co-op experience to the potential crab co-op experience that would be a component of at least two of the alternatives. The factors that limit direct comparison include:

- The pollock fishery is a much more homogenous fishery, given that it focuses on a single species.
- The pollock seasons are longer and more flexible than individual crab seasons, simply given the biology of the species.

- There are many fewer vessels, processors, and communities involved in the pollock fishery than in the crab fisheries, and the increased complexity of the crab fisheries makes outcomes inherently less predictable.
- While data are not immediately available to make definitive quantitative statements, there is also an apparent greater proportion of vertical integration among participants in the pollock fishery than in the crab fishery. This could have broad implications for different types of outcomes in the two different co-op systems, influencing such diverse factors as relative leverage in price negotiations and decision making regarding consolidation.
- Pollock co-ops are plant specific for the shore processing sector, which makes them effectively community specific in terms of social impacts. Under the proposed BSAI crab co-ops, company level rather than plant level co-ops are contemplated. This means that shifts of landings and processing effort between communities could occur in a way (or to a significant degree) that they cannot under the pollock co-ops.
- The co-op systems being considered for crab under the rationalization alternatives are an integral part of a three-pie approach. There is no parallel for that system under the current pollock co-op system.

Given these caveats, however, there are aspects of the impacts seen under the pollock co-ops that may be used to anticipate social impacts under BSAI crab co-ops. In overview:

- Social or community level impacts of the co-ops and related fishery changes differ widely by community but have been generally positive. (One exception may be Sand Point, Alaska, as the plant level co-op system tended to effectively shift pollock away from the community.)
- Pollock co-op effects have been generally positive on an industry or sector basis, as was anticipated when the program was designed. There is some variability between sectors in this regard, with the gains seen in the pollock mothership sector perhaps not as large as those seen in other sectors.
- The AFA itself (rather than co-ops *per se*) has resulted in ownership changes within different sectors, and this has led to some shifts in ownership between communities and regions.
- A common observation among fishery participants is that pollock co-ops have had the beneficial impact of helping to mitigate negative impacts associated with the impacts of Steller sea lion-related protection measures, but this is difficult to quantify.
- The slowing of the race for fish, and the increased economic efficiency of the fishery have had impacts on fishery support service sector businesses. The co-op fishery slow-down may be related to a downturn in fishing support sectors in some communities, but this downturn is also part of (1) other fishery dynamics; (2) "rationalization" of the larger economies of the relevant communities; and (3) less sharp "peaks and valleys" in fishing seasons.
- The slowing of the race for fish and better utilization of the resource has long-term benefits for the fishery and thus the communities engaged in or dependent upon the fishery.

There are significant limitations regarding the data available for pollock co-op analysis, and this also serves to limit the conclusions regarding social impacts that may then, in turn, be generalized to anticipate potential impacts related to BSAI crab co-ops.

- A general level caveat is that the post-AFA co-op formation data that are available only cover a very short period. There has been only 1 full year under the onshore co-op system, and only 2 years under the offshore co-op system that are documented. This makes interpretations of changes apparently related to co-ops problematic, due to normally occurring year-to-year changes in the fishery as well as the fact that fishery participants are still working out strategies, adaptations, and responses to AFA and co-op-influenced fishery conditions.
- It is difficult to isolate the impacts of pollock co-ops in a dynamic environment. Other changes occurring at the same time in the same fishery complicate the picture, with the most notable of these changes associated with the ongoing Steller sea lion conservation-related management measures, and the shift of quota from offshore to onshore sectors.
- Change is still occurring as communities and local economic sectors are still in the process of adapting to the post-co-op formation environment.

As is anticipated with social impacts that may result from BSAI crab co-ops, pollock co-op impacts varied a great deal from community to community. Where local level detail may be generalized for applicability to BSAI crab co-op impact analysis, pollock co-op and AFA-specific impacts are discussed in some detail in the individual community profiles.

Co-occurring Crab Fishing Capacity Reduction Program

At the same time the NMFS is analyzing various alternative management approaches for the BSAI crab fisheries, a "Fishing Capacity Reduction Program for King and Tanner Crab Fisheries in the Bering Sea/Aleutian Islands" (also known as the "buyback" program) is working its way through the regulatory and management process. It is anticipated that this program could be completed in a matter of months, but much depends on a review, acceptance, and implementation process that is not entirely predictable.

Whatever its final form, the buyback program will have its own set of social impacts as well as contribute to impacts that are interactive or synergistic in nature as a result of being combined with impacts from the specific management alternatives. An important distinction between the earlier implemented halibut and sablefish IFQ program and the proposed BSAI crab rationalization alternatives is that the fleet reductions that have occurred in the halibut and sablefish fisheries under that rationalization program were the result of decision making based on economic forces or incentives inherent in the rationalization program itself. With the crab rationalization alternatives, the fleet reduction in the short and/or medium term will result from a combination of factors resulting from a specific buyback program unlike any seen in the halibut and sablefish fisheries as well as the rationalization context itself.

In some ways, this situation is similar to the co-op oriented rationalization that took place in the Bering Sea pollock fishery under the AFA. In that fishery, there was a significant directed reduction in the offshore catcher-processor fleet at the inception of the program. No similar reduction took place among other harvesting or processing sectors, however, and subsequent consolidation among harvesters has been minimal during the 2 years the onshore-based co-ops have been operating. A further distinction is that at the time of the capacity reduction in the pollock fishery there was also a simultaneous redistribution of QS between sectors (the inshore/offshore split). Both the capital reduction and the quota shift have complicated the analysis of the social impacts of the co-ops themselves. A further caveat for applying this experience as an analogue for potential impacts in the crab fishery is that the capital reduction in the offshore fleet under AFA conditions was under a very different set of circumstances than that proposed under the buyback program in the crab fishery, with its market/bid-driven aspects and referendum features.

One of the challenges of trying to assess the likely social impacts of the BSAI crab rationalization is the fact that the size and timing of the reduction under the buyback program is unknown at this point. In other words, the "existing conditions" for the fleet are about to change in ways that are not yet predictable, other than the fact that the fleet will be reduced by some amount in the not-too-distant future. Current scenarios under the buyback program contemplate reductions of 30 to 90 vessels.

In terms of impacts likely to result from the crab vessel buyback program itself, NMFS is in the process of preparing an EA/RIR/IRFA (NMFS 2002) that outlines anticipated impacts. As contemplated, the "program would mostly produce socio-economic impacts upon the human environment. . . This proposed rule would not alter how the BSAI crab fisheries are managed. Only the number of participants may decrease." The document notes that "the fishermen remaining in the BSAI crab fisheries after the buyback would benefit. The licence holders whose bids [for buyback] were accepted would also benefit." Additional individuals and entities that would benefit from the program would be those who hold loans on marginally performing vessels that will either exit the fishery or will have a significant chance of improved performance, and those seeking new loans, and there will be higher collateral value and less potential for loss (NMFS 2002).

The buyback program itself would not, however, change the nature of the fishery, and, while overcapitalization difficulties may be mitigated to some degree, numerous other problematic aspects of a non-rationalized fishery would remain.

The BSAI crab fisheries currently operate where derby style rules reward those fishermen who are quickest to catch crab. This race to fish would not significantly change with the implementation of this program. Likewise, safety would most likely not be drastically compromised or improved. Although there would likely be fewer vessels harvesting the catch, each would probably be spending more time at sea (NMFS 2002).

In terms of distributional impacts between communities, the NMFS preliminary analysis draws the following conclusion about Seattle:

. . . Seattle is home port to half of the catcher vessels and catcher-processor vessels and would be impacted more than any other community by this program. The Seattle economy is extremely diversified though, and not dependent upon the fishing industry. . . Under a 60 vessel buyback scenario, the mid-point of the studied range, it appears Seattle would lose 30 vessels. This compares to an overall fleet size in excess of 700 commercial fishing vessels and represents a reduction of approximately four percent (NMFS 2002).

Presumably, demand for support services would increase for remaining vessels, and those services are provided primarily out of Seattle. Additionally, while the processing sector may see some shift of landings between Alaska communities, this would not be likely to significantly impact Seattle-based processing owners that together account for a great deal of the market share of the BSAI processing sector as a whole. In terms of the Alaska communities, the preliminary NMFS analysis contemplates that:

Overall, the economic impact to communities where BSAI crab are landed and processed would be marginal because the GHGs would not be altered with the implementation of this proposed rule. The smaller communities . . . would most likely see very little change since the total landings of crab would remain at current levels. Some beneficial impacts may occur since this program would provide up to \$100 million to successful bidders . . . Crab processors should see little difference because this analysis assumes that the same amount of crab would be available regardless of the implementation of this program (NMFS 2002).

Presumably, some of the monies received by the successful bidders would be reinvested in the communities that had served as home ports for the removed vessels, although there is no way to anticipate differences in the patterns of distribution between communities or among the different sectors that might benefit from such reinvestment. As for crew, the preliminary NMFS analysis draws the conclusion that under the buyback program "Vessel crew may be marginally impacted. Crew generally work 2 months per year at most, supplementing their income with other activities" (NMFS 2002). This preliminary conclusion would appear overgeneralized, given that for some vessels and crew, crab is the central and far-and-away the most important fishery of the year in terms of income, despite the relatively short seasons. For crew on vessels that are bought out, replacing lost crab income will likely prove to be difficult. Impacts on communities from lost crew income would depend on the ultimate structure of the buyback program and the distribution of the vessels bought out.

The crab buyback program does have the potential to influence other fisheries, because not just crab licenses would be removed under the program.

Other fisheries will likely also benefit from this program since any non-crab species reduction permits must also be surrendered. For example, many of the non-interim LLP crab license holders also have groundfish LLP licenses. If they become successful bidders, they must relinquish all fishing licenses and permits. The reduced amount of license holders would benefit those remaining participants and the fishery itself (NMFS 2002).

Other Considerations

There are a number of other considerations that fall into the category of potential social impacts associated with the crab rationalization alternatives that do not necessarily lend themselves for inclusion in a community profile-based discussion. These considerations and associated issues may be summarized as follows:

- **Skipper and crew issues.** As discussed in various sections in the main body of this document, the rationalization alternatives have the potential to change the relationships between vessel owners, skippers, and crew. In general, rationalization approaches are expected to reduce overall skipper and crew employment. Further, there is concern on the part of skippers and crew that the nature of their compensation would change. Traditionally, skipper and crew compensation has been based on a share system that distributed both risk and reward in a context of uncertainty of success in any particular season. With rationalization, such uncertainty may be largely reduced if not eliminated and, as a result, there are concerns that crew shares would similarly either be reduced or eliminated (in favor of a wage system). Beyond loss of employment and reduction of compensation, there are also concerns that rationalization will create a fishery where it will not be practical for the typical individual to work their way up from the deck to vessel ownership due to increased costs of quota purchase on top of vessel acquisition (although some argue just the opposite may be true - that incremental acquisition of quota share may, in fact, represent a practical path to operation ownership). These issues are discussed elsewhere in the main body of the document and will not be recapitulated here, but it is important to note that they also have social impact dimensions. Similarly, as also discussed in the main body of the document, there is concern that with rationalization the crab fleet may come to be more dominated by "absentee" owners (as opposed to owner/operators who also function as the skipper). While this was a large concern with the rationalization of the halibut fleet under that IFQ program, this concern is not as pervasive in the crab fishery, due to baseline conditions that include a significant portion of the fleet already having absentee owners through multiple vessel ownership or individuals who have otherwise taken a less active role in running their vessels over time. Nevertheless, all things being equal, rationalization can be expected to foster or amplify a trend of increasing absentee ownership. If an approach including "owner on board"

provisions is adopted, then the existing trend in the pattern of ownership may change due to multi-vessel owners having to divest themselves of vessels as would owners who no longer wish to take an active role in fishing operations (assuming all current ownership is not protected by grandfathering provisions).

- **Processing worker employment.** As noted in the following community discussions, the number of processing workers specifically associated with crab operations varies widely from entity to entity, and from season to season. With rationalization in the pollock fishery under AFA co-op conditions, shore-based processing facilities have been able to more efficiently plan their workforce needs and, at least for the lower volume crab seasons that overlap with groundfish processing, have been able to incorporate crab processing in normal operations by adjusting product mix or timing in groundfish without having to bring in additional crab-dedicated crew. Under the proposed rationalization alternatives, plants will be all the more able to efficiently plan workforce needs and, as a result, overall employment may drop, although remaining positions are likely to last longer and result in higher overall compensation per position. Specifically how much processing employment would change is unknown at this point. In terms of social or community impacts, the effect of a reduction in overall processing employment would vary from community to community based on the nature of the local workforce. For example, as discussed in the relevant community profiles, processing employment in Kodiak draws more heavily from the local labor pool than is the case in Unalaska. In some remote communities, virtually no processing jobs are filled from the local labor pool. A reduction in processing employment would be less directly felt in communities with a higher proportion of workers from outside the community than in communities with a lower proportion. Indirect impacts (such as retail business generated as a result of having workers present in the community) would, of course, still result from a decline in employment.
- **Changes in harvester and processor relationships.** As discussed at length in a number of sections of the main body of this document, the different components of the rationalization alternatives have the potential to change the economic and structural relationships between harvesting and processing entities. The degree to which these relationships would change is the subject of considerable debate. How the relative advantage gain of one sector over another would result in social impacts, in particular communities, and the specific nature of those impacts, is exceptionally difficult to forecast given the lack of consensus among economic analysts as to the basic or direct economic outcomes of such potential shifts. Despite this lack of clarity, it is important to note that on the community level processing and harvesting entities are not evenly distributed, nor does ownership across the different sectors share a common geography. Some communities (such as Unalaska and Kodiak) have a locally based fleet, locally based processors, and local support service businesses, so it could be argued that (at least on the community level) losses in one area would be offset by gains in another (although this is complicated by the relative local dominance of participation in one sector over another, e.g., Kodiak participates in these fisheries predominantly through its fleet, while Unalaska does so predominately through its processors). Other communities, however, have fewer sectors present, so relative losses on the part of one sector would not necessarily be made up (on the community level) by relative gains on the part of another sector. Further, even for communities with multiple sectors present, the pattern of local versus distant ownership may vary between sectors, such that gains and losses are not a zero-sum situation on the local level in any event (keeping in mind, however, that other benefits, such as fish tax-derived municipal revenues, depend on the location of activity, and not the location of ownership). Beyond the economics involved, individuals and groups hold ideas about (and associated values regarding) the relationship between harvesters and processors, and if it is perceived that a rationalization approach would seemingly extend effective control of one sector over another, these ideas (and values) quickly surface in interviews. For example, it is apparent that whether or not harvesters are "independent" of processors is not a neutral

issue for a number of individuals. These individuals view crab fishermen as an example (or an icon) of one version of a desired (or even idealized) Alaska lifestyle predicated on becoming a success through individual initiative, hard work, and taking advantage of the opportunities offered by Alaska's natural resources. For individuals holding these views, it is in some sense "wrong" to have harvesting become a corporate undertaking that would be part of a vertically integrated entity, regardless of the economic efficiencies involved. Some individuals interviewed expressed concerns that too large of a shift in economic power toward processors could result in "company town" conditions in Alaska coastal communities similar to those seen in the salmon fishery in Territorial days, while others interviewed discounted this possibility. Without clear results from economic modeling, it is difficult to judge the accuracy of the assumptions that form the basis of these concerns, but for the purposes of the social impact assessment, it is important to note that such concerns are held by individuals and groups in the communities engaged in the fishery.

- **Community preclusion issues.** To the degree that the crab fishery rationalization alternatives predicate continuing engagement in the fishery on an established history of participation in the fishery (i.e., they are inclusive of those entities participating during a qualifying period), they are also exclusive of those entities who did not participate during that period (at least in terms of initial allocations). While in theory potential new entrants to the fishery could obtain access in the future through the purchase and transfer of quota, in practical terms there are concerns over the ability of new entities to do so. This concern extends to processing operations under the "three-pie" alternative for communities that are not currently participating in landings and processing of crab (or, more precisely, communities where locally based processors did not qualify for quota or that do not have locally based processors), but desire to do so in the future. For example, the APICDA CDQ group has noted that although the communities of False Pass and Atka have never processed crab, both communities have recently seen significant investment in shoreside processing operations, and both are targeted for harbor improvement projects. APICDA has expressed concern that allocation of processing quota (or its functional equivalent) could effectively preclude these communities from ever having crab processing as a viable part of the local economic base. (APICDA has also expressed similar concerns about St. George, although that community does have some historical link to processing, albeit through floating processors rather than through shore-based facilities.) Concerns have also been expressed regarding the ability of Adak, recently converted to a civilian community following closure of military facilities there, to have BSAI crab as a viable part of its commercial fisheries economic base unless some community-specific accommodations are made in the rationalization alternatives. Clearly, these issues cannot be addressed through an analysis of the current community participation in the fisheries or potential redistribution across communities within sectors and entities. This potential differential fluidity of movement and access to future entrance to the fishery within harvester and especially processor sectors is, however, a social impact concern shared by a number of communities.
- **Community divisiveness.** While it is not possible to quantify this type of social impact, the varying opinions on, and the public debate of, proposed crab rationalization approaches proved to be a divisive issue in at least some communities during the NPFMC alternative formulation process. This situation is, of course, not unique to the crab rationalization issue among the various fishery management issues that have been seen in the past few years. For example, the pollock fishery inshore/offshore allocation decision-making process was exceptionally contentious. While perhaps not having as high a profile as the inshore/offshore debates, crab rationalization is a subject of passionate debate and strongly held feelings and is to a degree divisive between communities as well as within some communities. Again, this is not a type of impact that can be quantified, but is nevertheless a type of social impact that is apparent in the relevant communities.

Summary

For a variety of reasons, including historical circumstances, the nature and intensity of involvement with the fishery, and varying socioeconomic foundations, different communities would likely experience quite different social impacts as a result of adoption of the individual rationalization management alternatives for the BSAI crab fishery. Some types of impacts may be anticipated based on the recent experiences of relevant communities with other fishery rationalization programs, but there are clear limits as to similarities between the circumstances of previous programs and the proposed BSAI crab rationalization alternatives.

The following subsections examine the communities of Unalaska/Dutch Harbor, Akutan, King Cove, Sand Point, Adak, St. Paul, St. George, and Kodiak. Each of these community profiles provides information on community structure, history of engagement with the fishery, and contemporary engagement with and dependence upon the fishery. The level of detail presented for any particular community varies roughly by the degree of complexity of the community's ties to the fishery.

2.2 UNALASKA/DUTCH HARBOR

Unalaska is located approximately 800 miles southwest of Anchorage and 1,700 miles northwest of Seattle. Unalaska is the 11th largest city in Alaska, with a reported year-round population of just over 4,000. Dutch Harbor is the official name of the city's port and is also often applied to the portion of the City of Unalaska located on Amaknak Island, which is connected by bridge to the rest of the community on Unalaska Island. The geographic feature of Dutch Harbor itself, along with Amaknak Island, is fully contained within the municipal boundaries of the city of Unalaska, which encompasses 115.8 square miles of land and 98.6 square miles of water. Not part of an organized borough, Unalaska falls within the Aleutians West Census Area.

The Unalaska region of the Aleutians experiences a cool, wet, and windy maritime climate. Typical winter temperatures hover around freezing with January temperatures ranging from 25 to 35°F. Typical summertime temperatures range from 43 to 53°F. Average annual precipitation is 57.7 inches. Wind, light rain, and fog are common in the summer, but the wettest conditions generally occur October through December. Moderate to high winds occur throughout the year. The mean wind speed is 17 miles per hour (mph) with a prevailing wind direction of south-southeast. High winds can occur during the winter and have been recorded up to 172 mph (12/26/1988).

Unalaska is in a unique position with respect to the BSAI crab fishery. It is the site of both the most intense direct and indirect fishery economic sector activity. More BSAI crab and groundfish are processed in Unalaska than in any other port, and the support service sector is developed to a greater degree in Unalaska than any other community on the Bering Sea. As a result, Unalaska is a community whose economy is strongly tied to Bering Sea commercial fisheries in general, and the crab fishery in particular. Incorporated as a First Class City in 1942, Unalaska has been variously described as a growing, developing, and maturing community. Whatever descriptor is chosen, during the span of years since the development of the crab fishery, Unalaska has seen a great deal of community development. The changes that have accompanied this development are both obvious and subtle.

Community Demographics

Unalaska is a demographically complex community. Prehistorically and historically a traditional Aleut village, contemporary Unalaska has a diverse population that saw a great deal of growth in the last quarter of the 20th century. This growth and diversification was directly attributable to the commercial fishing industry.

Total Population

It has always been difficult to ascertain total population figures for Unalaska or, to state it more accurately, it is difficult to interpret and compare time series figures given for the population of Unalaska. Over the years, Unalaska has been a "less than permanent" home to many individuals whose length of stay in the community has varied. Some individuals may stay in Unalaska only a fishing season or two; others may stay for many years before moving on. These individuals have been counted in different ways, or not counted at all, in a number of censuses. Caution must therefore be used in interpreting total population figures from various sources.¹¹ Table 2.2-1 provides census figures for each decade from 1900 through 2000. As shown, the population only exceeded 400 in one census year (1900) and did not surpass 300 in any census year from the turn of the century up until 1980 (while noting that these data do not take into account the thousands of military personnel stationed in and around the community during World War II when Unalaska was a significant base for both Army and Navy forces). The growth seen from 1980 onward can be directly traced to the development of the contemporary commercial fishery processing and support activity that has its roots in the Bering Sea crab fishery and subsequently diversified into other fisheries in general and into the groundfish fisheries in particular.

Table 2.2-1 Unalaska Population by Decade, 1890-2000

Year	Population
1890	317
1900	428
1910	281
1920	299
1930	226
1940	298
1950	173
1960	218
1970	178*
1980	1,322
1990	3,089
2000	4,178

*Note: Other sources put the 1970 census figure at 342 residents.
Source: Historic data from Alaska Department of Community and Economic Development, 2000 data from U.S. Bureau of the Census

¹¹ As an example, one can find different counts by the City of Unalaska, the Alaska Department of Labor, the Alaska Department of Community and Regional Affairs (more recently the Department of Community and Economic Development), and the U.S. Census for various recent years. While one might assume that the U.S. Bureau of the Census data would be more rigorous than other efforts, it appears that this may not be the case at least for some years. Concerning the 1970 census, for example, a community leader considered a solid source has written that census "was done by the census taker from memory, sitting at home, and it was not accurate to any degree" (Impact Assessment 1987:64). Some sources list the 1970 census population as 342, while other sources list it as 178. Bureau of the Census correspondence from the period (Fay 1972) confirms the official figure as 178, but questions remain regarding whether the census did or did not include short-term residents or transient workers who were present at the time. In 1972, the Alaska Department of Labor apparently tried unsuccessfully to "correct" the census number to a total count of 336 (Fay 1972).

Table 2.2-2 provides local population counts on an annual basis for the years 1990 through 2001. As shown, the annual growth seen in the early 1990s peaked in 1993. While there has been some downward fluctuation since, the population was virtually the same in 2001 as it was 8 years earlier in 1993.

Table 2.2-2 Unalaska Annual Population, 1990-2001

Year*	Population
1990	3,089
1991	3,450
1992	3,825
1993	4,317
1994	4,317
1995	4,083
1996	4,087
1997	4,251
1998	4,285
1999	4,178
2000	4,283
2001	4,283

* Counts are taken/calculated in July of each year and are utilized as the official community count for the following fiscal year (e.g., the 1990 count was taken in July 1990 and appears as the community population for FY 1991 in City documents). Source: City of Unalaska spreadsheet, supplied by Unalaska City School District, December 2001

While the total population of Unalaska has grown considerably from the early fishery boom years, the contemporary community maintains a relatively high transient population. This transient population includes workers at shore processing plants, although this particular population segment is notably less transient as the nature of the business of the shore plants has changed. Once characterized by rapid turnover during the king crab processing boom in the late 1970s, the local pattern evolved to more-or-less year-round processing during the early years of full-scale pollock processing. The current pattern has marked peaks and valleys coinciding primarily with the pollock and, to a lesser extent, crab seasons, along with maintenance of a "core crew" of year-round individuals who process lower volume species that are harvested at other times of the year in addition to maintaining the plant.

In addition to the resident population, there are also a number of individuals who may be thought of as a "floating population" associated with the community. These individuals are from catcher vessels, catcher processors, and floating processors that work the Bering Sea and Aleutian Islands area and call on Unalaska for resupply or constitute a "service population" for Unalaska in one form or another (e.g., potential patients for emergency medical services care). Table 2.2-3 provides an estimate of the direct fisheries harvesting and processing component of this floating population for 2000. Although these estimated 5,400 individuals are not true residents of Unalaska, this "floating population" does have an impact on the community. They are associated with business and revenue generated in and for the city, and with services required of the city. There is also a potentially large number of other infrequent or "floating" visitors associated with the port. Some of these are more or less directly fishery related, such as the crews on domestic and international cargo vessels that have company facilities in the community, freighters affiliated with specific seafood companies,

and independent trampers. (While there are no current estimates available, in 1990 this component of a floating population was estimated at 8,750 individuals, derived from an assumed 350 vessels with an average crew size of 25 [Professional Growth Systems, Inc. 1990:12]. If this estimate is still valid, that would yield a floating population of fishery- plus fishery transport-related individuals of 14,157.) Additionally, there are various other transient vessels that may or may not be directly affiliated with the fishery, such as barges, cruise ships, and ferries, that call on the community of Unalaska and the Port of Dutch Harbor and add to an effective service population or floating population for the community. While the calculation of such a population is less than straightforward, whatever the actual numbers are for any given season or year, it is the case that Unalaska services a floating population that is very large in relation to its resident population base, and a great number of these individuals are directly or indirectly associated with commercial fisheries.

Table 2.2-3 Estimates of Direct Fisheries Related "Floating Population" of the Community of Unalaska, 2000

Vessel Type	Estimated Number of Vessels	Average Crew Size	Floating Population
Trawlers			
Catcher Vessels	123	4.5	554
Catcher/Processors	38	65	2,470
Floating Processors Only	2	100	200
Longline			
Catcher Vessels	18	5	90
Catcher/Processors	38	16	608
Crab/Pot			
Catcher Vessels	254	5.5	1,397
Catcher/Processors	8	11	88
Total Direct Fisheries Related Floating Population			5,407

Source: NPFMC Sector Profiles Update 2001; Northern Economics; Mark Fina (NPFMC)

The characterization of Unalaska's "non-transient" population has its own difficulties, as the nature of the community has changed over the years. Discussion and analytical categorization of the less transient portions of the Unalaska population differ in various publications on the community. "Permanent" residents of the community have been described as those individuals for whom Unalaska is their community of orientation, independent of their employment status. "Semi-permanent" or "long-term transient" residents are those individuals for whom Unalaska is now their community of residence, but for whom residency decisions are based virtually exclusively on employment criteria. In other words, a "permanent" resident, is an individual who considers Unalaska "home" and is highly unlikely to move from the community due to termination of a particular job. These individuals tend to remain in the community and seek other employment if a specific job ends, and they also typically remain in the community after their retirement from the labor force. A "semi-permanent" or "long-term transient" resident, on the other hand, is an individual who typically has moved to Unalaska for a particular employment opportunity and is highly likely to leave the community if that specific employment opportunity is terminated for any reason. These individuals may indeed remain in the community for a number of years, but their residency decision-making process is predicated on Unalaska being first and foremost a worksite. Obviously, the categories "permanent" and "semi-permanent" or "long-term transient" resident are not precise terms, nor do they necessarily correspond to administrative/regulatory decisions about "official" residency (e.g., whether or not one is classified as an "Alaska resident" for

employment statistical reporting or taxation purposes) nor do they correspond to U.S. Census count methodology,¹² but they are analytically useful where they conform to specific orientations toward the community that serve to shape community politics, development objectives, community perception, etc. While distinctions are often drawn between the processing-associated population in the community and other residents of the community, several persons interviewed were quick to point out that a number of those in management positions at the processing plants are active in the community in leadership roles, and that a number of other leaders in the community who currently hold positions in non-processing economic sectors originally came to the community for processing-related employment and then subsequently transitioned to other employment. This type of transition does not appear to occur frequently, if at all, among non-management workers within the processing sector.

Ethnicity

Unalaska may be described as a plural or complex community in terms of the ethnic composition of its population. Although Unalaska was traditionally an Aleut community, the ethnic composition has changed with people moving into the community on both a short-term and long-term basis. Not surprisingly, in the latter half of this century, population fluctuations have coincided with periods of resource exploitation and scarcity.¹³ For example, the economic and demographic expansion associated with the king crab boom in the late 1970s and early 1980s brought many non-Aleuts to Unalaska, including Euro-Americans, Filipinos, Vietnamese, Koreans, and Hispanics. The Euro-American population shows a distinct change over the years, comprising around 30 percent of the population in 1970, over 60 percent in 1980 and 1990, and then back to 44 percent in 2000. The growth of Asian/Pacific Islander population (over 30 percent by 2000) is closely associated with the increasingly residential nature of the seafood processing sector workforce. The ethnic composition of Unalaska's population for the census years 1970, 1980, 1990, and 2000 appears in Table 2.2-4.

¹² The technical classification of residency has been a contentious issue in recent years specifically with respect to the fishing industry-related workforce. In terms of U.S. Bureau of the Census methodology, the first U.S. decennial census in 1790 established the concept of "usual residence" as the main principle in determining where people were to be counted. This concept has been followed in all subsequent censuses. Usual residence has been defined as the place where the person lives and sleeps most of the time and is not necessarily the same as the person's voting or legal residence. Also, noncitizens who are living in the United States are included, regardless of their immigration status. The State of Alaska uses a specific set of criteria for determining residents of the state (i.e., those who qualify for Permanent Fund dividends). According to the state publication *Nonresidents Working in Alaska* (Alaska Department of Labor and Workforce Development 2001), using these criteria, the highest concentration of non-Alaska resident workers are found in the southwest region of Alaska and were primarily engaged in seafood processing. According to this document, 70.9 percent of the workers in this sector in Alaska were not state residents. Of the top private sector employers of non-state resident workers within the "manufacturing" sector, all five were seafood processing firms with ties to the Alaska Peninsula/Aleutian Islands region, if not Unalaska itself. These firms (in alphabetical order) were Icicle Seafoods, Peter Pan Seafoods, Inc., Trident Seafoods Corporation, UniSea, Inc., and Wards Cove Packing Company, Inc. Of the combined total of 11,006 workers reported for these firms, 8,669 individuals or 78.77 percent of the total number of workers were not classified as Alaska residents. The workforce at the individual firms ranged between 71 and 86 percent non-Alaska resident. The relative importance of state resident classification has been the subject of heated debate during recent NPFMC management decision-making processes (for example, during the series of Inshore/Offshore decisions), but in practical terms for the purposes of a social impact assessment, the nature of interaction and relationship between these workers and their worksite community appears to depend more on living quarters configuration (i.e., industrial enclave style or more integrated with the rest of the community), work schedules, and individual decisions regarding the allocation of personal time, among other factors, than it does on formal state residency status for originally non-local workers - whether they be from elsewhere in Alaska or from another state.

¹³ The most dramatic population shift of this century, however, was brought about by World War II. The story of the War, and the implications for the Aleut population of Unalaska and the other Aleut communities of Unalaska Island, is too complex and profound for treatment in this limited community profile. It may be fairly stated, however, that the events associated with World War II, including the Aleut evacuation and the consolidation of the outlying villages, forever changed the community and Aleut sociocultural structure.

Table 2.2-4 Ethnic Composition of Unalaska's Population: 1970, 1980, 1990, and 2000

Race/Ethnicity	1970		1980		1990		2000	
	N	%	N	%	N	%	N	%
White	56	31.0%	848	64.1%	1,917	62.1%	1,893	44.2%
African American	0	0.0%	19	1.5%	63	2.0%	157	3.7%
Native American/Alaskan	113	63.4%	200	15.1%	259	8.4%	330	7.7%
Aleut	107	60.1%	-	-	223	7.2%	-	-
Eskimo	5	2.8%	-	-	5	0.2%	-	-
American Indian	1	0.5%	-	-	31	1.0%	-	-
Asian/Pacific Islander*	-	-	-	-	593	19.2%	1,336	31.2%
Other**	9	5.6%	255	19.3%	257	8.3%	567	13.2%
Total	178	100%	1,322	100%	3,089	100%	4,283	100%
Hispanic***	NA	NA	NA	NA	394	12.7%	551	12.9%

* In the 2000 census, this was split into Native Hawaii and Other Pacific Islander (pop 24) and Asian (pop 1,312)
 ** In the 2000 census, this category was Some Other Race (pop 399) and two or more races (pop 168).
 *** "Hispanic" is an ethnic category and may include individuals of any race (and therefore is not included in the total as this would result in double counting).
 Source: 1970 data, University of Alaska, 1973; 1980, 1990, and 2000 data, U.S. Bureau of Census

Apart from the World War II years, prior to the growth of the current commercial fisheries-based economy that traces its present configuration back to 1970s, Unalaska was traditionally an Aleut community. With the growth of the non-Aleut population, Aleut representation in the political and other public social arenas declined significantly. For example, in the early 1970s, Aleut individuals were in the majority on the city council; by the early 1980s, only one city council person was Aleut (IAI 1987:65). If one looks at Aleuts (or Alaska Natives) as a percentage of the total population, the change over the period of 1970-1990 is striking.

In 1970, Aleut individuals made up slightly over 60 percent of the total community population (and Alaska Natives accounted for a total of 63 percent of the population). In 1980, Alaska Natives, including Aleuts, accounted for 15 percent of the population; by 1990, Aleuts comprised only 7 percent of the total community population (with Alaska Natives as a whole accounting for 8 percent of the population). Overall representation was similar in 2000. This population shift is largely attributable to fisheries and fisheries-related economic development and associated immigration. The fact that there is a "core" Aleut population of the community with a historical continuity to the past also has implications for contemporary fishery management issues. These include the activities of the Unalaska Native Fisherman's Association and active local involvement in the regional CDQ program. While neither of these undertakings exclude non-Aleuts, Aleut individuals are disproportionately actively involved (relative to their overall representation in the community population).

Another reflection of the diversity of the community and the distribution of different subpopulations within the community may be seen in the population differentiation by housing type. Group housing in the community is largely associated with the seafood processing workforce. As shown in Table 2.2-5, 52 percent of the population lived in group housing in 1990 and 51 percent of the population did so in 2000. While comparable 2000 data are not yet available, Table 2.2-6 provides 1990 census information on group housing and ethnicity for Unalaska. Also as shown, the total minority population proportion was substantially higher in group quarters (49 percent) than in non-group quarters (31 percent).

Table 2.2-5 Group Quarters Housing Information, Unalaska, 1990 and 2000

Year	Total Population	Group Quarters Population		Non-Group Quarters Population	
		Number	Percent of Total Population	Number	Percent of Total Population
1990	3,089	1,614	52.25%	1,475	47.75%
2000	4,283	2,192	51.18%	2,091	48.82%

Source: U.S. Bureau of the Census 1990 STF2, Census 2000 Summary File 1

Table 2.2-6 Ethnicity and Group Quarters Housing Information, Unalaska, 1990

Race/Ethnicity	Total Population		Group Quarters Population		Non-Group Quarters Population	
	Number	Percent	Number	Percent	Number	Percent
White	1,917	62.06%	870	53.90%	1,047	70.98%
Black	63	2.04%	55	3.41%	8	0.54%
American Indian, Eskimo, Aleut	259	8.38%	20	1.24%	239	16.20%
Asian or Pacific Islander	593	19.20%	434	26.89%	159	10.78%
Other race	257	8.32%	235	14.56%	22	1.49%
Total Population	3,089	100.00%	1,614	100.00%	1,475	100.00%
Hispanic origin, any race	394	12.75%	337	20.88%	57	3.86%
Total Minority Population	1,252	40.53%	795	49.26%	457	30.98%
Total Non-Minority Population (White Non-Hispanic)	1,837	59.47%	819	50.74%	1,018	69.02%

Source: U.S. Bureau of the Census 1990 STF2

During recent field interviews for this project and other NPFMC projects, a number of individuals, including local governmental officials and individuals from various private sector enterprises, commented that it appeared to them that there were less people overall in the community in the 2000-2001 period than in the recent past, although there are no hard data available to verify this. Speculation included that with the apparent slowdown in the local support service economy with the AFA-related cessation of the race for fish within the pollock fishery, there has been some population loss among the permanent population (along with the non-appearance of some former seasonal regulars in the community). Again, there is no quantitative information available to check this speculation. Anecdotal evidence cited by interviewees includes less participation in city-sponsored recreational sports (e.g., the basketball league has seen a drop in the number of teams), and an easing of the shortage of housing (discussed below).

Age and Sex

In the recent past, and particularly with the population growth seen in association with the development of the commercial fishing industry, Unalaska's population has had more men than women. Historically, this has been attributed to the importance of the fishing industry in bringing in transient laborers, most of whom were young males. Table 2.2-7 portrays the changes in proportion of males and females in the population for the years 1970, 1980, 1990, and 2000.

Table 2.2-7 Population by Age and Sex, Unalaska: 1970, 1980, 1990, and 2000

Attribute	1970		1980		1990		2000	
	N	%	N	%	N	%	N	%
Male	98	55%	858	65%	2,194	71%	2,830	66%
Female	80	45%	464	35%	895	29%	1,453	34%
Total	178	100%	1,322	100%	3,089	100%	4,283	100%
Median Age	26.3 years		26.8 years		30.3 years		36.5 years	

Source: 1970 data, University of Alaska, 1973; 1980, 1990, and 2000 data, U.S. Bureau of Census

Census data from the period 1970-1990 showed a climb in median age from 26.3 years to 30.3 years and then a further jump to 36.5 years in 2000. This is commonly attributed to the relative size of the workforce in comparison to resident families. That is, there is quite a large proportion of adult residents included in the census counts who are not raising children in the community, thereby raising the median age. On the other hand, what the median age information does not portray is that older age bracket residents (i.e., those individuals typically past their "working years") tend to be under represented in Unalaska compared to the general population, as few non-lifetime residents of the community choose to stay in Unalaska in their retirement years.

School district enrollment figures are presented in Table 2.2-8. This is another indicator of the changing nature of Unalaska's population over the time period portrayed. One can see in the enrollment figures, for example, the enrollment decline that followed the economic decline of the fishing industry in the early 1980s, following the crash of locally important king crab stocks. Enrollments have increased from the late 1980s onward, reflecting two trends, according to school staff. One is the overall growth of the community, and the other is the increase in the number of people who are making Unalaska home for their families. As shown, however, the growth has leveled off recently. As of December 2001, the City was finalizing a significant expansion of the school, including a new elementary school/administrative offices structure on a non-contiguous portion of the campus. The issue of whether to proceed with the expansion during a time when community population was experiencing a plateau if not decline, and a leveling off of student population in particular, was the subject of debate and a highly contested ballot measure in the community, with the decision to proceed with the expansion passing by a handful of votes.

The link between the fisheries and school population can in part be seen through a categorization of the employment, by sector, of parents of Unalaska schoolchildren as ascertained by the Unalaska School District as of January 2000 and shown in Table 2.2-9. As shown, the largest single sector was government/public, but fish processing and fishing support accounted for 36 percent of the total. According to school staff, the assignment of individual employers/entities to these categories (especially the "fishing support" category) is inexact, but gives an indication of the relative strength of ties of the different sectors to the school population. One trend that senior staff did note during interviews was an increase in students for whom English is a second language. According to senior school staff, 47 percent of the 2000-2001 kindergarten class were ESL (English as a second language) students. Also, according to school staff the Unalaska City School District was recently named in a poll as one of the top 100 school districts in the country and placed first in the state in exit exam scores, which has spurred an increase in enrollment of students from smaller villages in the region. For the most part, these are individuals who have chosen to stay with relatives in Unalaska to take advantage of the local educational opportunities, but there is now more opportunity for families to relocate to Unalaska from other regional communities with easing of the local housing shortage.

**Table 2.2-8 Unalaska City School District
Enrollment, Fiscal Years 1978-2002**

Fiscal Year*	School Enrollment
FY 1978	133
FY 1979	140
FY 1980	200
FY 1981	186
FY 1982	191
FY 1983	151
FY 1984	140
FY 1985	140
FY 1986	137
FY 1987	159
FY 1988	159
FY 1989	159
FY 1990	225
FY 1991	256
FY 1992	290
FY 1993	330
FY 1994	359
FY 1995	356
FY 1996	353
FY 1997	373
FY 1998	380
FY 1999	353
FY 2000	352
FY 2001	352
FY 2002	369

* Fiscal year designation notes the calendar year in school year ended (e.g., FY 1978 refers to the 1977-1978 school year, and FY 2002 refers to the 2001-2002 school year).

Source: Spreadsheet supplied by Unalaska City School District, December 2001

**Table 2.2-9 Parent Employment by Sector, Unalaska City School District
Fiscal Year 2000**

Parent Employment Sector	Percentage
Government/Public	28%
Fish Processing	18%
Fishing Support	18%
Retail/Restaurant/Services	17%
Transportation/Freight	16%
Self Employed/Unemployed	3%
Total	100%

Source: Unalaska City School District 2001

Housing Types and Population Segments

Household types in Unalaska vary by population segment, although this has changed in recent years. In the early 1990s, it was a truism that virtually all permanent residents lived in single-family dwellings, whereas short-term workers lived in group housing at worksites. This pattern has changed somewhat over the years with the construction of a number of multi-unit complexes not associated with particular employers. It is still the case, however, that processing workers for the seafood plants tend to live in housing at the worksite and longer-term workers at the shoreplants tend to live in company housing adjacent to worksites. One seafood processor, however, owns multi-family dwellings in what is otherwise primarily a single-family residential area, so its workforce tends to be differently distributed geographically than other workforces. Some residents of the community have drawn the distinction, with respect to processing firms, that one is not fully a resident of the community unless one has a private residence in the community (i.e., that the "test" of "real" residency is tied to whether one lives in company-provided housing). This distinction breaks down, however, when one examines the issue on a detailed level, as a number of companies (and not just seafood firms) provide or subsidize housing for employees in Unalaska both adjacent to and separate from their worksite locations; also, the persons living in such residences may, in fact, stay in the community for considerable lengths of time (outstaying many in "private" residences) and become centrally involved in community life. Still, in various political arenas, one hears claims made for the virtue of particular points of view based on whether individuals own homes and pay property taxes in the community.

The housing market has also changed during the period 1998-2001. Through the mid-1980s and the 1990s, housing was at a premium in the community, with virtually zero vacancy rates and waiting lists for rental opportunities. According to City staff, as of 2000, housing and rental prices had not appreciably dropped, but demand has slackened considerably such that there are no longer waiting lists maintained by some of the larger housing owners. According to the City appraiser and planning staff, home sales are slower than in the past, and there is some concern about declines in value, but those concerns have not been realized yet. This was still the case during 2001 fieldwork. Also according to the City, although rental demand is off, rents have not yet begun to drop in response to decrease in demand. This "softening" of the housing market is directly attributed by most to recent changes in the local fishery, including the slowing of the "race for fish" in the pollock fishery that was made possible by the AFA and the formation of co-ops, among other fishery-related factors.

The most recent housing market survey conducted by the City of Unalaska was completed November 2000 (City of Unalaska Planning Department Spreadsheet, February 2001) and noted that there has been "some curiosity expressed" about how 31 new units in the community will affect the rental market. These units include 16 apartments and 15 single-family dwellings for low-income residents (with the single-family dwellings further restricted to Alaska Native/Native American residents). Until very recently, the impact of the addition of new units to the community housing stock on rental rates would not have arisen as an issue. This same survey found that "while only one participant [in the survey] acknowledged lowering rental rates, several of the others acknowledged changing some of their rental policies, e.g., no last month deposit or renting to the general public if units are not required for employees." According to interview data, some landlords are now including fuel or utilities costs in the rental price, with the owner of the largest stock in the community including utilities. The housing survey also found that the upper range for housing costs had decreased slightly between 1997 and 2000 for apartments, whereas the costs for single-family dwellings increased slightly over this same period.

Another recent change in housing mentioned in interviews is that companies (other than the major seafood processors) are less likely to supply housing for workers than was the case in the past. This is reportedly due to there being more housing available on the market now, such that companies do not feel forced to tie up housing units for the entire year to be able to meet employee housing needs during peak demand periods. While there are no systematic data available to document this common assertion, the City of Unalaska has

discontinued the practice of holding long-term housing leases, which until very recently was a common practice due to the local housing shortage. According to City staff, as of 2001, the City retained just one lease for housing, and this was on a month-to-month basis. At present (2002) there are also rental vacancies in the community and have been for at least a year. One long-term resident noted that the local access television channel now commonly runs postings for rental opportunities, whereas in the recent past virtually all rental opportunities were communicated by word of mouth and openings never had a chance to hit the open market.

Local Economy and Links to the Crab Fishery

In the late 1970s and early 1980s the community prospered significantly from the king crab fishery. The crab boom resulted in a dramatic increase in both fishing boats and processors in town. In the mid-1970s there were from 90 to 100 commercial vessels regularly fishing the Bering Sea. By 1979 the number had jumped to between 250 and 280, an increase so dramatic that it was difficult for skippers to find crew members. The king crab fishery subsequently declined precipitously and fishermen and processors alike have had to diversify their businesses in order to survive. One of the avenues of diversification was the pollock fishery, and this fishery has provided an economic mainstay for the community in subsequent years.

Table 2.2-10 shows the volume and value of fish landed at Unalaska over the period 1977-2001. This span encompasses the high year of the king crab fishery and shows the decline of the fishery thereafter, and the growth of the pollock fishery. Average value per pound is an artificial figure in that it combines a number of different variables, but it is useful for an overall look at how volume and value have varied over the years (particularly as pollock, a relatively high volume, low value per unit species grew in importance as a component of the community processing base). As shown, Unalaska has ranked as the number one U.S. port in volume of landings since 1992 and ranked first in value of landings from 1988 to 1999.¹⁴ In 2000, Unalaska dropped to second in value of landings behind New Bedford, Massachusetts, and remained there in 2001. (In 2001, New Bedford value of landings totaled \$150.5 million on a much lower volume [106.9 million pounds] than landed in Unalaska).

The commercial fishery provides a very large component of the employment base in Unalaska. According to the City of Unalaska Comprehensive Annual Financial Report for the fiscal year ending June 30, 2001, "The Unalaska economy is driven by the seafood industry. About half of the Unalaska labor force is employed by the seafood industry, and 90 percent of the workers consider themselves dependent on the seafood industry." According to a telephone survey conducted by the City and included in that same report, the top four employers in the community are seafood industry businesses (Table 2.2-11). The City is the fifth largest employer, and the next two are shipping firms that rely virtually exclusively on the seafood industry. These firms are followed by the school district, which is followed by a fuel and vessel supply firm that relies very heavily on the fishing industry. It is only at the tenth position on the list that one comes to an employer that is not a seafood company, a direct/exclusive support firm for commercial fishing sector firms, or a government entity. Nevertheless, this firm does derive a portion of its business from supplying fishing vessels.

¹⁴ If ports in U.S. territories are included, Unalaska/Dutch Harbor ranks second behind Pago Pago in American Samoa for at least some of these years. As the center of the U.S. flag tuna fishery, value of landings at that port in 1998 (approximately \$232 million) more than doubled Unalaska/Dutch Harbor's total for that same year, the last full year for which data are available (NMFS 2001b).

Table 2.2-10 Volume and Value of Fish Landed at Unalaska, 1977-2001

Year	Volume		Value		Average Value (\$/lb)*
	Millions of Pounds	US Ranking	Millions of Dollars	US Ranking	
1977	100.5	-	61.4	-	0.61
1978	125.8	-	99.7	-	0.79
1979	136.8	-	92.7	-	0.68
1980	136.5	3	91.3	10	0.67
1981	73.0	5	57.6	11	0.79
1982	47.0	6	47.8	14	1.02
1983	48.9	9	36.4	15	0.74
1984	46.9	20	20.3	13	0.43
1985	106.3	18	21.3	8	0.20
1986	88.3	9	37.2	10	0.42
1987	128.2	4	62.7	8	0.49
1988	337.3	3	100.9	1	0.30
1989	504.3	2	107.4	1	0.21
1990	509.9	2	126.2	1	0.25
1991	731.7	2	130.6	1	0.18
1992	736.0	1	194.0	1	0.26
1993	793.9	1	161.2	1	0.20
1994	699.6	1	224.1	1	0.32
1995	684.6	1	146.2	1	0.21
1996	579.0	1	118.7	1	0.20
1997	587.8	1	122.6	1	0.21
1998	597.1	1	110.0	1	0.18
1999	678.3	1	140.8	1	0.21
2000	699.8	1	124.9	2	0.18
2001	834.5	1	129.4	2	0.15

* Average value derived from volume and value data.

Source: 1977-1979 data from NMFS data as cited in IAI 1991; 1980-1996 data from National Marine Fisheries Service data cited in City of Unalaska FY 97 Annual Report (December 1997); 1997-2000 data via personal communication from NMFS Fisheries Statistics and Economics Division, Silver Spring, MD (accessed through NMFS Website - <http://www.st.nmfs.gov/st1/commercial/landings/lport_hist.html>)

Table 2.2-11 City of Unalaska, Ten Principal Employers, June 30, 2001

Employer	Type of Business
UniSea, Inc.	Seafood, Hotel
Westward Seafoods, Inc.	Seafood
Alyeska Seafood, Inc.	Seafood
Royal Aleutian Seafoods, Inc.	Seafood
City of Unalaska	Local Government, Utilities, Ports
CSX Lines, Inc.	Transportation
American President Lines, Ltd.	Transportation
Unalaska City School	Primary, Secondary Education
Western Pioneer, Inc.	Fuel, Vessel Support
Alaska Commercial Company	Grocery, Retail

Source: City of Unalaska, Comprehensive Annual Financial Report for the Fiscal Year ending June 30, 2001

Beyond employment, fishing and fishing support define a substantial portion of the identity of the community, and fishing-related issues extend into many other areas of community life. An example of the engagement of the community with the direct and fisheries support sectors and vice versa may be seen in the composition of local government decision makers. At the time of fieldwork for this project (December 2001), of the seven city council plus mayor positions, two were held by current in-community processor employees, one was held by an individual with ties to both at-sea processing and support services, and three were held by persons employed in a range of support sector businesses with primary ties to the fishery (hydraulics, fuel, and shipping). Only one council person had no direct ties to the fishery or the primary support sector. At least one individual now in the support sector originally came to the community as a fishery sector employee, and only the individual with no ties to the fishery or its support services has multigenerational family roots in Unalaska.

The following discussion of the fishing industry is divided into the harvesting and processing sectors, as each has significance for the Unalaska economy and community. A third section provides information on fishing industry support services.

Harvesting

As discussed in previous documents (e.g., the Steller Sea Lion Protection Measures SEIS [NMFS 2001a]), the vast majority of fish landed in Unalaska both in terms of volume and value are landed by vessels from outside of the community. Unalaska is at once both an industrial-scale fishing community and a small boat fleet town. It is home to a greater concentration of processing and catcher vessel activity than any other Alaskan community, but its residential fleet is much smaller than a number of much smaller communities within the same region (e.g., King Cove and Sand Point). The following discussion is divided into small and large vessel subsections.

Small Vessel Fleet

There is at present little direct participation in the BSAI crab fisheries by vessels owned or crewed by local residents, but there is a local small commercial catcher vessel fleet that interacts to some degree with the larger as well as the smaller crab and multi-species processors. A portion of the fleet is represented by the Unalaska Native Fisherman’s Association, and according to earlier interview data, in 1998 there were 24 boats in the association, ranging in size from 18-foot skiffs up to a 68-foot commercial vessel. In late 2001, membership was described as fluctuating between 20 and 50 boats, depending on the nature of fisheries

management/political climate. This association is open to Natives and non-Natives alike, but there is a requirement that members must live in the community 8 months per year. This entity, with financial support of the regional CDQ group, represents the interests of Unalaska small boat fishermen before the NPFMC by underwriting travel expenses for local representatives to attend the meetings. During fieldwork in December 2001, the Association's president noted that the organization had never discussed crab rationalization and so did not have an official position regarding the different approaches under consideration. Association representatives did note, however, concerns that if processor quotas were part of the program there could be a danger of returning to a "company town" type of fishery through consolidation that would be like those seen in the salmon fisheries in the 1950s. At the February 2002 NPFMC meetings, a resolution from the Association, dated January 27, 2002, was presented to the NPFMC, urging the NPFMC (and other entities) "to require strong standards for conservation and community health before any new individual quota program or other limited access programs are adopted for our fisheries resources in Alaska" with a feature of the plan to "include eligibility for coastal communities" (Unalaska Native Fisherman's Association 2002).

Local vessels do not participate in the locally important pollock fishery, but they do participate in the local cod, halibut, and crab fisheries on a small scale. A frequently noted problem in developing markets and long-term relationships with the larger processing entities, however, is that the locally based fleet consists of small vessels by Bering Sea standards. In practical terms this means that they are more weather dependent than larger vessels and have a smaller delivery capacity per trip, which makes it difficult for larger plants to accommodate what are by necessity small and sporadic deliveries. There are two smaller processing entities in the community that, in addition to doing custom processing for the larger processors and serving the local charter sportfishing sector, also serve as an important market for the local small boat commercial fleet. Information from interviews conducted for this and other recent projects suggests that very few if any of Unalaska's small vessel owners derive household or individual income exclusively from commercial fishing, and that commercial fishing for small boat owners is generally one part of a (variable) multiple income source strategy of "piecing together a living." In the words of one long-time local vessel owner, "you could do it [support a family off of local commercial fishing] when I was young, but if I had to support a family now, I would have to be a longshoreman."

According to information gained from interviews conducted for this project in December 2001, local small boat participation in BSAI crab fisheries has dropped to near zero due to closures restricting access to crab in waters near the community, with tanner having been closed since 1994 and king crab since the early 1980s. When open, the tanner fishery was effectively an Unalaska Bay fishery for the small boats, but there was some competition from larger vessels that would drop pots on the local grounds on the way out to more distant fishing areas and retrieve them on their return to port. Local small vessel interviewees ranged in their estimate of the number of locally owned small vessels still participating in any BSAI crab fishery as between one and three vessels. At least some local small vessels do participate indirectly in the crab fisheries by selling bait to the larger vessel crab fleet. Reportedly, however, this business has been made much more difficult with the very short crab seasons, and a lengthening of seasons through rationalization would assist this local market for small vessel owners, through longer turnarounds as well as more port calls during an extended season. This would make investment in such enterprises less speculative as well.

Information on local small vessel participation in the groundfish fishery is more readily available than information on the fleet's participation in the BSAI crab fisheries, due to these fisheries being open in recent years and having enough entities that data on the fishery are not confidential for most years. Between 1992 and 2000, as shown in Table 2.2-12, between 3 and 21 Unalaska resident-owned vessels less than 60 feet have had landings in targeted groundfish fisheries in any given year. Also as shown in this same table, the total value of groundfish ex-vessel revenues for the community-based fleet ranged between \$40,000 to \$250,000 per year during this same time period, for the years that can be disclosed. A couple of trends are apparent in this table. The number of vessels during this era peaked at 21 in 1996 and has declined every year since, with

the 7 vessels fishing in 2000 representing a 67 percent reduction from the 1996 fleet size. Total Unalaska-owned vessel groundfish ex-vessel revenues have declined over this same 1996-2000 period, but not as quickly as the number of vessels themselves, resulting in a 50 percent reduction of annual revenues between 1996 and 2000. This has had the effect of raising the average revenue per vessel within the reduced fleet by 201 percent between 1996 and 2000. Among the groundfish species, Pacific cod plays a dominant role for these vessels. Between 1992 and 2000, Pacific cod accounted for between 71 and 100 percent of value of catch for this fleet in any given year, with an average of 92 percent per year over this span. Over the most recent 4 years, 2000 through 1997, Pacific cod accounted for 89 percent of total value of catch for the Unalaska-owned under 60 feet fleet. There is no state water groundfish fishery in the Bering Sea near the community, so these data all refer exclusively to federal water fisheries. Two to four Unalaska resident-owned vessels 60 feet or greater participated in the targeted groundfish fishery each year for the years 1992-1999, but none did so in 2000.

Table 2.2-12 Vessels <60' Owned by Unalaska Residents with Landings in Groundfish Target Fisheries and Groundfish Ex-vessel Revenue of Unalaska/Dutch Harbor Resident Owned Vessels, 1992-2000

Year	Number of Unalaska-Owned Vessels	Unalaska-Owned Vessels, Groundfish Ex-Vessel Revenue	
		Total (thousands of dollars)	Average per Vessel (dollars)
1992	6	40	\$6,700
1993	3	suppressed	suppressed
1994	16	110	\$6,900
1995	13	250	\$19,200
1996	21	150	\$7,100
1997	16	120	\$7,500
1998	9	110	\$12,200
1999	9	110	\$12,200
2000	7	100	\$14,300

Note: Includes "ghost vessels"
 Source: CFEC/ADFG Fish Tickets, June 2001

Reportedly, the activities of this local small boat groundfish fleet are effectively constrained to the west of Unalaska Bay on the north side of Unalaska Island, due to environmental as well as potential gear conflict factors. According to one local longline fisherman, if fishing is attempted to the east, currents in the major passes, especially when combined with rough weather, make for untenable conditions for small boats. Further, frequent transits of this area by the larger-scale fishing fleet as well as the numerous shipping vessels that call on the Port of Dutch Harbor make gear loss too great of a risk to be conducive to fishing in the area. In contrast, the waters to the west feature less current and more sheltered or protected areas for small boats to ride out rough weather. In general, the open Bering Sea conditions near Unalaska present difficulties for small boat fishermen as little adequate shelter exists outside of Unalaska Bay itself. This is equally applicable to groundfish and crab pursuits.

In terms of the number of participants, the local jig fleet has seen growth and decline in recent years. According to CFEC and Alaska Department of Fish and Game (ADF&G) fish ticket data, three Unalaska/Dutch Harbor jig vessels fished groundfish in 1992, two fished in 1993, and then there was an upsurge in participation with between 13 and 18 vessels reporting per year from 1994 to 1997, inclusive. A decline quickly followed, however, as in 1998, 1999, and 2000, there were 9, 8, and 7 vessels participating each year, respectively.

There has been a recent shift in the importance of different gear types among community vessels targeting Pacific cod. During the 1993 to 1998 period, 95 percent of Pacific cod landed by Unalaska-owned vessels under 60 feet were caught using jig gear. In 1999 and 2000, catch by vessels using longline gear increased significantly but specific figures cannot be disclosed due to confidentiality restrictions. Table 2.2-13 presents information on number of Unalaska/Dutch Harbor vessels specifically targeting Pacific cod by gear type use. As some vessels utilize more than one type of gear, the total number of vessels that fished in any given year may be less than the sum of the counts by gear types for that year. As shown, the number of vessels using jig gear far outnumber the vessels using any other gear type for all of the years shown.

Table 2.2-13 Number of Unalaska/Dutch Harbor Vessels < 60' Targeting Pacific Cod in the Bering Sea by Gear Type Utilized, 1992-2000

Year	Number of Vessels					
	Longline	Jig	Other	Pot	Trawl	Total
1992	4	3	0	0	0	6
1993	1	2	0	0	0	3
1994	1	12	0	0	0	13
1995	3	12	0	0	0	13
1996	1	18	1	0	1	19
1997	2	13	1	1	0	15
1998	0	9	0	0	0	9
1999	2	8	1	0	0	9
2000	2	7	0	0	0	7

Source: CFEC/ADFG Fish Tickets, June 2001

According to one local long-term fisherman, while there has been more local groundfish activity utilizing jig gear since the development of the contemporary small boat groundfish fleet, there has been an increasing emphasis on longline gear in the past couple of years by some local residents (and this observation is consistent with the quantitative data available). In addition to these individuals, there are also individuals who, while not long-term residents, fish the area on a generally regular basis using small vessels and longline gear. According to this fisherman, at the time of the interview (late 2001), there were about three small boat longline fishermen who "live in houses" in the community, another three or so who lived on their boats, and about three others who seasonally came to the area to fish, with some turnover being common in the latter group. Characterizing the level of effort of the "local" component is problematic with currently available data. Most deliveries by these vessels have been characterized as being made at two local small processors rather than the large volume "industrial" plants due to a typically better price structure, but a relatively small portion is reported to also be made at the largest plants in the community for a variety of reasons, including the ability to obtain different types of operational support at the larger facilities that are unavailable at the small processing operations.

It is also important to note that there are a number of vessels that are not owned by community residents in the under 60 feet class that deliver to Unalaska (and Beaver Inlet) processors. Table 2.2-14 provides information on ex-vessel revenues for all under 60 feet vessels that make local deliveries and includes all groundfish species, including Pacific cod, sablefish, and so on. Examining the figure for the fixed gear vessel class 33 to 59 feet for 2000, it can be seen that the value for this sector alone (\$1.23 million) is about 12 times higher than the total ex-vessel revenues for all Unalaska/Dutch Harbor resident-owned under 60 feet vessel classes combined for the same year (\$0.10 million, as shown in Table 2.2-12). While the Unalaska/Dutch Harbor-owned small vessels may not fish far from the community, it is clear from the landings data that small

vessels in these same gear classes from other communities fish far from their owners' communities (i.e., in the Unalaska/Dutch Harbor area).

Table 2.2-14 Groundfish Ex-Vessel Revenue of Vessels <60' Delivering to Processors on Unalaska Island, 1992-2000

Year	Ex-Vessel Revenue by Gear Type (millions of dollars)				
	Trawl Catcher Vessels < 60'	Fixed Gear Catcher Vessels 33-59'	Fixed Gear Catcher Vessels ≤ 32'	Ghost	Total
1992	0.14	1.75	0.11	0.01	2.01
1993	0.05	0.78	0.02	0.01	0.86
1994	0.01	0.64	0.17	0.01	0.83
1995	0.05	1.62	0.12	0.07	1.86
1996	0.02	0.93	0.10	0.03	1.08
1997	0.00	0.65	0.09	0.03	0.77
1998	0.02	0.31	0.10	0.02	0.45
1999	0.08	0.70	0.04	0.12	0.94
2000	0.03	1.23	0.02	0.03	1.31

Note: Includes landings to the Northern Victor, which operates in Beaver Inlet outside of any municipal (or borough) boundary, but not landings to the Arctic Enterprise, which operated in Beaver Inlet for part of this period, but more recently has been operating in Akutan Bay. Other than the Northern Victor, all landings were made within the municipal boundaries of Unalaska.

Source: CFEC/ADFG Fish Tickets, June 2001

Unalaska did not qualify as a CDQ community, but it is an ex-officio member of the APICDA. This CDQ group partners with both an onshore and offshore entity and offers training programs in Unalaska. Though Unalaska is not formally a CDQ community, according to interview data it is in fact where more of APICDA training and other programs are run because of the size of the population it services in the community. Although theoretically the recent increase in CDQ quota under AFA hurt the community as a non-CDQ participant, the simultaneously occurring increase in onshore quota, again in theory, more than made up the difference. The precise impacts of this shift on the community are not possible to ascertain with available data, but it is known that given CDQ partnerships with onshore and offshore sector participants that directly or indirectly benefit the community through either local economic activity or payment of taxes in one form or another, the consequences of the change are likely to be minor indeed. When queried about the impact of CDQ allocation change, a number of respondents offered the opinion that it was simply a "cost of doing business."

Large Vessel Fleet

The large vessels from outside of the community that are associated with the individual shoreplants are discussed in overview in the processor section, and in more detail in the Seattle profile as that is the home community for the large majority of the locally delivering fleet. This section provides some information on the Unalaska community links to that fleet, and attributes of that fleet that are relevant to local community social impacts of rationalization.

Ownership patterns of the large catcher vessels have been changing in recent years, however, and this is making the local versus outside fleet dynamic somewhat more complex. This is more obvious within the groundfish fishery (and the pollock fishery specifically) than it is within the crab fishery. Within the pollock

fishery, one of the trends in recent years has been the dramatic increase in ownership and/or control (through third-party entities with some type of business relationship to the processors) of pollock harvest vessels by the shoreplants in Unalaska. Prior to this pattern of acquisition, it was accurate to say that no permanent residents of Unalaska were involved in the pollock fishery as vessel owners, nor were any vessels homeported out of Unalaska in the sense of being the community of residence for the skipper and crew. With the changes in ownership patterns have come complexities for the description of the relationship of the harvest fleet to the community. While it is still true to say that no independent fishermen who are permanent residents of the community own pollock harvesting vessels, some pollock harvesting vessels are now owned (partially or wholly) by economic entities based in the community (or, given the complex nature of corporate relationships and/or restrictions on foreign ownership of the fleet, by entities with close relationships with entities based in the community). This change in ownership pattern, while it may have shifted where vessels are homeported or, perhaps more importantly from an economic perspective, spend more of the year, it is still the case that very few, if any, permanent residents of the community work on pollock harvesting vessels.

Under AFA conditions, there have been some additional changes in ownership of catcher vessels delivering to Unalaska, and the details of this shift are analyzed the Council's AFA Report to Congress (NPFMC 2002). There have been examples in Unalaska of a vessel being purchased by other vessels within a co-op and the redistribution of the purchased vessel's quota share being distributed among other vessels in the co-op, and of vessels changing ownership and moving between co-ops that are based in different communities. Further, quota has been rented to other co-op members as well. None of these changes involved local residents, and none of the shifts of quota resulting from these actions are considered of a magnitude to have created community level impacts.

There are also indications that there are fundamental changes in relations between vessel crew and owners with the conversion of one or more vessel crew compensation structures from a share to a wage basis on vessels controlled by processing entities. How closely this is tied to rationalization itself, and how this experience may in turn be generalized to crab rationalization conditions is unclear; however, this type of shift is perhaps consistent with an assigned quota system where vessel revenues are generally predictable. Crew share systems are, of course, well suited for a fishing environment where the crew shares in the economic risk and benefits in the rewards of uncertain outcomes. However, with what is essentially corporate ownership of a stable quota share, there are those who feel that results can be obtained from vessels without utilizing a share incentive system. This is consistent with the observation of one locally based skipper, that with the AFA co-op quota assignment system, operating a vessel has become more like "running a combine" than hunting, as "everything is in fences now." Different AFA processors in Unalaska have very different vessel ownership/control patterns, with one processor having virtually no ownership interest (having decreased from a minor ownership share previously) while others have quite strong interests. While these specific changes may or may not be rationalization/AFA influenced in their timing, clearly the trends of processor control of catch capacity leading to these logical consequences were operating in the pre-AFA environment. Further, there has been considerable speculation related to the differential economics of various price points when it comes to what plants pay for fish, given different catcher vessel ownership relations. Where plants control a large portion of the delivery fleet (and can thus decide where to take their profits in that transaction), the price paid to non-directly controlled vessels becomes a marginal cost, with different rules about what makes economic sense in comparison to a fleet not controlled by a processor. While there were numerous opinions about the logical outcome of these circumstances under an AFA-driven management regime, clearly these potential changes have not yet fully played themselves out in the relatively brief time since the implementation of onshore co-ops in Unalaska.

According to interviews conducted in 2001 for an AFA social impact assessment (NPFMC 2002), while there has been leasing of quota between vessels that resulted in greater overall economic efficiency, there have been some cases where there has been a reluctance of vessel owners to trade the resource due to concerns or lack

of trust in what NMFS or NPFMC may do in the long run. That is, despite incentives to lease quota, some owners are still protective of maintaining an ongoing history of direct participation in the pollock fishery as a hedge against possible future changes in fishery management. It would seem likely that the situation would be similar under crab rationalization but, of course, the ultimate degree of similarity between the two programs would influence this.

Another change among catcher vessels participating in Unalaska-based pollock co-ops is the level of information sharing between vessels, such that vessels can coordinate catch timing and location to optimize timing at the processing plant. In some ways, the co-ops have resulted in "absolute flexibility" from the perspective of coordination and running a processing plant. From the perspective of the catcher vessel owner, although most agree wholeheartedly that co-ops are a better management system than complete open access, the current system in some ways represents a loss of flexibility in terms of the strength of ties to a particular processor. Of course, the change with co-ops is to some degree more apparent than real, given the existing ownership/control patterns of a good proportion of the fleet and the limited number of delivery options available to vessels without a commitment to any particular plant.

Yet another change in the 1999-2001 era is the differential importance of small harvest vessels for some operations in the face of harvest area restrictions related to Steller sea lion resource protection areas. Catch and delivery by co-op member vessels that are small enough to fish inside areas closed to the larger vessel classes can be coordinated to optimize the overall delivery schedule. This has been recognized as an important strategic approach by at least one processor to date, but clearly the utility of such an approach is enhanced or limited by the scale of the individual processing operation. This situation is quite different for the crab fleet.

Another type of relationship change between catcher vessels and shore processors in Unalaska resulting from the implementation of co-ops is the degree of management coordination between the vessel co-op and the plant, as realized in the creation of co-op manager positions. These individuals represent the co-op in dealing with plant management and are privy to a level of detail about plant operations and economics that simply was not communicated to the catcher fleet prior to the formation of co-ops. It would seem likely that this type of system would also be implemented were crab co-ops to be formed.

Processing

The history of shoreplant operations in Unalaska is available in the NPFMC community profiles developed for the Inshore/Offshore-1 amendment (IAI 1991), and more recent changes in the range of variation of operations in the community have been summarized in other NPFMC and NMFS documents (e.g., the NPFMC Inshore/Offshore-3 SIA analysis [IAI 1998], Groundfish SEIS [NMFS 2001c], and the Steller Sea Lion Protection Measures SEIS [NMFS 2001a]) and are not recapitulated here. Rather, this section focuses on recent changes in the sector with respect to the crab fishery and the relationship of the sector to the community.

Tables 2.2-15 and 2.2-16 display information on processing value of BSAI crab species included in the various rationalization alternatives for the years 1991-2000 for crab processors in Unalaska. Table 2.2-15 shows information by species and year expressed in dollars and, as shown, Bering Sea opilio accounts for the highest value of any individual species over this time span. Table 2.2-16 also provides processing value information, but expressed as a percentage of total crab processing in any given year. The columns in this table allow an at-a-glance assessment of the "relative worth" to the community of the individual species on a year-by-year basis. Year-to-year fluctuations are also readily apparent.

Table 2.2-15 Total Processed Value of Relevant BSAI Crab Species, by Species and Year, Unalaska/Dutch Harbor, 1991-2000

Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Grand Total
Adak Brown	*	\$406,804	\$1,008,234	\$3,551,623	\$4,694,263	\$4,259,832	\$2,736,065	\$2,092,597	*	*	\$26,485,948
Adak Red	\$628,287	*	\$833,116	\$448,594	*	*					*
Bristol Bay Red	\$22,554,898	\$13,878,772	\$20,056,151			\$13,100,272	\$14,450,603	\$17,515,278	\$31,129,150	\$18,012,029	\$150,697,153
Bering Sea Opilio	\$51,287,353	\$52,921,301	\$40,503,037	\$34,314,827	\$49,456,163	\$21,165,078	\$31,514,104	\$48,119,450	\$55,389,253	\$17,660,661	\$402,331,228
Bering Sea Tanner	\$18,991,940	\$21,101,260	\$14,708,378	\$14,065,868	\$4,752,284	\$2,273,672					\$75,893,402
Dutch Harbor Brown	\$7,441,719	\$6,452,093	\$6,977,340	\$14,145,081	\$12,613,791	\$11,131,177	\$6,689,920	\$5,553,268	*	*	\$89,023,225
Pribilof Blue					*	*	\$150,458	\$226,386			*
Pribilof Red			\$3,459,866	\$2,387,839	*	*	\$279,598	\$301,596			\$7,641,142
St. Matthews Blue	*	*	\$1,764,533	\$2,888,624	*	\$1,415,847	\$2,246,873	\$592,422			\$12,052,640
Total All 9 PMA Species	\$102,770,766	\$96,593,841	\$89,310,654	\$71,802,456	\$75,309,503	\$54,619,132	\$58,067,621	\$74,400,998	\$98,224,315	\$48,328,306	\$769,427,591
"Big 3" PMA Species	\$92,834,191	\$87,901,333	\$75,267,566	\$48,380,694	\$54,208,448	\$36,539,022	\$45,964,707	\$65,634,728	\$86,518,402	\$35,672,691	\$628,921,783
"Other 6" PMA Species	\$9,936,575	\$8,692,509	\$14,043,088	\$23,421,762	\$21,101,055	\$18,080,110	\$12,102,914	\$8,766,269	\$11,705,912	\$12,655,615	\$140,505,808
All 9 PMA Species	\$102,770,766	\$96,593,841	\$89,310,654	\$71,802,456	\$75,309,503	\$54,619,132	\$58,067,621	\$74,400,998	\$98,224,315	\$48,328,306	\$769,427,591

"Big 3" includes Bristol Bay Red, Bering Sea Opilio, and Bering Sea Tanner
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001

Table 2.2-16 Processed Value of Relevant BSAI Crab Species, by Species and Year, as Percentage of Community Annual BSAI Crab Processed, Unalaska/Dutch Harbor, 1991-2000

Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Grand Total
Adak Brown	*	0.4%	1.1%	4.9%	6.2%	7.8%	4.7%	2.8%	*	*	3.4%
Adak Red	0.6%	*	0.9%	0.6%	*	*	0.0%	0.0%	0.0%	0.0%	*
Bristol Bay Red	21.9%	14.4%	22.5%	0.0%	0.0%	24.0%	24.9%	23.5%	31.7%	37.3%	19.6%
Bering Sea Opilio	49.9%	54.8%	45.4%	47.8%	65.7%	38.8%	54.3%	64.7%	56.4%	36.5%	52.3%
Bering Sea Tanner	18.5%	21.8%	16.5%	19.6%	6.3%	4.2%	0.0%	0.0%	0.0%	0.0%	9.9%
Dutch Harbor Brown	7.2%	6.7%	7.8%	19.7%	16.7%	20.4%	11.5%	7.5%	*	*	11.6%
Pribilof Blue	0.0%	0.0%	0.0%	0.0%	*	*	0.3%	0.3%	0.0%	0.0%	*
Pribilof Red	0.0%	0.0%	3.9%	3.3%	*	*	0.5%	0.4%	0.0%	0.0%	1.0%
St. Matthews Blue	*	*	2.0%	4.0%	*	2.6%	3.9%	0.8%	0.0%	0.0%	1.6%
Total All 9 PMA Species	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
"Big 3" PMA Species	90.3%	91.0%	84.3%	67.4%	72.0%	66.9%	79.2%	88.2%	88.1%	73.8%	81.7%
"Other 6" PMA Species	9.7%	9.0%	15.7%	32.6%	28.0%	33.1%	20.8%	11.8%	11.9%	26.2%	18.3%
All 9 PMA Species	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

"Big 3" includes Bristol Bay Red, Bering Sea Opilio, and Bering Sea Tanner
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001

To provide a sense of scale of the operations in Unalaska/Dutch Harbor compared to the total fishery, Table 2.2-17 provides total value figures for the individual relevant crab species and species groupings. Table 2.2-18 then provides a percentage of Unalaska/Dutch Harbor fishery processing value in relation to the overall fishery for the species and groups by individual year and then averages over the 1991-2000 period. As shown, local processing of Bristol Bay red king crab accounted for 42 percent of the value of all Bristol Bay red king crab processed in all locations combined over the period 1991-2000. The analogous figures for Bering Sea opilio and Bering Sea tanner were 28 percent and 36 percent, respectively.

Table 2.2-17 Total Processed Value of Relevant BSAI Crab Species, by Species and Year, All Regions, 1991-2000

Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Grand Total 1991-2000	Grand Total 1995-1999
Adak Brown	*	\$6,013,424	\$3,431,551	\$9,922,351	\$9,587,972	\$5,561,192	\$5,060,055	\$4,269,733	*	*	\$68,375,383	\$30,988,844
Adak Red	\$3,437,171	*	\$2,591,292	\$1,153,226	*	*					*	*
Bristol Bay Red	\$55,047,519	\$41,931,730	\$57,085,291			\$33,511,393	\$28,472,117	\$37,165,122	\$68,611,798	\$35,989,449	\$357,814,418	\$167,760,429
Bering Sea Opilio	\$164,468,126	\$160,094,620	\$173,026,231	\$195,666,718	\$172,167,486	\$88,140,168	\$92,337,590	\$135,847,412	\$179,572,974	\$55,826,325	\$1,417,147,650	\$668,065,630
Bering Sea Tanner	\$56,192,838	\$59,162,105	\$41,988,229	\$35,366,058	\$11,923,660	\$4,595,405					\$209,228,294	\$16,519,064
Dutch Harbor Brown	\$10,073,012	\$8,706,764	\$7,501,708	\$17,958,861	\$13,590,498	\$11,131,177	\$7,536,623	\$6,013,306	*	*	\$102,156,799	\$47,580,263
Pribilof Blue					*	*	\$1,197,625	\$947,811			*	*
Pribilof Red			\$10,292,145	\$8,833,837	*	*	\$2,400,131	\$1,318,743			\$26,904,807	\$7,778,826
St. Matthews Blue	*	*	\$8,621,773	\$14,587,522	*	\$7,933,359	\$10,816,369	\$5,462,634			\$70,701,739	\$31,759,688
Total all 9 PMA Species	\$305,695,929	\$289,853,730	\$304,538,220	\$283,488,574	\$221,109,681	\$154,074,142	\$147,820,510	\$191,024,760	\$264,003,323	\$111,690,223	\$2,273,299,091	\$978,032,416
"Big 3" PMA Species	\$275,708,483	\$261,188,454	\$272,099,751	\$231,032,776	\$184,091,146	\$126,246,965	\$120,809,707	\$173,012,534	\$248,184,771	\$91,815,774	\$1,984,190,362	\$852,345,124
"Other 6" PMA Species	\$29,987,446	\$28,665,275	\$32,438,469	\$52,455,798	\$37,018,535	\$27,827,177	\$27,010,803	\$18,012,226	\$15,818,551	\$19,874,449	\$289,108,729	\$125,687,292
All 9 PMA Species	\$305,695,929	\$289,853,730	\$304,538,220	\$283,488,574	\$221,109,681	\$154,074,142	\$147,820,510	\$191,024,760	\$264,003,323	\$111,690,223	\$2,273,299,091	\$978,032,416

"Big 3" includes Bristol Bay Red, Bering Sea Opilio, and Bering Sea Tanner
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001

Table 2.2-18 Processed Value of Relevant BSAI Crab Species, by Species and Year, Unalaska/Dutch Harbor as Percentage of Total BSAI Crab Processed, All Regions, 1991-2000

Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Grand Total 1991-2000	Grand Total 1995-1999
Adak Brown	*	6.8%	29.4%	35.8%	49.0%	76.6%	54.1%	49.0%	*	*	38.7%	54.4%
Adak Red	18.3%	*	32.2%	38.9%	*	*	n/a	n/a	n/a	n/a	*	*
Bristol Bay Red	41.0%	33.1%	35.1%	n/a	n/a	39.1%	50.8%	47.1%	45.4%	50.0%	42.1%	45.4%
Bering Sea Opilio	31.2%	33.1%	23.4%	17.5%	28.7%	24.0%	34.1%	35.4%	30.8%	31.6%	28.4%	30.8%
Bering Sea Tanner	33.8%	35.7%	35.0%	39.8%	39.9%	49.5%	n/a	n/a	n/a	n/a	36.3%	42.5%
Dutch Harbor Brown	73.9%	74.1%	93.0%	78.8%	92.8%	100.0%	88.8%	92.3%	*	*	87.1%	93.8%
Pribilof Blue	n/a	n/a	n/a	n/a	*	*	12.6%	23.9%	n/a	n/a	*	*
Pribilof Red	n/a	n/a	33.6%	27.0%	*	*	11.6%	22.9%	n/a	n/a	28.4%	23.1%
St. Matthews Blue	*	*	20.5%	19.8%	*	17.8%	20.8%	10.8%	n/a	n/a	17.0%	19.4%
Total all 9 PMA Species	33.6%	33.3%	29.3%	25.3%	34.1%	35.4%	39.3%	38.9%	37.2%	43.3%	33.8%	36.9%
"Big 3" PMA Species	33.7%	33.7%	27.7%	20.9%	29.4%	28.9%	38.0%	37.9%	34.9%	38.9%	31.7%	33.9%
"Other 6" PMA Species	33.1%	30.3%	43.3%	44.7%	57.0%	65.0%	44.8%	48.7%	74.0%	63.7%	48.6%	57.1%
All 9 PMA Species	33.6%	33.3%	29.3%	25.3%	34.1%	35.4%	39.3%	38.9%	37.2%	43.3%	33.8%	36.9%

*Big 3" includes Bristol Bay Red, Bering Sea Opilio, and Bering Sea Tanner

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001

Tables 2.2-19 through 2.2-22 provide detailed break-out of processed weight and value of processed fish by species group by year for Unalaska. Given that these data are from a different source as the data in Table 2.2-10, the totals do not match, but the intent of the tables is to give a sense of overall effort and value of commercial fish landed in the community and changes through time, and specifically the role and importance of crab relative to other species.

Table 2.2-19 provides information on total processed weight by species group by year for 1991-2000, and Table 2.2-20 provides the same information by percentage for each year. Important information for recent years to note is the overall dominance of pollock and the second tier domination of other groundfish and crab in landing volumes. Second, the precipitous decline in crab landings from 1998 (the highest volume since 1991 over the 1991-2000 span) to 1999 (still the second highest year since 1992) to 2000 (far and away the lowest volume year of this period and just 19 percent of the highest year) is readily apparent. Pollock landings, on the other hand, increased from 1998 to 1999, and then again in 2000, reaching its highest level for the 1991-2000 period in 2000. Clearly, the recent increase in pollock landings in the community is related to AFA reallocation of quota to onshore processing entities (which increased the inshore component from 35 percent to 50 percent of the BSAI pollock TAC¹⁵) as well as increases in the overall TAC itself.

¹⁵ Inshore/Offshore-3, passed by the NPFMC in 1998, was scheduled to take the inshore component from 35 percent to 39 percent of the BSAI pollock TAC by reallocating 4 percent away from the offshore sector (and leaving the CDQ preallocation set aside at 7.5 percent). This planned shift never took place, however, as it was superseded later that same year (before implementation) by AFA. After CDQ and incidental take allocations were "taken off the top," AFA allocated 50 percent of the remaining TAC to onshore sector, 40 percent to the offshore catcher processor sector, and 10 percent to the newly created mothership sector (which had previously been a part of the offshore sector along with catcher processors). AFA also increased CDQ set aside to 10 percent of the overall TAC.

Table 2.2-19 Volume (in Pounds) Processed by Unalaska/Dutch Harbor Processors, by Fishery Category and Year, 1991-2000

Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
PMA Crab	81,311,175	78,432,337	55,476,378	31,692,433	25,249,299	26,863,160	39,323,229	80,038,944	56,283,073	15,342,221	490,012,249
Non-PMA Crab	240,678	741,303	1,659,918	2,455,160	3,156,676	1,574,496	597,851	155,524	323,555	165,671	11,070,832
Salmon	6,200,015	6,677,910	14,855,001	12,998,733	9,951,176	8,494,899	5,102,131	10,055,269	14,384,810	5,434,743	94,154,687
Halibut	2,452,401	2,555,789	3,530,379	2,738,901	3,048,416	1,792,292	4,244,506	2,549,845	5,152,783	see note	28,065,421
Sablefish	2,545,110	2,978,115	1,309,902	1,130,290	2,691,699	1,402,901	1,353,774	783,257	734,033	1,171,391	16,100,472
Pollock	461,621,153	602,517,363	637,230,059	662,013,632	570,886,988	531,907,758	578,715,025	604,877,659	679,171,596	693,429,290	6,022,370,523
Pacific Cod	41,549,645	23,088,933	32,783,213	56,194,934	65,329,047	86,665,493	71,135,761	45,560,405	36,478,301	52,008,168	510,793,900
Other Groundfish	14,562,453	8,348,204	2,589,760	20,997,064	22,283,634	14,219,510	41,919,159	4,367,610	5,499,948	8,327,767	143,115,109
Other Fisheries	1,525,017	2,091,133	3,177,083	7,364,974	5,966,828	8,060,362	2,464,434	2,502,305	2,293,388	1,387,816	36,833,340
Non-Commercial	555,613	124,877	19,583	113,367	550,835	20,704,368	19,035,013	19,137,962	28,312,272	118,829	88,672,719
Total	612,563,260	727,555,964	752,631,276	797,699,488	709,114,598	701,685,239	763,890,883	770,028,780	828,633,759	777,386,005	7,441,189,252

Notes: Halibut numbers are not available for 2000.
 Most numbers are likely to be underestimates and should be used as indicators rather than exact measures. See text.
 Table includes ALL processors in the named community, whether they processed relevant BSAI crab or not.
 Non-commercial includes forfeited bycatch, test fisheries, CDQ, etc.
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.2-20. Percentage of Total Volume Processed by Unalaska/Dutch Harbor Processors, by Fishery Category and Year, 1991-2000

Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
PMA Crab	13.3%	10.8%	7.4%	4.0%	3.6%	3.8%	5.1%	10.4%	6.8%	2.0%	6.6%
Non-PMA Crab	0.0%	0.1%	0.2%	0.3%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	0.1%
Salmon	1.0%	0.9%	2.0%	1.6%	1.4%	1.2%	0.7%	1.3%	1.7%	0.7%	1.3%
Halibut	0.4%	0.4%	0.5%	0.3%	0.4%	0.3%	0.6%	0.3%	0.6%	see note	0.4%
Sablefish	0.4%	0.4%	0.2%	0.1%	0.4%	0.2%	0.2%	0.1%	0.1%	0.2%	0.2%
Pollock	75.4%	82.8%	84.7%	83.0%	80.5%	75.8%	75.8%	78.6%	82.0%	89.2%	80.9%
Pacific Cod	6.8%	3.2%	4.4%	7.0%	9.2%	12.4%	9.3%	5.9%	4.4%	6.7%	6.9%
Other Groundfish	2.4%	1.1%	0.3%	2.6%	3.1%	2.0%	5.5%	0.6%	0.7%	1.1%	1.9%
Other Fisheries	0.2%	0.3%	0.4%	0.9%	0.8%	1.1%	0.3%	0.3%	0.3%	0.2%	0.5%
Non-Commercial	0.1%	0.0%	0.0%	0.0%	0.1%	3.0%	2.5%	2.5%	3.4%	0.0%	1.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Halibut numbers are not available for 2000.
 Most numbers are likely to be underestimates and should be used as indicators rather than exact measures. See text.
 Table includes ALL processors in the named community, whether they processed relevant BSAI species crab or not.
 Non-commercial includes forfeited bycatch, test fisheries, CDQ, etc.
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.2-21 presents information on the value of processed fish by species group by year for the period 1991-2000 for Unalaska. Table 2.2-22 provides the same information on a percentage basis. As shown, despite the volume domination of pollock in recent years, crab dominated local value among all species during most recent years. During the period 1991-2000, crab value from the species proposed for rationalization was higher than pollock value except for 1992 (when the value of pollock exceeded that of the relevant crab species by about \$13 million), 1997 (pollock surpassed crab by approximately \$11 million) and 2000 (when the value of pollock was approximately \$36 million greater than crab). As can be seen, the increase in value of landings in the community attributable to AFA-related redistribution of pollock TAC allocations between sectors was more than offset by the decline in crab landings in 2000. For the period overall, crab accounted for approximately \$629 million and pollock accounted for approximately \$553 million in value of locally processed fish.

Table 2.2-21 Value (in Dollars) of Fish Processed by Unalaska/Dutch Harbor Processors, by Fishery Category and Year, 1991-2000

Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
PMA Crab	\$70,127,427	\$67,256,910	\$70,868,058	\$64,946,324	\$63,124,225	\$53,321,214	\$48,114,977	\$63,689,328	\$84,648,984	\$42,425,541	\$628,522,988
Non-PMA Crab	\$706,700	\$1,775,508	\$2,501,828	\$5,016,100	\$6,159,017	\$2,013,879	\$1,609,819	\$349,045	\$966,569	\$483,358	\$21,581,823
Salmon	\$4,552,531	\$7,398,910	\$10,013,630	\$12,551,911	\$7,746,147	\$6,659,712	\$3,108,353	\$4,100,565	\$6,288,310	\$3,437,423	\$65,857,492
Halibut	\$4,747,846	\$2,366,389	\$4,497,715	\$5,271,277	\$5,714,417	\$3,528,928	\$8,561,085	\$2,307,552	\$9,320,102	see note	\$46,315,334
Sablefish	\$2,596,082	\$3,527,305	\$1,382,767	\$1,479,770	\$4,965,125	\$2,657,017	\$3,067,087	\$1,078,649	\$1,311,388	\$2,395,279	\$24,460,469
Pollock	\$37,435,879	\$80,128,990	\$44,444,685	\$50,586,973	\$55,400,054	\$42,959,231	\$58,971,109	\$41,755,636	\$62,437,793	\$78,626,839	\$552,747,189
Pacific Cod	\$7,778,885	\$3,780,580	\$4,462,915	\$7,667,686	\$10,989,681	\$13,939,735	\$11,286,448	\$7,029,881	\$8,819,980	\$15,040,665	\$90,796,456
Other Groundfish	\$1,570,794	\$823,404	\$630,176	\$1,622,946	\$1,662,513	\$845,177	\$1,998,103	\$253,459	\$307,857	\$611,064	\$10,325,493
Other Fisheries	\$796,861	\$267,593	\$1,121,952	\$1,224,803	\$1,253,862	\$2,402,055	\$350,490	\$385,208	\$513,402	\$235,741	\$8,551,967
Non-Commercial	\$53,826	\$3,242	\$6,703	\$15,862	\$488,417	\$2,473,490	\$2,659,737	\$3,017,412	\$5,249,780	\$421,324	\$14,389,793
Total	\$130,366,831	\$167,328,831	\$139,930,429	\$150,383,652	\$157,503,458	\$130,800,438	\$139,727,208	\$123,966,735	\$179,864,165	\$143,677,257	\$1,463,549,004

Notes: Halibut numbers are not available for 2000.
 Most numbers are likely to be underestimates and should be used as indicators rather than exact measures. See text.
 Table includes ALL processors in the named community, whether they processed relevant BSAI crab species or not.
 Non-commercial includes forfeited bycatch, test fisheries, CDQ, etc.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.2-22 Percentage of Total Value of Fish Processed by Unalaska Processors, by Fishery Category and Year, 1991-2000

Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
PMA Crab	53.8%	40.2%	50.6%	43.2%	40.1%	40.8%	34.4%	51.4%	47.1%	29.5%	42.9%
Non-PMA Crab	0.5%	1.1%	1.8%	3.3%	3.9%	1.5%	1.2%	0.3%	0.5%	0.3%	1.5%
Salmon	3.5%	4.4%	7.2%	8.3%	4.9%	5.1%	2.2%	3.3%	3.5%	2.4%	4.5%
Halibut	3.6%	1.4%	3.2%	3.5%	3.6%	2.7%	6.1%	1.9%	5.2%	see note	3.2%
Sablefish	2.0%	2.1%	1.0%	1.0%	3.2%	2.0%	2.2%	0.9%	0.7%	1.7%	1.7%
Pollock	28.7%	47.9%	31.8%	33.6%	35.2%	32.8%	42.2%	33.7%	34.7%	54.7%	37.8%
Pacific Cod	6.0%	2.3%	3.2%	5.1%	7.0%	10.7%	8.1%	5.7%	4.9%	10.5%	6.2%
Other Groundfish	1.2%	0.5%	0.5%	1.1%	1.1%	0.6%	1.4%	0.2%	0.2%	0.4%	0.7%
Other Fisheries	0.6%	0.2%	0.8%	0.8%	0.8%	1.8%	0.3%	0.3%	0.3%	0.2%	0.6%
Non-Commercial	0.0%	0.0%	0.0%	0.0%	0.3%	1.9%	1.9%	2.4%	2.9%	0.3%	1.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Halibut numbers are not available for 2000.
 Most numbers are likely to be underestimates and should be used as indicators rather than exact measures. See text.
 Table includes ALL processors in the named community, whether they processed relevant BSAI crab species or not.
 Non-commercial includes forfeited bycatch, test fisheries, CDQ, etc.
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Community Processing Operations Overview

In terms of links to the community, it is important to note that shoreplants have long been a part of the community. Among the large plants processing crab in the community, the facility now operating as Alyeska Seafoods was originally constructed by Pan Alaska Seafoods in the early 1960s, UniSea began local operations in 1975, the permanently moored Royal Aleutian has processed locally under its current name since 1986 (but earlier was operated by a previous owner as the Whitney in the same location), Icicle Seafoods has been processing locally since 1987, and Westward Seafoods was locally established in 1990. That is not to say that relationships between the plants and the community itself have been without strain at times over the years, but in Unalaska a number of the longer-term residents working at the plants, especially management level personnel, are actively involved in the community and serve in various elected, appointed, and volunteer capacities with the City of Unalaska and numerous community organizations. For example, at the time of fieldwork for this project (December 2001), the mayor's position and one of the city council positions were filled by persons employed by processors.

Paradoxically, it has been the case in Unalaska that length of local residency of the workforce employed in seafood processing is inversely related to the vitality of the local industry in general. When the workforce was largest, there were virtually no local hires, particularly of long-term residents. For example, in 1982, at the height of processing capacity for king crab, there were no individuals identified as local residents working in the processing plants. There were a number of reasons cited for that fact at the time, including working conditions, pay rate, and work hours at the seafood plants that were attractive only to temporary transient workers. At that time, workers were hired out of the Pacific Northwest, typically Seattle, and were flown to Unalaska to work on a 6-month contract basis. With the downturn in the crab fisheries, companies are no longer able to afford the expenses of a 6-month contract system. Some have done away with such contracts and hire workers for an indefinite period of time with incentives for longevity; others hire more out of the Alaska labor pool than in the past.

Several other factors influencing local hires in periods of fluctuation should be noted. First, under boom conditions there is a range of available employment options for local residents outside of the less appealing processing jobs. Second, when there is a downturn in hires at the local processing plants, virtually all of the

workforce at the individual plants consists of returning workers, obviating the need for new hires. Even when 6-month contracts were most common, there was always a core of returning workers. Third, setting aside the lack of long-term resident hires, Unalaska is seldom the "point of hire" for processing workers for individuals who are newly arrived to the community. That is to say, people do not come to Unalaska for processing work unless they have already secured a position. It is far too expensive to fly out to the community on the off chance they might gain employment, particularly at relatively low-paying jobs, especially given the fact that there is seldom housing available in the community and that which does come available is relatively expensive. Fourth, it should be noted that a lack of local hire does not apply to all positions with the seafood companies. Management positions at nearly all of the seafood companies (as well as with the major fisheries support sector companies) are occupied by individuals who, if not originally from the community, are at least long-time residents of the community or the region. In a number of ways, the processing industry is a "small circle" in terms of managers, and individuals who have worked for more than one company and have gained 10 to 20 years of experience in the community and the region are not uncommon. Individual owners and, in the case of "permanently" moored floating processors, even the plants themselves may come and go, but individuals in upper level management positions tend to remain in the business and in the area.

Very few, if any, lifetime residents of the community work at the shoreplants at any one time. There are a number of reasons commonly cited for this, but the most common dynamic involves the high cost of living in the community. Costs are such that it is nearly impossible for a local resident to take an entry-level job at one of the plants, and better paying jobs at the plant are typically filled by individuals who have "worked their way up" within the company. Further, according to interview data, local residents who have tried working at the plants have found that entry-level position work schedules are not typically compatible with an active involvement in community and family life outside of the plant.

Interviews with processing plant personnel suggest that a major operational impact experienced by the community of Unalaska since the passage of AFA and the formation of the co-op system has been the slowing down of the spreading out of pollock processing activity. While some plants reported minor changes in numbers of personnel associated with pollock processing operations, for the most part levels have stayed almost the same, given the need for a full complement of staff to run the plants. What has changed is that, according to senior plant personnel, workers are working less hours per day and working for longer periods than was the case at the end of the open access era. Workers are reportedly earning perhaps slightly more than in past seasons, but it is taking them more days of processing to do so, given the shorter workdays. This has had some impact on recruiting personnel, as there are some processing workers who want to come to the community for a relatively brief period of time and maximize the number of hours worked during that time. This strategy allows them to return to their home communities with more money while being away from family and friends for a shorter period of time. Plant personnel also note that recruiting for processing workers has been more difficult during the time that there is a strong economy in the Lower 48 (the contiguous states), a circumstance that continued through early 2001.

Plant personnel also note that there is still a "race" interval during pollock processing under AFA conditions, and that occurs during roe season. Roe is at optimal quality for only a relatively short period, so there is a premium placed on maximizing return within that relatively short window. Further, non-roe pollock are also harvested to target maximum returns based on quality of fish, but those windows are much larger than the roe window.

These changes to groundfish patterns have had an impact on crab processing at plants that run both sets of species. One change within shoreplants as a result of co-op/AFA-related conditions has been the addition of additional pollock products to the processing mix. During open access when highest throughput was the goal, the returns on a number of specialty products were not worth the time (and opportunity costs) that such production would take. Some plants that concentrated heavily on surimi are now producing pollock fillets.

Filletts are more labor intensive to produce than surimi, and so theoretically would result in more employment at the plants, but in practice plant operations typically split their labor forces between a "surimi side" and a "seafood side" of operations. Producing pollock filletts means a diversion of some pollock to the "seafood side" of the operation and this has happened at the same time that the seafood side of local operations has been in decline with the shrinking of crab quotas. At least two of the major AFA plants have reported that they did not use dedicated crews for crab processing because of the sharp decline in volume in 2000, such that pollock seafood side products have picked up some of the slack, with workers switching to processing other species as they become available. With the slowing of the pace of processing, at least one shoreside operation has closed a relatively inefficient but significant portion of their plant in favor of maximizing use of other portions of the plant. One operation reports more workers on site than in the recent past, but another reports labor force is down somewhat from the peak years when the crab quota was larger. The combination of balancing seafood with surimi production, and adding fillet and other product capacity makes comparing workforces between years with quite different circumstances like "comparing apples and oranges" in the words of one plant manager, but overall, the level of processor employment change directly related to AFA does not appear to have had a significant impact on the community of Unalaska.

Unlike the case with the AFA, there have been recent disruptions to plant operations associated with recently imposed Steller sea lion protection measures. According to senior staff at the local AFA plants, there were times during the pollock season of 2000 when the individual plants ran out of fish during what would otherwise have been continuous operation periods. When plants shut down during production, there are disproportionate inefficiencies created not just by the downtime, but by required cleaning as well. Plant managers were of a common opinion that the 2000 A/B seasons were a marked success under AFA co-op conditions, but that in the C/D season, the Steller sea lion protection measures "took away" at least some of the gains realized under AFA. On the other hand, the opinion was universally held among plant managers that the AFA mitigated, at least to a degree, the negative impacts to the Steller sea lion protection measures (i.e., without the AFA, the negative impacts of the protection measures would have been much worse). In concrete terms, in addition to timing and effort inefficiencies, the sea lion protection measures hurt shoreplants in terms of fish quality and age, something that the AFA had allowed the plants to make gains on compared to the derby system context pre-AFA. While Steller sea lion measures confound the direct assessment of at least some AFA impacts, shore processors report that overall they are doing well. As their utilization has improved, they can time product mix to markets more efficiently, they can more efficiently ship product, and they can run higher value products than in the past, among other factors. In 2001, the first full year under more stringent sea lion protection measures, plant shut-downs were reportedly much less common than in 2000, with harvesters and processors having improved at anticipating operational constraints inherent under resource protection area closure conditions.

Under AFA co-op conditions, there has been some shift in inshore pollock away from Unalaska Island with the move of the Arctic Enterprise floating processor from Beaver Inlet to Akutan (coincident with its purchase by a new owner), but this shift has not had direct consequences on the community of Unalaska. Local revenues were not affected, as Beaver Inlet is outside of the municipal boundaries of Unalaska, nor is Beaver Inlet part of an organized borough, so there were no local taxes that derived from that operation. (Processing operations outside of organized boroughs and municipalities pay fish taxes directly to the state, and Unalaska, like other communities, receives a portion of these revenues back from the state through revenue sharing, but this is a modest revenue source compared to taxes derived from entities operating within city limits.) The operation was supported logistically out of Unalaska as the closest transportation hub, but that is still the case to some degree even with the vessel operating out of Akutan.

From the Unalaska shoreplant perspective, one negative aspect of the AFA is "the way other species were carved up." One plant manager cited the example of yellowfin sole being capped, "therefore any growth has to occur at sea [i.e., among non-AFA entities] because shoreside is capped." In terms of community

implications, this type of sideboard arrangement does preclude local AFA processors from potentially diversifying into other fisheries and therefore increases local dependency on fewer species than may be theoretically desirable. However, in practical terms the community is already heavily dependent upon pollock and crab, and fluctuations in those fisheries are much more important to the economic well-being of the community than any other species that is recognized at present to have at least some commercial potential. There are other communities in the region, however, for whom AFA does represent preclusion from developing at least a portion of a local commercial fishery. The CDQ analysis section of this document mentions this being a potential issue in St. George and False Pass, and it is also an issue for Adak, where there are attempts being made to attract commercial fisheries activity to help provide an economic underpinning for the redevelopment of that former military community.

Unalaska non-AFA processor response to AFA is mixed. In 2000 (the first year of AFA shoreside co-ops), crab-dependent entities were more affected by changes in crab quota and price than by AFA interactive effects. The largest non-AFA crab producer in the community reported that during 2000 there was no apparent "cap overflow" from the AFA processors to his operation, and that while overall the AFA was beneficial to his particular business, there was not the level of benefit from the capping of competition at the AFA plants that had been anticipated. These circumstances changed somewhat in 2001, as the plant did receive some cap overages. This processor also noted that the downside of the AFA from their perspective was the preclusion of shoreside crab plants moving into pollock at a later date if business conditions would otherwise dictate that such an expansion would be a good strategic move.

Small entities in the community that do a variety of specialized processing and custom packing in conjunction with AFA plants report that AFA has had negative impacts on their operations in general, and for crab operations in particular. For example, those that do custom processing of crab in conjunction with AFA plants now, in a sense, compete with those plants because their crab "counts against" the AFA plant's crab cap. In other words, unlike in the past, cooperation with a custom processor is limiting what the AFA plant can do on their own as they are essentially "giving away" a part of their cap limit by doing so. Also, with the slowing down of the AFA plants during pollock season, there is the opportunity for the larger plants to explore custom products that were not worth their while during the race for fish, so the larger plants may now be interested in providing some of the custom services that the small operations provided in the past. During interviews, small operation owners also found the "locking up" of pollock by the AFA-qualified shore processors disconcerting because of the effect of precluding them from exploring that niche or diversifying into that market in the future. It is also the case that the small processors have less political leverage in the management process and can afford less representation at fishery management meetings. These operators feel that they are not competing on a level playing field because of the management of the fishery being biased toward the interests of larger firms, with the AFA providing one more example of this general trend. One of the specialty processors notes that they have been successful in competing for the halibut market specifically because the fishermen own the quota rather than the larger processing entities.

Current Crab Operations

The plants that currently run BSAI crab in Unalaska can be grouped into four different categories: the large multispecies plants, a crab focused operation, a mobile processor, and two specialty entities. The large multispecies plants are UniSea, Alyeska, and Westward, and their operations have been profiled in earlier documents, so only limited crab information is presented here. All are AFA-qualified groundfish plants, and all process a wide range of species.

UniSea is now focused exclusively on Unalaska as a base of operations within Alaska, having recently discontinued crab processing in St. Paul. The three main crab species run currently are opilio, Bristol Bay red king, and brown king crab, with some other species run in lesser amounts. Like other AFA plants, UniSea

adjusts its operations around the schedule of the unrationalized crab fisheries. For example, opilio season overlaps with pollock roe and cod season, so during this time rather than bring in a pulse of workers just to do crab, value added products for groundfish are suspended during this period to the extent it makes sense to do so (making adjustments for the high-value, short-lived pollock roe season). When fully operational, UniSea has approximately 1,200 workers in Unalaska, including processing, direct support, and other business functions. For the fall Bristol Bay red king crab season, pollock operations are more flexible and can be moved forward to "create a hole" for crab processing. In other words, the unrationalized crab fisheries do impact the flow of other, even rationalized operations, and this impact may be seen in what the plant is able to do with those groundfish fisheries at the time of the overlap. Brown king crab processing is described as "more hit and miss" such that it can be handled with resident crews without much juggling between species. During early summer slow periods approximately 400 workers are on site, as work during May and June focuses on maintenance and fabrication as well as running halibut and black cod. In the July through mid-October time frame, around 900 workers are present, with a step down during king crab season to around 500 to 550 workers. During November and December operations about 350 personnel are present. UniSea does provide idled workers with room and board during the slow winter time if they choose to remain in the community for the upcoming season. At the time of fieldwork in December 2001, approximately 80 workers were taking advantage of this opportunity.

Alyeska Seafoods takes a slightly different approach to balancing crab and pollock operations. During this last year (2001), the plant basically shut down pollock processing for a 2-day period during the peak of king crab but otherwise did crab processing as "hole" in groundfish processing like UniSea. During the longer overlap with opilio season the plant cannot afford to shut down pollock production, so Alyeska changed its pollock product mix to less labor intensive product forms. Alyeska has not run the more sporadic brown king crab for a number of years. Total worker numbers for the plant are primarily constrained by housing capacity, and the regular crew of about 70 is augmented with seasonal workers during busy periods to bring the total staff present on site up to approximately 425 persons. Maximum levels are hit during the pollock A/B seasons, while about 350 are present during C/D seasons.

Westward Seafoods, in addition to their other operations, has a high capacity crab plant and, according to senior plant staff, essentially runs every species of BSAI crab other than hair crab. The plant has a reported capacity of approximately 500 thousand pounds per day for opilio and 650 to 700 thousand pounds per day of king crab, meaning the plant has somewhat different operational parameters than even some of the other large processing plants. Crab processing is characterized as part of the core business at Westward, and in recent years crab processing capacity has been increased along with crab-related dock expansion projects and an increase in storage areas for pots and other gear. The number of processing personnel on site varies by season, with the largest number of workers (approximately 700 to 750) present during the January through March period during pollock, opilio, and cod activity. From mid-April through June, the local workforce is down to approximately 350 people, and activities during this time include the IFQ fisheries. From July through the end of October, approximately 600 to 650 personnel are on site for the bait, herring, and pollock fisheries, among others. From November through the end of the year local employment is at its ebb, with about 250 personnel engaged in cleanup, maintenance, and some relatively low volume processing, including brown crab. Crab processing occurs intermittently through the year with season openings. As for crab-specific processing employment, approximately 200 processors are brought in specifically for opilio, and about 100 workers are dedicated to red king crab, with additional crab-specific workers needed if the seasons are longer. For the intermittent or lower volume crab fisheries, other seafood processing workers handle crab processing without the need for dedicated crab crew.

Royal Aleutian is unique among processors in Unalaska as its operations focus almost exclusively on crab, although the plant also does run some halibut in the summer. Halibut in recent years has become more of a custom packing operation in relation to what was common before the introduction of IFQs in that fishery.

With the shortened crab seasons, Royal Aleutian faces a different set of challenges than the larger multispecies plants. It is the only major community-based crab processor in the region that is not an AFA-qualified company, and it runs no pollock or codfish. With local king crab processing lasting 4 or 5 days and opilio 5 or 6 days, it is a major challenge to find an effective workforce to bring to the community for such a short period of time. Rather than attracting people as a primary job, it is more like "paying for an Alaska adventure" to get people to come for the brief periods. The plant utilizes a workforce of approximately 150 people for king crab operations and about twice that for opilio processing. For a 5-day processing season, workers are in the community for about 6 or 7 days. The situation is somewhat different for brown king crab. While in the not-too-distant past local processing of this species would last 3 to 4 months, at present it lasts less than a month, so the 100- to 150-person workforce is in the community approximately 3 weeks. Reportedly these three species make up the vast majority of processing at the plant, although it does run "a smattering" of other crab species. Despite a relatively low overhead between seasons, the processor is still in the difficult position of trying to make a financial go of it for the year with very short processing intervals. Clearly of all the local processors, crab rationalization would proportionately do more for Royal Aleutian than the others, given the structure of the operation and the nearly exclusive nature of its engagement with the crab fishery. Royal Aleutian did benefit to some degree by crab caps on AFA processors, taking deliveries from over-cap vessels from the fleet of another processor during at least 1 of the 2 post-AFA years. Royal Aleutian is also somewhat different from the other local plants in the degree it buys from local small boat fishermen, an ability due at least in part to its different scale of operations. For example, Royal Aleutian purchases local herring, which is reported to not be economically feasible for the larger plants. Given the structure of the business, Royal Aleutian also buys proportionally more goods and services than the larger plants, although UniSea is noted in the community as also purchasing more locally than the others. Given the lack of dock space compared to other processors, the Royal Aleutian-related fleet also uses proportionally more City dock space during the off seasons, and the processor underwrites this vessel expense.

Local Icicle Seafoods operations have yet a different focus from the other local processors. The Bering Star typically processes cod in the community (tied up at the northern end of Dutch Harbor) for the January through May time frame, leaves the community to participate in the Togiak herring and Bristol Bay salmon fisheries, and then returns to the community in July to run codfish through October. The Arctic Star is less frequently in the community, as it follows fisheries from southeast to the Pribilofs, but it processes king crab in Unalaska. If both vessels are in town at the same time, the Arctic Star processes in the Wide Bay portion of the Unalaska Bay. Unalaska does not see an influx of Icicle employees in the same way as it does for other processors, as the employees tend to follow mobile Icicle operations, and employees can be shifted between company barges, floaters, and shore facilities as needed. The Bering Star operates with a crew of 100 plus when it is in the community, while the Arctic Star can have somewhere in the range of 100 to 150 workers, depending on a number of variables. Icicle's floater Northern Victor, which processes in Beaver Inlet, does not operate within the city of Unalaska and does not process crab, although it was set up to do so before Icicle acquired the vessel. The Discovery Star, which also operates in the region, focuses on herring and salmon, but not crab, and will be operating in Adak in combination with the former Norquest facilities that Icicle recently acquired. The degree to which crab is run locally versus elsewhere depends on the individual season. The focus for king crab is Unalaska, but opilio may be run either just in Unalaska or in both Unalaska and St. Paul, depending on whether it is a big season.

Osterman Fish, located in the Dutch Harbor Mall on Amaknak Island, is one of two small processors in the community that does not have dock space of its own. It does not have its own fleet like the larger entities and focuses primarily on the "fresh and live" market. The main products of the enterprise do not involve crab, although some custom operations have been conducted with other processors.

Prime Alaska Seafoods, with facilities on the "Little South America" portion of Amaknak Island as well as Dutch Harbor itself, like Osterman Fish, does not have its own dock space or a fleet. While Prime Alaska

did include crab in its operational mix in recent years, it is no longer active in crab processing. This has been more a decision based on wishing to maintain other cooperative business relationships with larger crab processors in town rather than strictly crab economics *per se*.

While both Osterman Fish and Prime Alaska Seafoods have crab processing histories, they would not qualify for future participation (at least in terms of initial allocations or conditions) under some rationalization scenarios. For example, Table 3.5-2 in the main document illustrates one possible outcome under a co-op approach that would not encompass either Osterman or Prime Alaska. (This same scenario would effectively eliminate Kodiak plants from future participation in a rationalization structure as well.)

Support Services

Unalaska is unique among Alaska coastal communities in the degree to which it provides support services for the Bering Sea fisheries. One long-time resident noting the lack of a truly local fleet stated that "this is a service town, not a fishing town." As described in detail in the Inshore/Offshore-1 community profile (NPFMC 1991), Unalaska serves as an important port for several different aspects of pollock fishery, and this same pattern holds true for the crab fishery. Support services include a wide range of companies, including such diverse services as accounting and bookkeeping, banking, construction and engineering, diesel sales and service, electrical and electronics services, freight forwarding, hydraulic services, logistical support, marine pilots/tugs, maritime agencies, gear replacement and repair, vessel repair, stevedoring, vehicle rentals, warehousing, and welding, among others. There is no other community in the region with this type of development and capacity to support the various fishery sectors in the Bering Sea.

Shoreplant Support

In general, in the way of support services, there is little direct supply of the main shoreplants in the community. This is especially true of the large combined crab and pollock oriented shoreplants, by far the largest plants in the community. These are large enough entities that it is more efficient to supply most on-site needs directly from outside of the community. These plants all feature an "industrial enclave" style development to some degree, but this varies from operation to operation. Plants may purchase some regular items such as rain gear and boots for processors locally that they do not want to keep in inventory, but major purchases may be limited to fuel sales. Commonly large volume supplies, such as packaging materials and food are purchased "down south" and shipped direct. Individual processing plant workers do patronize local businesses to some extent, but this is limited by the fact that they are supplied furnished housing and meals by the processors. The smaller operations in Unalaska have proportionally more local purchases of goods and services in the community. The major non-pollock crab processor in the community noted that because of the scale of their operation they did buy most services in town, but that with the overall decline in the support service sector of the economy they have seen "about a half dozen" of their vendors leave the community.

Vessel Support

There are a number of businesses in Unalaska that are oriented toward supporting catcher vessels for a significant amount of their business. With the recent decline in crab harvest, which occurred simultaneously with a decrease in the race for fish during the locally important pollock fishery, there has been a drop-off in peak demand for services. The amount of this drop-off depends on a number of different factors, including the relative reliance on crab and trawl fleet support. According to one service supply business manager who is quite heavily dependent upon trawl vessels, the co-op system in theory should help his business out in the long run, because even if overall there are less vessels with quota reassignments within co-ops, it will be the less efficient vessels that drop out, leaving more predictability and more secure players. In practice, a good

portion of the support business in Unalaska has been built on inefficiencies, as according to this manager "this was Unalaska business." Like many of the support service businesses contacted, the common pattern for his business was to have a limited staff of year-round personnel and to ramp up capacity during peak periods by bringing in temporary or seasonal staff from "Outside" (i.e., from the Lower 48). This is true both for vessel oriented service firms that are parts of larger regional or national entities as well as for more locally based firms (and of the latter there are very few). With the conditions created by AFA in conjunction with the fall in crab quotas, there have been employment cutbacks at all of the businesses contacted in this subsector, either in the form of having fewer year-round personnel or in hiring fewer seasonal hires for peak demand, and in all cases a cutting back of overtime hours for staff. One electronics firm contacted is at half the level of employment that was typical in pre-co-op circumstances, and this was not an unusual case. One local business manager captured a common sentiment regarding the cutbacks and the quality of the jobs remaining in the community, however, with the observation that with the cutback "we have been trading money for sanity." In the words of another business owner, during the days of the race for fish "I didn't know I was crisis oriented" and in the time passing since crisis mode he has had to find other ways of making the business work. In this particular case of a locally owned vessel support business, survival has meant diversifying away from relying on the fishing industry nearly exclusively by performing similar services for land-based businesses (and adding new marine-oriented services) and away from relying on Unalaska as a nearly exclusive geographic base of revenue by taking his services to the region and beyond.

Another common problem with these businesses is inventory, and this has changed somewhat under co-op conditions (again, depending on how relatively dependent a business is on trawl-specific trade). Under race for fish conditions, carrying a larger than normal relative to overall volume of sales inventory was necessary due to the need to have virtually everything possible on hand instantly in case of need during the fishing season, as downtime for vessels off of the fishing grounds meant unacceptable opportunity losses, and vessels were willing to pay whatever it took to get them back on the grounds as quickly as possible – time was worth more than the cost of urgent repairs. As the race for fish went away, it was much more efficient to order specialty parts express shipped in from the Lower 48 (typically Seattle) if needed than to try and stock everything in Unalaska.

Depending on the composition of the business base of these firms, they have been hit more or less hard by the decline in the crab quota. According to one business manager, with the loss of income to crab vessels, he has seen his crab vessel support business drop off 50 percent as owners are not spending money on preventative maintenance; those who are performing work are slower to pay their bills. Rationalization may be expected to change crab-dependent businesses somewhat, but that depends on the nature of services performed. For example, some vessel preparation work needs to be done once per season, no matter whether it is a short or a long season. On the other hand, some work is directly related to intensity of use such as the "number of turns" on hydraulic equipment. One support service business owner observed that crab seasons have now become so short as to be "almost inconsequential" for his business, although when he started, the local crab and shrimp fisheries were the base of his business.

With the trawl fleet, the slowing down of the race for fish has also meant that the trawlers are spreading their business differently in the community, according to support business owners. Not only is less money being spent overall because of the relative lack of urgency, "now money managers are involved" in looking at relative value between providers and shopping work around. For a number of the support businesses that service the catcher fleet, the loss of a large portion of the catcher-processor fleet was a large blow. While these large vessels did not employ the full range of services that some of the smaller catcher vessels might have employed in the community (simply due to their facilities being unable to handle all of the work), they did need specialty service work from a number of the suppliers.

Another common observation of the support sector within the community is that while the relatively longer pollock seasons are good for the community as a whole, a number of entrepreneurial businesses have folded, and the redundancy among (or the range of choices among) service providers has been reduced. The flip side of this means that, according to one fishing business manager, they can be more selective in their purchasing of services and "everything no longer needs to be at a premium price in Dutch Harbor."

Fuel sales are another type of locally provided support for the catcher vessel fleet. The Steller sea lion restrictions that went into place in the C/D seasons in 2000 have meant an increase in fuel sales due to longer vessel trips to the open fishing grounds. This, coupled with co-occurring high fuel prices has meant higher costs to the catcher vessel (and the catcher-processor) fleet. While the fuel sales businesses have benefitted (as has the municipality of Unalaska through tax on the fuel sales), the vessels and shoreplants (because of the higher cost of fuel they are purchasing) have been hurt.

There is a significant amount of support business in the community that is directly related to the offshore fleet. Catcher processors use warehousing services, and refuel and resupply when they are in the community to do a full or partial offload of product. Additionally, catcher processors typically need a range of expediting, freight management, and logistical support services through Unalaska to keep operating in the Bering Sea. This is true for both crab and groundfish catcher-processor vessels. For groundfish vessels, this basic pattern has not changed in the post-AFA era, but the volume of local work is down significantly due to both the reduction in the catcher-processor fleet and the slackening of the pace of fishing during the 1999-2001 era.

Shipping

Shipping seafood products is also a major business sector in the community. In addition to the two main and several smaller shipping lines that serve the community, another type of support service provided in the community for both the inshore and offshore fleet is stevedoring services. While some shoreplants typically do not use stevedores in loading operations across their docks, or the demand is lower for stevedoring because of containerized product, hatch gangs are used for loading product "over the side" to trampers for shipment from Unalaska. Stevedoring jobs are relatively high paying, and much valued in the community, though the work is not steady for the bulk of persons engaged in it. What does make this labor opportunity particularly valued is the fact that long-term locals, including lifetime residents, may qualify for, and provide a viable labor pool for, these positions without having to go through minimum-wage entry positions first. There are also union and non-union laborers alike who come to the community during the busy seasons to take advantage of the opportunities available in the community.

With the recent changing of the pace and structure of the groundfish fishery with co-ops, shipping business patterns have changed in the community. The largest difference is attributed to the fact that processors can now much more closely time their operations and shipping needs and can thus optimize their range of shipping choices. This opens up a range of options not readily available under race for fish conditions. For example, processing entities can more easily arrange for scheduled transfers direct to trampers rather than having to use always available locally established shipping firms to transfer product. Of course, shipping choices ultimately depend on product mix, destination, and cost efficiencies, but clearly local shipping-related entities have felt impacts directly as a result of fishery structure changes. There are also indications that shoreside plants have shifted to a greater emphasis on trumper shipments relative to containerized shipments, but no quantitative information is available to verify this assertion. In terms of crab specifically, however, crab remains the major product shipped for at least one of the container companies. According to one shipping company manager, a major recent change in shipping has been movement to unitized cargo loading. Whereas in the past, trampers were used because they were fast and containers were used because they were

good quality, unitized cargo loading has meant that tramper shipped goods can equal the same quality as container-shipped goods.

In the 1999-2001 era, there has been a reported shift in product destination from Unalaska, with less product going to Asia and more going to domestic and European markets, due primarily to change in product mix. One of the large shipping firms in the community reports that there has been almost a 100 percent fall-off in business to his company from the offshore sector since AFA, and increases from the shoreside have not made up for this change. This is attributed to the fact that without the Olympic system, seafood companies can schedule and plan offloads, meaning that they can make their own arrangements rather than having to go through a shipping company that is always available. Similarly, the onshore sector can more easily schedule tramper loads. The situation is not straightforward, however, for the two primary shipping companies with a local presence in Unalaska. There has been some movement of market share between the two firms that, according to some, were as closely associated with ownership and corporate changes as much as any local market forces. According to one firm, union longshoring hours were down approximately 22 percent between 1998 and 2000. The community has seen a higher proportion of work going to non-union longshoremen recently, although the non-union entities tend to have smaller workforces (partly because of being able to schedule work rather than needing a large on-call labor pool). Co-op conditions have pushed inventories up because of increased recovery rates and diversification of product mix, meaning there has been some increase in demand for cold storage, berthing, dockside services, and so on. While one senior shipping manager has reported that movement of product will become more of an issue with this trend, he also reports that there has been a tradeoff with the slowing of the peak periods post-AFA; even during the busy season, now staff are able to work more normal schedules and can be home with their families by 7:00 p.m. At the same time the two largest established shipping firms were seeing changes in their market share or customer base, two more private dock/shipping facilities emerged in the community, one at the old East Point plant location and another in Captain's Bay. There also appears to be proportionately more offshore-related volume going across municipal docks than was the case in the past, and city revenue from dockage and wharfage in general is up. These two factors reinforce the general observation that shipping-related business is becoming less concentrated among the formerly dominant local entities and more widespread among various smaller entities.

Remote Operations Support

There are also support service providers in Unalaska who support inshore processing entities that are operating far outside of the community. For example, the firm (Icicle Seafoods) that owns the floating processor in Beaver Inlet (Northern Victor) has a local Unalaska representative who supports that operation. (When a second floater was operating in Beaver Inlet, this entity had an office in Unalaska that, among other functions, supported that operation.) Similarly, the company that owns and operates the large shoreplant in Akutan (Trident) has a support office in Unalaska because of their logistical support needs that cannot be managed directly from Akutan.

Summary

In general, the recent changes experienced by support service sector businesses in Unalaska have gone to the heart of the paradox of the Unalaska support service economy. This portion of the local economy was historically dependent to a large degree on the economic inefficiency of the commercial fishing industry. To the extent that the co-op quota allocation system has made pollock fishing more economically efficient, it has also served to allow vessel and facility owners to not have to purchase inefficient support services. This has meant a drop in local support service activity, employment, and revenue. There are no data available to quantify the amount of the drop, but it has clearly been significant for many of the businesses in this sector. Overall, peak demand is lower, the pace of business is slower, money has become at least as important a consideration as time, and businesses do not need the same level of inventory and staff as in the past. There are, of course, exceptions to this

generalization, but the pattern is apparently quite consistent over the sector as a whole. Crab rationalization, whatever its final form, can be expected to continue this general trend. Under AFA co-op conditions, the direct fishery businesses in the community and the municipality itself have seen substantial gains, but the support service impacts have been mixed or negative. It is anticipated that the same type of pattern will be seen with crab rationalization, where there will be a period of some business loss or displacement, followed by a healthier and more stable, if smaller, support sector.

Other Local Business/Service Activity

Tourism continues to develop in the community, with new draws in the last few years associated with an increased local National Park Service presence, the opening of the Museum of the Aleutians, and the continued popularity of charter sport fishing. Sport charter fishing took off in the mid-1990s when world record sport halibut were caught locally in 1995 and 1996, with the latter fish, at 459 pounds, still representing the world record. Birding, hiking, kayaking, camping, and visiting the Holy Ascension Cathedral historic site are also tourism draws, but high cost and inconvenient transportation access make the development of this sector challenging for local businesses. With the slowdown in the race for fish that accompanied AFA, direct fishery-related passenger transportation demand also declined to some degree, although clearly demand was falling off prior to AFA. Table 2.2-23 provides information on passenger counts at the community airport for the period 1995-2001. As shown, the total number of passengers for this span of years peaked in 1996, and counts for 1999 through 2001 are the three lowest annual counts during 1995-2001.

Table 2.2-23 City of Unalaska, Port of Dutch Harbor Airport Passenger Count by Quarter, 1995-2001

Quarter	Calendar Year						
	1995	1996	1997	1998	1999	2000	2001
January-March	16,122	20,380	15,992	20,919	15,672	16,461	14,696
April-June	17,209	16,615	15,772	13,683	14,556	16,480	13,988
July-September	18,015	17,105	16,041	12,909	16,312	15,906	16,086
October-December	13,171	13,323	15,380	15,863	13,740	12,596	13,612
Total	64,517	67,423	63,185	63,374	60,280	61,443	58,382

Note: Data in the table represent a total of enplaned and deplaned passengers, not "round trips" by single individuals (e.g., if 9,000 passengers got off planes in Unalaska during a particular quarter and 7,000 passengers boarded planes in Unalaska during that same quarter, the quarterly passenger count would be 16,000).

Source: Adapted from spreadsheet supplied by City of Unalaska Finance Department, 2002. Data were originally configured in fiscal not calendar year format.

Coupled with these conditions was a decrease in level service caused by the discontinuation of long-time air service provider Reeve Aleutian Airways and a further drop in demand related to the crab quota decline. This resulted in a situation where as of early 2001 the community was served by only one jet per day. According to long-time community residents, this has had an impact on a range of services in the community (such as the price and availability of a variety of food at stores), as well as mail and freight.

Unalaska continues to support a much wider range of non-fisheries-related businesses as well as fisheries support-related businesses than any other community in the region. According to interviews conducted early in 2001, however, business conditions are changing with a general slowdown in the non-fisheries sectors of

the economy, a trend at least partially related to recent structural changes in the groundfish fishery sector as well as the decline in the crab fishery sector. A number of businesses that serve the general public have gone out of business in the recent past, and examples of these businesses, including an office supply store, an auto parts store, a vehicle rental firm, and a bowling alley, were frequently cited during interviews. Also strongly marked was the reduction in number of more direct fishery support businesses that were needed for peak demand times. In this case, it is not that types of services are no longer available, it is more that there is less of a choice of providers of those services. One landlord reports having lost a net company, an electrical firm, a hydraulic firm, and a restaurant all out of a single building. While this is an unusual case, it does illustrate the range of enterprises (and types of fleet support businesses) that have gone out of business.

Table 2.2-24 provides service demand information for the period 1994-2001 from the Unalaska Department of Public Safety. As shown, the number of incidents/calls for service during this period peaked in 1997 and has been down substantially in subsequent years. The number of investigative files/cases, typically indicative of more substantive requests for service, show an overall decline for the first part of the period covered, but an increase over more recent years. Fire responses show no clear pattern, but relatively large fluctuations from year to year are not uncommon due to the low number of responses.

Table 2.2-24 Unalaska Department of Public Safety Level of Service Indicators, 1994-2001

Indicator	Year							
	1994	1995	1996	1997	1998	1999	2000	2001
Total Incidents/Calls	3,795	4,085	4,627	4,981	4,039	3,666	3,450	3,515
Investigative Files/Cases	993	974	944	865	787	802	834	929
Fire Responses	25	34	37	23	24	29	32	38

Source: Notes provided by City of Unalaska Department of Public Safety, 2001, Personal communication, D. Gregory, Chief, Unalaska Fire Department, January 2002

As noted earlier, some community services are utilized by a larger "floating population" than just by community residents. One of these services is the local clinic, and this fact is reflected in their slogan: "Serving Unalaska, the Aleutian Islands, and the Bering Sea." During an interview for this project, two clinic board members stated the clinic had experienced a drop-off in fisheries-related demand for services with the slowing of the fishing seasons. Table 2.2-25 presents selected patient statistics for the years FY 1999 - FY 2001. These data do not show a linear drop-off in a number of indicators that might be assumed to be related to fisheries demand, with the exception of emergency visits, but data prior to 1999 that might show a longer-term trend are not available. According to a board member, changes in demand patterns has the clinic board working toward less of an industrial focus and more of a residential focus in terms of strategic planning for future clinic services. Donations for the clinic are reportedly off as well.

Another change in the local community context noted by multiple interviewees is an increased federal presence in the community. While having nowhere near the presence as in, for example, Kodiak, the U.S. Coast Guard now has a detachment in the community (after the community had lobbied for many years for an increased local presence given the importance of commercial fishing in the community and region). There are also now U.S. Customs and Immigration and Naturalization Service personnel and offices in the community.

Table 2.2-25 Unalaska/Dutch Harbor Community Medical Center, Iliuliuk Family and Health Services, Selected Patient Statistics and Total Revenues, FY 1999 - FY 2001

Patient Services/Visits	Fiscal Year		
	FY 1999	FY 2000	FY 2001
Office Visits	7,024	6,835	8,279
Medivacs	55	68	40
Emergencies	541	428	393
Ambulance Runs	141	162	181
X-Rays	2,665	2,439	2,820
Patients Registered	9,517	9,585	9,833
Total Patient Services Revenues	\$2,303,331	\$2,191,606	\$2,633,776

Source: Iliuliuk Family and Health Services - Unalaska/Dutch Harbor Community Medical Center spreadsheet/personal communication S. Handforth-Kome, January 2002

One change in the community consistently mentioned during interviews with local business leaders (in an unrelated study) in early 2001 was the impacts associated with Steller sea lion protection measures that were put in place during 2000. In the words of one community business leader, the issue is "hanging over the town" and people "can't do any planning" because of it. There is a recognition, however, among at least some of the local residents that other communities in the region are even more vulnerable to community level disruptions resulting from these measures due to a much higher reliance on a small boat fleet that cannot effectively fish outside of the protection zones. While the seasonality of the local economy has changed with AFA-related co-op management/quota allocation conditions, such that peak periods are not as high or sharp, and an increased level of activity lasts longer in the community, the interruptions of the seasons related to Steller sea lion protection measures do cause stoppages and inefficiencies at the major shoreplants in the community.

The housing market of Unalaska has changed significantly in the past few years. Since the development of the contemporary fishery dating back to the 1970s, housing demand consistently outpaced supply in the community, notwithstanding a lull in demand following the crash of the local king crab activity in the early 1980s. Long waiting lists for rental properties were common, and home sales took place essentially as soon as the homes became available, and frequently before the general public knew the house was on the market. More recently, however, at least some rental properties are available without wait, and home sales have turned sluggish. The community has not yet seen a dramatic dip in housing costs, but houses have remained on the market for considerable periods of time. There is at least some concern in the community that either investments in housing will not be realized on the sale of the property or that homes will not be sold in a timely fashion if individuals choose to leave the community.

The Municipality and Revenues

Unalaska derives a significant portion of its municipal revenues from fishery-related activities. Table 2.2-26 presents a breakdown of revenues by source for the City of Unalaska.¹⁶ This provides a sense of scale for the different revenue sources for the City's General Fund. Local taxes include a 3 percent sales tax, an 11.78 mills property tax, a 5 percent accommodations tax, and a 2 percent raw fish tax.

¹⁶ More detailed information is available for Unalaska than for the other Alaska communities profiled. A less detailed table that is comparable to that for the other communities is provided in an attachment to this document (SIA Attachment 2).

Table 2.2-26 City of Unalaska General Fund, Fiscal Years 1998-2001

Revenues	FY 1998	FY 1999	FY 2000	FY 2001
Real Property Tax	2,521,746	2,698,454	2,690,560	2,748,920
Personal Property Tax	1,164,363	1,120,957	1,202,265	1,116,369
Raw Fish Sales Tax	2,641,124	2,513,500	3,410,717	3,065,220
General Sales Tax	3,533,123	3,254,403	3,242,284	3,610,653
Other Taxes	439,735	516,863	509,434	524,195
Intergovernmental/State of AK	6,030,119	6,306,064	5,640,942	6,949,345
Charges for Services	278,703	282,778	279,159	300,809
Permits & Licenses	19,546	13,687	22,018	20,265
Miscellaneous	2,407,515	2,099,082	1,954,352	3,436,551
Other Financing Sources	386,895	273,416	461,817	398,153
Total General Revenue Funds	19,422,869	19,079,204	19,413,548	22,170,480

Source: City of Unalaska Finance Department spreadsheet, 2001; Personal communication with John Voss, City Finance Director, 2001, 2002

Table 2.2-27 provides a breakout of selected fisheries-related General Fund revenue sources. These include the local raw fish sales tax (first instituted in FY 1987), the intergovernmental fisheries business tax, and the fisheries resource landing tax (a relatively recent revenue source, first appearing on City statements in FY 1996). As shown, the local raw fish tax increased substantially from FY 1999 to FY 2000, with the latter encompassing the first half of the 2000 calendar year, the first year of AFA onshore co-ops. Of course, a number of factors influence the volume and value of fish landed in the community which, in turn, translates into taxes paid. (The City of Unalaska does not keep a breakout of revenue generated by species or species group so information is not readily available to calculate the relative revenue contribution of individual species or species groups, but a proxy for that information for the shore-based operations may be found in Tables 2.2-21 and 2.2-22.) Information for FY 2001 shows a further increase in revenues. This fiscal year covers the second half of the first full (calendar) year of onshore co-ops and the first half of the second year of onshore co-ops. It also captures the period when the more stringent Steller sea lion protection measures were put in place during 2000.¹⁷

¹⁷ All of these numbers must be interpreted with some caution when going beyond a general level, such as when attempting to establish direct links to particular fishing seasons. In some cases, the figures reflect when the money was received by the municipality, and for others they reflect when the transactions from which the revenue derives actually took place (i.e., in accounting terms, the difference between cash-based accounting versus an accrual-based accounting). For example, local fish taxes are paid on the 15th of the month following the month in which the sales transactions took place. An adjustment is taken at the end of the fiscal year, however, to attribute those revenues to the periods where the sales took place. So, for local fish taxes, it is easy to see the link between seasons and revenues (keeping in mind the distinction between calendar and fiscal years). In the case of revenues deriving from the State of Alaska, however, the shared fish taxes are paid for the calendar year by the processors to the state in March of the following year. The State then pays the shared portions out to the local entities in the August-September timeframe. So, for example, ex-vessel value paid by processors in calendar year 2000 is taxed in March 2001. The State then pays the boroughs and cities their share calling it "FY2001 Taxes" in August 2001. This means that a single sales event that is subject to both local and state fish taxes can show up as revenue to the City of Unalaska in two separate fiscal years (and, because of the divergence of calendar and fiscal years as the basis for accounting, the spread between accrual and appearance on reports can essentially be two fiscal years [e.g., shared taxes accrued in January 2000 received in September 2001 would have been based on sales that took place in FY 2000, but it would show up as revenue during FY 2002]). To further complicate time series analysis, the City of Unalaska has changed accounting procedures in recent years, such that shared taxes have effectively shifted the periods during which they appear in financial statements, making comparability between years less than straightforward. Before the City's FY 2000, the fisheries business tax collected by the State for calendar year 1998 was booked in FY 1999. Under the method currently in place, that revenue would be recorded in FY 2000. This means that the FY 1999 and FY 2000 fisheries business tax figures reflected in Table 2.2-27 are the same revenue (they are not exactly equal due to a second, smaller payment from the State to communities in unincorporated boroughs that falls into a different time period). In practical terms, this means that detailed fishing season specific time series analysis is not

Table 2.2-27 City of Unalaska Selected Fisheries-Related General Fund Revenues (in dollars), Fiscal Years 1991-2001

Revenue Source	FY91	FY92	FY93	FY94	FY95	FY96	FY97	FY98	FY99	FY00	FY01
Raw Fish Sales Tax	2,851,008	3,681,908	3,131,661	2,641,802	3,340,512	2,212,833	2,641,645	2,641,124	2,513,500	3,410,717	3,065,220
Fisheries Business Tax	2,067,793	2,475,197	3,581,134	2,770,321	2,364,847	2,828,570	2,071,914	2,424,747	2,424,787	2,483,670	3,249,218
Fisheries Resource Landing Tax	NA	NA	NA	NA	NA	2,637,708	3,015,804	2,604,706	2,739,821	2,224,903	2,813,250
Three Source Total	4,918,801	6,157,105	6,712,795	5,412,123	5,705,359	7,679,111	7,729,363	7,670,577	7,678,108	8,119,290	9,127,688

Source: City of Unalaska Finance Department spreadsheet, 2001

One of the impacts of the AFA on the City of Unalaska revenues relates to the additional requirement that at-sea processors count landings outside of state waters as taxable events (under the fisheries resource landing tax). As shown in Table 2.2-27, the local revenue derived from the fisheries resource landing tax increased from FY 1998 to FY 1999 (with the latter year encompassing the first half [calendar] year of offshore co-ops). Revenue from this source, however, fell over half a million dollars between FY 1999 and FY 2000 (the period covering the second half the first year of offshore co-ops and the first half of the second year of offshore co-ops) but rebounded in FY 2001. Looking at the three-revenue source total, although there was some variation in the individual sources, the combined amount was nearly flat at \$7.7 million for each year FY 1996 (the first year the fisheries resource landing tax came to the city) through FY 1999. FY 2000 combined three-source revenues rose to \$8.1 million, so for the first FY that spanned both offshore co-ops and the start of on-shore co-ops, revenue sources that were directly fishery associated increased over 5 percent. This figure further increased to \$9.1 million in FY 2001.

Summary of Recent Community Fishery IFQ/Co-op Rationalization Experience and Implications for Likely Crab Rationalization Impacts

Unalaska entities have direct experience in the rationalization of the halibut and sablefish fisheries under an IFQ management system, and the pollock fishery under a co-op system. This section provides an overview of the potential applicability of community experience with these two systems to broadly similar components proposed as part of the rationalization management alternative for the BSAI crab fisheries.

No recent studies on the impacts of halibut and sablefish IFQ programs on the community of Unalaska are known. Information from interviews would suggest that these programs have resulted in little overall change in the small local harvest fleet. In terms of local processing, interview data would suggest that halibut is less important for larger processors than it was in the pre-IFQ past, but quantitative data show some variability in this regard. At least one small processor has found market conditions more favorable under a halibut IFQ system than was the case with a derby style fishery. In general, it is apparent that market conditions or demands for halibut have changed under the IFQ system, and Unalaska is at a relative disadvantage in shipping fresh as opposed to frozen product from communities with closer ties to a multi-modal transportation system that includes roadways, such as Homer.

possible using commonly published data, but that trend information is readily apparent at the individual revenue source level. In terms of fiscal impacts to municipalities, it is a truism that when revenue is received is more important than when fish are landed, but clearly much other economic activity (and important revenue generation) takes place at the time of landings.

How the community experience with halibut and sablefish IFQs would translate into likely outcomes of a BSAI crab rationalization alternative is less than clear in detail but can be considered in broad brush. Fewer vessels owned and crewed by local residents fish for crab than fish for halibut, and local processors are even less dependent on crab deliveries by the local fleet than they are for halibut deliveries by the local fleet. Given the relative location of the BSAI crab fishing grounds to the community and the different markets involved, it is not considered likely that the community of Unalaska/Dutch Harbor would see a change in its relative importance as a landing port for crab as may have been the case for halibut.

Much more information is available on the community level social impacts seen under the pollock co-op system than is available for the halibut and sablefish IFQ system, due to the study effort that went into the NPFMC's recent Report to Congress on the impacts of the AFA (NPFMC 2002). In general, the impacts seen under AFA and the co-op system, and their applicability to potential BSAI crab co-op management approaches within a rationalization alternative are as follows:

- Seasonal peak population in the community is down with the spreading out of the fishing seasons, and this is in part attributed to pollock fishery co-op conditions. A similar change in the crab fishery could be expected to continue this trend.
- There has been a marked softening of the housing market in the community. While this is a trend that preceded AFA co-ops, AFA co-op conditions appear to have contributed to the continuation of this trend. Although assessed valuation has not declined, it has not kept pace with inflation. Home sales have slowed, and rental vacancies are up. Clearly pollock fishery co-op conditions are but one of a number of contributing factors in this situation, and although its incremental contribution may be small, crab rationalization would be expected to reinforce this trend to some degree.
- The direct fishery-related portion of the economy has benefitted from pollock co-op conditions, especially the municipal revenue streams directly related to pollock landings. This was more a function of quota shift than price, however, so the applicability of this to the crab rationalization alternatives is not clear.
- In the catcher vessel sector, there is little community involvement in the pollock fishery in terms of a "residential fleet." Although some pollock vessels are homeported in Unalaska, none of these vessels are owned or skippered by long-time community residents. Whether the trend seen over the past several years of increasing processor ownership and/or control of catcher fleet making pollock deliveries to local plants has been altered by co-op conditions cannot be seen from available data in the brief post-AFA interval. While there are a small number of locally owned crab vessels, participation has been irregular in recent years due to local area closures, among other factors, and the vast majority of both delivering vessels and volume landed are accounted for by ownership outside of the community.
- In the processing sector, for local AFA/co-op qualified plants employment changes have varied by individual entity. The processing seasons have slowed down and spread out to a degree, but at the same time there have been changes in product mix. For example, at one large plant one major processing line closed directly as a result of the slowing of the race for fish under co-op conditions, but the net number of workers increased. A number of the newly produced products, or products produced in greater or relatively greater volumes are comparatively labor intensive. Co-op-related employment impacts are difficult to ascertain or interpret because of the varying approaches of the different plants and the changes occurring in other fisheries. An example of this is that in 2001, some plants did not utilize a dedicated crab crew as in recent years, but rather, because of increased crew flexibility/availability under co-op conditions combined with lower crab volume, they were able to

staff both functions with a single crew. It is expected that under crab co-op conditions similar dynamics would continue to operate, with even less peak demands.

- Non-AFA local processing plants did experience change as a result of AFA, but this varied by plant type. The medium-size non-AFA plant in the community reported little change in operations. The two smaller plants, on the other hand, reported that the AFA had negative impacts on their operations in several ways. These included the ability of the larger plants to now pursue custom niche markets when they were not able to do so before; the implementation of crab caps on the AFA plants, which meant that cooperative endeavors with the smaller plants now result in a potential loss of volume for the larger plants due to the cooperative undertakings counting against the larger plant's cap; and, loss of flexibility of the smaller plants by preclusion of possible future opportunities of exploiting AFA-regulated fisheries. Depending on qualification period specifics, the large/small plant distinction is anticipated to be less profound in terms of impacts under crab co-ops, as the small plants may qualify for their own co-ops or quota share, unlike the case with the pollock fishery. Similarly, any negative impacts resulting from AFA crab "sideboards" are anticipated to no longer be applicable in a crab fishery managed under the proposed rationalization alternatives.
- In terms of support service sector businesses, Unalaska is the major regional provider of fishery support services. The pollock co-ops made the fishery more efficient in several ways, which is a positive benefit for a number of reasons and within a larger frame of reference, but the local support economy was based, to a significant degree, on inefficiencies in the fishery. In the past, in-season downtime during the race for fish was a potentially catastrophic event, and local firms were structured (inventory, personnel, and number of providers) to respond to those circumstances. With co-op-associated changes in the pace in the fishery, cost of service has become relatively more important than in the past, and immediate response capability does not override all other factors. The resultant restructuring of the support service sector would likely continue or be amplified by a crab fishery managed under the rationalization alternatives.
- Under pollock co-ops, shoreplants have remained more or less self-contained, self-sufficient enterprises in the community. This varies from plant to plant, but operations tend to be of an industrial enclave nature, with a relatively low volume of purchases of goods and services from the local support sector. Crab co-ops are not seen as likely to change this pattern.
- Vessel support businesses have experienced a range of pollock co-op-related impacts. Employment is down, but this is a complex situation. Firms that have fewer positions have tended to just not bring in temporary/fishing season-specific employees, and many businesses report a dropping off of total hours if not a drop in the number of permanent positions. In general, inventory has been reduced due to a drop in peak demand, and the number of support providers is down somewhat. The drop in providers has been more in the nature of a decline in the number of providers for any one service, rather than a decline in the range of services available locally. At the community level, these conditions are related to the local decline in crab landings as well as changes attributable to the pollock fishery, and different businesses have had different outcomes based on their relative dependency on different fleet sectors. Implementation of crab co-ops would be likely to continue this trend.
- The impact of the reduction of the offshore pollock catcher-processor fleet, while not a function of co-ops, has been felt in Unalaska. A number of support service businesses were oriented toward serving this fleet and have been having a difficult time after the fleet reduction. This has, in part, contributed to the overall changes seen in the support service sector. No similar single-sector

reduction impacts are anticipated in the case of BSAI crab co-ops under the rationalization alternatives.

- Because of changes in the race for fish conditions, there has been some move from private to public facilities for shipping related to the catcher/processor fleet, and there has been some shift between communities due to ownership changes that may not be directly related to co-op conditions. Different businesses were differentially impacted based on their client mix, with the businesses that relied most heavily on that portion of the offshore fleet that was excluded (and/or retired/scrapped) experiencing the greatest impacts. Similar changes are not anticipated to follow implementation of crab co-ops, as no particular harvest sector is presumed to experience more consolidation than others.
- Shipping enterprises in Unalaska have felt impacts from pollock co-op formation. The improved ability to predict shipping needs under non-race conditions has meant that there are different viable options now available to those with fisheries product to move. There has been a shift in market share between the two largest shipping firms in town, but this is likely as attributable to changes in and between the two firms as it is to co-op-induced conditions. Relatively more product is moving by tramper than in the past, although this is difficult to quantify, and two new private dock facilities have been put into service during the post-AFA co-op formation era. Union longshoring hours are down, but the relationship of this to total employment hours in the community is unclear due to a recent increase in non-union work volume. While crab co-ops may create some similar conditions, it is not anticipated that the changes will be as substantial, due to inherently less flexible, multiple crab seasons.
- In terms of municipal revenues, general fund revenues deriving from fishery sources have been increasing in recent years. Quantifying the role of pollock co-ops in this increase is problematic due to so many other changes occurring simultaneously. To the extent that improved conditions have led to increased prices, the municipal revenues have benefitted. This is likely an outcome of crab co-ops as well.
- In terms of other types of community changes seen over the relevant time period, it was reported that the community clinic experienced a decrease in demand for acute fishing season needs. This trend may also be expected to continue with the rationalization of the crab fishery.

In sum, the formation of pollock co-ops has had a number of different impacts on the community of Unalaska. The larger pattern of impacts would appear to be direct benefits to those aspects of the participating groundfish sectors present in the community, benefits to the municipality in terms of revenues, and a downward trend or mixed results among the support service sector. Not all difficulties faced by support service sector businesses are attributable to pollock co-ops. These support sector challenges and many of the other changes seen in the community, such as the drop in housing demand, are linked to a "rationalization" or increase in efficiency of the community economy and a move away from an economy geared for a pulse demand cycle and inefficiencies within the commercial fisheries. Pollock co-ops and the AFA in general have played a significant part in this general level change, but trends along these lines were apparent in the community prior to co-op formation. Implementation a rationalization alternative for the crab fishery in general, or co-op provisions in particular, are anticipated to continue these same trends. Overall community impacts may be positive, but there will likely be continued dislocations in the support sector, if only on a one-time or temporary basis as the local economy adjusts to non-race conditions.

It is a truism that the co-ops made the pollock fishery more economically efficient and that the economy of Unalaska, to a degree, is dependent upon economic inefficiencies. Goods and services are relatively expensive to supply locally, and if the balance between the relative value of money and time shifts more

toward money being more valuable, then the local economy will experience a noticeable lessening in demand for services than seen in the community under race-for-fish conditions. Of course, all of the slackening in demand for services cannot be attributed to pollock co-ops. At the same time pollock co-op impacts were being realized in the community, the crab fishery was weathering a sharp decline in quota, and Steller sea lion protection measures were taking their toll on the locally based fishery. In terms of the perception of impacts, or the ultimate consequences of those impacts, a number of individuals from various employment sectors reported that if the non-municipality, non-direct-fishery portion of the local economy is somewhat smaller, the jobs that remain are better jobs, with more regular hours, a better pace, and an overall higher quality of life. In general, a continuation of these trends could be anticipated under crab rationalization conditions.

Differential Impacts of the Three Rationalization Alternatives at the Community Level

As summarized above, in addition to a number of indirect or support ties to the fishery, for Unalaska the direct engagement in, and dependency on, the BSAI crab fishery is based primarily upon ties to local processing activity and secondarily on participation in the harvesting sector. Direct beneficial or adverse impacts to the community of Unalaska deriving from the different rationalization alternatives result from the differential outcomes for these activities.

Each of the rationalization alternatives have identical provisions regarding increased allocations to the CDQ program (inclusion of additional species and an increase in the included species set-aside from 7.5 to 10 percent of the total allocation), creation of captain's harvest quota shares (3 percent of the TAC), and a community development allocation to Adak (10 percent of the WAI golden king crab allocation). Each of these provisions are directed toward fostering beneficial community or social impacts for at least some groups or areas. Unalaska, as a non-CDQ community, would not directly benefit from the CDQ program increases. The creation of captain's shares would likely benefit a few Unalaska residents, but would not be significant on the community level. The Adak community allocation would not have significant beneficial or adverse impacts for the community of Unalaska.

Regionalization is a feature of the three-pie alternative and the IFQ alternative, but is not a part of the cooperative alternative. Regionalization is explicitly designed to create beneficial community or social impacts for at least some groups or areas. The north/south region designation was designed primarily to benefit the Pribilofs, while the west region designation in the WAI golden king crab fishery was designed primarily to benefit Adak.

Impacts of the west region creation would likely be negative for the community of Unalaska, but are not likely to rise to the level of significance. Over the period 1991-2000, Unalaska on average processed approximately 39 percent of the Western Aleutian Islands golden (Adak brown) king crab total harvest. Under regionalization, 50 percent of the total harvest of this fishery would be earmarked for delivery to a newly created west region (west of 174 degrees west longitude, which is far to the west of Unalaska). The remaining 50 percent of the quota would not be regionally designated and could be delivered within or outside of the west region. It is likely that this regional designation will cause a percentage shift of processing for this species away from Unalaska, but the impacts will likely be minor. Over the period 1991-2000, WAI golden king crab accounted for approximately 3.4 percent by value of crab processed in Unalaska. Further, until very recently the entire annual quota was never taken, so Unalaska could conceivably still land the same number of pounds that it has in the past, but this would represent a smaller percentage of the fishery. Additionally, not all of the quota that would be designated for west region delivery would come directly from Unalaska, as there were other processors participating in the fishery (that is, every additional pound processed in the west does not equate to one less pound processed in Unalaska).

Impacts of the creation of the north/south regional split in and of itself under the three-pie alternative are not likely to be significant for the community of Unalaska, absent the accompanying community protection provisions discussed below. Regionalization under the IFQ alternative, which has no specific community protection provisions (save for a waiver of sea time requirements for eligible community purchase of harvest quota share, as discussed below), would not hinder the type of processor consolidation that could have negative impacts on the community of Unalaska, were local crab processing to exit the community. Under the three-pie alternative, Unalaska (which is one of two communities that can be disclosed as eligible for community protection provisions under this alternative out of a total of 8 eligible communities) would retain levels of processing activity seen during the qualifying period (due to a combination of regionalization and community protection features, as described below). The regionalization seen under the IFQ alternative, which does not have community protection features, would not likely have negative impacts for the community, but the community protection features may prevent positive impacts that would otherwise accrue to Unalaska. This would happen if consolidation where quota previously processed in the north region would otherwise end up in Unalaska because of efficiency gains, but cannot do so because of regionalization provisions. Under the cooperative alternative, which does not have a regionalization component, it is unlikely that consolidation would result in processing activity moving from Unalaska to the Pribilofs, but it is conceivable, if not likely, that activity that would have occurred in the Pribilofs under regionalization restrictions would move to Unalaska.

Additional community protection features of a “cooling off” period and a right of first refusal on transfer of processing quota shares are a part of the three-pie alternative (and are not a part of any other alternative). Eligible communities (those that had 3 percent of processing activity for covered species) would be assured that during the 2-year “cooling off” period processing quota would not be moved out of the community. Subsequent transfers would be subject to a right of first refusal that would allow an eligible community (through its CDQ group or another community group, if a CDQ group were not present) to obtain ownership and control over processing quota to retain local processing activity.

For Unalaska, an eligible community, both of these features would have the potential to confer significant beneficial community and social impacts. The “cooling off” period would ensure that processing activity levels seen in the qualifying period would continue in the community, and the right of first refusal would ensure that a local (to-be-formed) community group, would be able to obtain processing quota if it were at risk for leaving the community in the future. Exercising the right of first refusal would likely result in a significant positive benefit to community group and the community. As Unalaska is not in a borough and is not a CDQ community, the entity that would exercise the right of first refusal would represent only the community itself, so there would not be the potential competition of interests as seen under similar circumstances in a number of other communities.

Whether or not these community protection features provide neutral or positive benefits to the community depend on what individual operation’s decision making processes would have been regarding consolidation absent these provisions, which is unknowable. For example, without knowing confidential business information, it is not clear whether in the absence of community protection measures consolidation within the processing sector as a result of rationalization would increase or decrease activities in Unalaska. All things being equal, it is assumed that Unalaska is in a favorable situation compared to other communities in the Bering Sea region due to access to transportation and other developed infrastructure and services, and that consolidation would tend to have processing more highly concentrate in Unalaska than was the case prior to rationalization. However, it is not likely that all things will be equal post-rationalization and there may be currently unrecognized incentives that favor consolidation elsewhere.

The rationalization alternatives also differ on the ability of communities to obtain harvest quota share. Under the three-pie and IFQ alternatives, CDQ groups, or other community groups if a CDQ group is not present,

in eligible communities (again, those with 3 percent or more of processing activity for covered species during the qualification period) would be able to purchase harvest quota share due to a waiver of sea time requirements that would otherwise prevent such purchases. By design, the ability to obtain harvest quota share could result in beneficial community and social impacts through communities becoming more directly engaged in the fishery.

In the case of Unalaska, harvest quota shares, if purchased, would be obtained by the to-be-formed community group. If exercised, this ability could result in beneficial community and social impacts through the community becoming engaged in the fishery in a way (or to a degree) that it is not under existing conditions.

Another potentially distinguishing feature of the rationalization alternatives from a community or social impact perspective is the ability of harvesters to form co-ops under the three-pie and cooperative alternatives (but not under the IFQ alternative). For Unalaska, the impacts of this ability (or lack thereof) are not clear, particularly given very small local fleet presence in the fisheries covered by the program. Whatever impacts would derive from co-op activities would likely result from impacts to processors, not from the fleet itself.

2.3 AKUTAN

Akutan is located on Akutan Island in the eastern Aleutian Islands, one of the Krenitzin Islands of the Fox Island group. The community is approximately 35 miles east of Unalaska and 766 air miles southwest of Anchorage. Akutan is surrounded by steep, rugged mountains reaching over 2,000 feet in height. The village sits on a narrow bench of flat, treeless terrain. The small harbor is ice-free year-round, but frequent storms occur in winter and fog occurs in summer. Akutan began in 1878 as a fur storage and trading port for the Western Fur & Trading Company. The company's agent established a commercial cod fishing and processing business that quickly attracted Aleut residents of nearby settlements to the community. A Russian Orthodox church and school were built in 1878, over a decade after Alaska became a U.S. Territory, and the Alexander Nevsky Chapel replaced the original church structure in 1918. The Pacific Whaling Company built a whale processing station across Akutan Bay from the village site in 1912 and it operated as the only whaling station in the Aleutians until it closed in 1939. Incorporated in 1979, the City of Akutan encompasses 32.4 square miles of land and 8.7 square miles of water.

Akutan lies in the maritime climate zone, with mild winters and cool summers. Mean temperatures range from 22 to 55°F. Precipitation averages 28 inches per year. High winds and storms are frequent in the winter, and fog is common in the summer.

Akutan is incorporated as a Second Class City, and, like King Cove (and Sand Point), is part of an organized borough (the AEB). The community of Akutan was previously profiled in the Inshore/Offshore SIA (NPFMC 1991), and the details of that profile will not be recapitulated here. Unlike Unalaska and King Cove, Akutan is a CDQ community. Like Unalaska, King Cove, and Sand Point, Akutan was originally designated as not qualifying as a CDQ community due to the local presence of developed commercial fishing/processing capacity. Subsequently, however, due to the particulars of the historic and contemporary demographic and physical structure of the community, Akutan was able to attain inclusion in the APICDA CDQ group. The main processor in Akutan is Trident Seafoods, which has a large shoreplant in the community. In recent seasons Trident has also had floating processing capacity in Akutan Bay, as a result of the purchase and relocation of the Arctic Enterprise from Beaver Inlet on Unalaska Island. In the past, seasonal processing by other mobile processing entities has also commonly taken place in the bay for various species. However, for at least the past 4 years, Trident has been the only processor in Akutan, reportedly in part because the economics of seasonal processing with floaters has worsened.

Akutan is a unique community in terms of its relationship to the Bering Sea commercial fisheries. It is the site of one of the largest of the shoreplants in the region, but it is also the site of a village that is geographically and socially distinct from the shoreplant. This "duality" of structure has had marked consequences for the relationship of Akutan to the Bering Sea crab and other commercial fisheries. One example of this may be found in Akutan's status as a CDQ community. Initially (in 1992), Akutan was (along with Unalaska, King Cove, and Sand Point) deemed not eligible for participation in the CDQ program based upon the fact that the community was home to "previously developed harvesting or processing capability sufficient to support substantial groundfish participation in the BSAI . . ." though they met all other qualifying criteria. The Akutan Traditional Council initiated action to show that the community of Akutan, per se, was separate and distinct from the seafood processing plant some distance away from the residential concentration of the community site, that interactions between the community and the plant were of a limited nature, and that the plant was not incorporated in the fabric of the community such that little opportunity existed for Akutan residents to participate meaningfully in the Bering Sea pollock fishery (i.e., it was argued that the plant was essentially an industrial enclave or worksite separate and distinct from the traditional community of Akutan and that few, if any, Akutan residents worked at the plant). With the support of the APICDA and others, Akutan was successful in a subsequent attempt to become a CDQ community and obtained that status in 1996. This action highlights the fundamentally different nature of Akutan and Unalaska. Akutan, while deriving economic benefits from the presence of a large shoreplant near the community proper, has not integrated large-scale commercial fishing activity with the daily life of the community. As result, Akutan is the only community in the region that is both a direct major/developed participant in the fishery and a CDQ community.

Community Demographics

Akutan is a community that traces its roots to commercial fishing, fur trading, and whaling. In terms of the population components of the community, and the relationship between local commercial fishery-related workers and the rest of the population, Akutan is unlike Unalaska, King Cove, or Sand Point. Compared to King Cove and Sand Point, the local processing plant is much more of an enclave type of operation than the plants in those communities. It is unlike Unalaska, which features plants with a range of "separateness" from the community, in that few, if any, plant workers of any staff level have become long-term residents of the community.

Total Population

Table 2.3-1 provides figures for the community total population by decade from 1880 through 2000. While U.S. Census figures show Akutan had a population of 589 in 1990 and 713 in 2000, the Traditional Council considers the "local" resident population of the community to be around 80 persons, with the balance being considered "non-resident employees" of the seafood plant. This definition, obviously, differs from census, state, and electoral definitions of residency but is reflective of an observed social reality of Akutan. Figures for recent years are known to include processing workers, but it is not clear in earlier years how and if fisheries or other commercial enterprise-related workers were counted.

Ethnicity

The residents of the village of Akutan, proper, are almost all Aleut. The influence of the commercial fishery-related workers on the ethnic composition of the population, however, may be seen in Table 2.3-2. As shown, less than 16 percent of the population in 2000 was Native American/Native Alaskan.

Table 2.3-1 Akutan Population by Decade, 1880-2000

Year	Population
1880	65
1890	80
1900	60
1910	0
1920	66
1930	71
1940	80
1950	86
1960	107
1970	101
1980	169
1990	589
2000	713

Source: Historic data from Alaska Department of Community and Economic Development, 2000 data from U.S. Bureau of the Census

Table 2.3-2 Ethnic Composition of Population Akutan: 1990 and 2000

Race/Ethnicity	1990		2000	
	N	%	N	%
White	227	38.5%	168	23.6%
African American	6	1.0%	15	2.2%
Native American/Alaskan	80	13.6%	112	15.7%
Asian/Pacific Islands*	247	41.9%	277	38.9%
Other**	29	4.9%	141	19.7%
Total	589	100%	713	100%
Hispanic***	45	7.6%	148	20.8%

Source: U.S. Bureau of Census.

* In the 2000 census, this was split into Native Hawaii and Other Pacific Islander (pop 2) and Asian (pop 275)

** In the 2000 census, this category was Some Other Race (pop 130) and Two or More Races (pop11).

*** "Hispanic" is an ethnic category and may include individuals of any race (and therefore is not included in the total as this would result in double counting).

Group housing in the community is almost exclusively associated with the seafood processing workforce. As shown in Table 2.3-3, in 1990 fully 85 percent of the population lived in group quarters and only 15 percent did not. As seen in this same table, in 2000 an even greater percentage of the total population lived in group quarters (89 percent versus 11 percent not in group quarters). Table 2.3-4 provides information on group housing and ethnicity for Akutan for 1990 (comparable 2000 data are not yet available). As shown, the ethnic composition of the group (primarily seafood processing) and non-group housing (primarily long-term residential) segments were markedly different, with the non-group housing population being predominately (83 percent) Alaska Native, and the group housing population having almost no (1 percent) Alaska Native representation.

Table 2.3-3 Group Quarters Housing Information, Akutan, 1990 and 2000

Year	Total Population	Group Quarters Population		Non-Group Quarters Population	
		Number	Percent of Total Population	Number	Percent of Total Population
1990	589	501	85.06%	88	14.94%
2000	713	638	89.48%	75	10.52%

Source: U.S. Bureau of the Census 1990 STF2, Census 2000 Summary File 1

Table 2.3-4 Ethnicity and Group Quarters Housing Information, Akutan, 1990

Race/Ethnicity	Total Population		Group Quarters Population		Non-Group Quarters Population	
	Number	Percent	Number	Percent	Number	Percent
White	227	37.52%	212	42.32%	15	17.05%
Black	6	0.99%	6	1.20%	0	0.00%
American Indian, Eskimo, Aleut	80	13.22%	7	1.40%	73	82.95%
Asian or Pacific Islander	247	40.83%	247	49.30%	0	0.00%
Other race	29	4.79%	29	5.79%	0	0.00%
Total Population	589	100.00%	501	100.00%	88	100.00%
Hispanic origin, any race	45	7.44%	45	8.98%	0	0.00%
Total Minority Pop	342	56.53%	298	59.48%	73	82.95%
Total Non-Minority Pop (White Non-Hispanic)	247	40.83%	203	40.52%	15	17.05%

Source: U.S. Bureau of the Census 1990 STF2

Age and Sex

Table 2.3-5 shows the population composition of Akutan by sex in 1990 and 2000. As shown the population structure is clearly indicative of a male-dominated industrial site rather than a typical residential community.

Table 2.3-5 Population Composition by Sex, Akutan: 1990 and 2000

	1990		2000	
	N	%	N	%
Male	449	76%	549	77%
Female	140	24%	164	23%
Total	589	100%	713	100%
Median Age	NA		40.2 years	

Source: U.S. Bureau of the Census

Table 2.3-6 provides information on school enrollments in Akutan over the period 1991 to 2002. As shown, there has been considerable year-to-year fluctuation over this time, and enrollments have been lower in recent years than in the earlier years in this time span.

Table 2.3-6 Akutan School Enrollment, FY 1991-2002

Fiscal Year	Student Count
1991	22
1992	24
1993	29
1994	21
1995	24
1996	20
1997	27
1998	23
1999	20
2000	15
2001	15
2002	16

Source: Adapted from spreadsheet supplied by C. Warner, Aleutians East School District, October 2002.

Local Economy and Links to the Crab Fishery

The community of Akutan participates in the BSAI crab fishery through several different ways: locally owned small vessel harvesting, participation in the CDQ program, having a major seafood processing plant located in the community, through having transient floating processors operate locally, and providing limited support services to the fishery in the community. Overall, the private sector economy of the community, exclusive of the local processor, is very limited. The Alaska Department of Community and Economic Development (DCED) (2002) lists a total of six active business licences in the community: the Akutan Corporation, the Bayview Hotel, the Grab a Dab Café, McGlashan Store, Pelkey's Dive Service, and the Salmonberry Inn. It would appear that private sector business ownership is highly concentrated among a very few entities. According to senior city officials, the café is no longer in business, and the Akutan Corporation owns and operates the Bayview Hotel and the Salmonberry Inn. The McGlashan store, while named after the owner of the original store in Akutan, is also owned by the Akutan Corporation. The Roadhouse tavern is another private sector enterprise in the community and one not linked to the Akutan Corporation.

Harvesting

The vast majority of catch landed in Akutan comes off of vessels from outside of the community. While there is a "local" non-CDQ commercial fishery, it is of a small scale, pursued out of open skiffs. In the early 1990s, the local plant reported taking deliveries of groundfish from approximately 12 skiff-type vessels from the village of Akutan itself, but participation in this type of enterprise is not well documented. Such activity is currently (2002) reported at about the same overall level as in the past, with two local residents in particular singled out as consistently making regular deliveries of halibut and black rockfish over time, and the rest making sporadic deliveries. According to City officials, there is one 28-foot vessel in the community and one

that is 24 feet in length, with the rest of the local fleet being comprised of skiffs under 20 feet, with the two larger vessels being the most active. According to interviews, the processor neither encourages nor discourages these deliveries but does purchase all that is made available from local sources. This is not a major source of fish for the plant but is probably a significant source of income for at least a few of the local sellers. APICDA has to date not facilitated loans for a local fleet as it has in some other communities. Akutan differs significantly from other APICDA communities as in Akutan there is already processing capacity present. This, in turn, presumably has an impact on the way APICDA prioritizes its community-specific efforts. One move APICDA is contemplating is moving its sport charter vessel *Grand Aleutian* from Unalaska/Dutch Harbor to Akutan to help foster the development of a sport fishery/tourism niche in the local economy. According to local sources, Akutan fishermen are also looking into purchasing halibut IFQs with the idea of forming a community quota pool in excess of the IFQ held by five or so individuals in the community at present. The president of the local corporation also noted that Akutan residents do participate in the crab fishery as crew members, with "around 6 guys" crewing at different times, although at least some of these crew members have been bumped from participation during CDQ fisheries.

The Akutan delivery fleet for the single processor, including "outside" vessels, was characterized being in turn comprised of several different components:

- about 20 "large" boats with capacities of 500,000 to 1,000,000 pounds, mainly fishing pollock, and primarily with Seattle-area ownership (although they spend most of their time in and around Akutan);
- about 20 "smaller" boats with capacities of 150,000 to 300,000 pounds, mainly fishing pollock and cod, and primarily with Kodiak and Newport ownership;
- the crab boat fleet, that has little overlap with the groundfish fleet (and much less than was the case in the past). A few of the biggest crab boats also fish groundfish, but Trident's fishermen generally seem to specialize in one or the other. Crab boats are a mixture of Kodiak and Seattle-area boats, and the increased specialization in crab or groundfish may be due to the AFA, sideboards, and relative stock sizes. This degree of specialization was the only change in the nature of Trident's delivery fleet in recent years that was described by Trident representatives.
- the truly local "skiff" fleet.

As a CDQ community, the community of Akutan has access to the BSAI commercial fishery resources independently of direct participation in the fishery. Akutan, like the other CDQ communities, has benefitted from the increase under AFA from 7.5 percent to 10 percent of each BSAI groundfish TAC (except for the fixed gear sablefish TACs, of which CDQ communities receive 20 percent for the eastern Bering Sea and the Aleutian Islands areas). Also, like other CDQ communities, Akutan has access to the 7.5 percent CDQ allocation of relevant BSAI crab species. APICDA, including the community of Akutan, has participated in the crab fishery via acquiring partial (25 percent) ownership interest in two crab harvest vessels, the *Golden Dawn* and the *Farwest Leader*. In general, APICDA has substantial investments in both harvesting and processing sectors of the BSAI fishery. The most recent executive summary of APICDA's community development plan (APICDA 2002) describes the scope of these investments, as well as the community development goals they serve. In Akutan, the primary thrust is to develop a partnership with Trident to custom process the harvest of local fishermen. As described by a Trident representative, this is still a relatively small operation for Trident but is quite important for a number of local fishermen. APICDA encourages local hire for all of its joint ventures and partnerships, but information on how many locals are actually so employed, and more specifically how many are from Akutan, is not available.

Processing

Trident Seafoods operates the major shore processing facility in the community of Akutan. Trident first opened a shore plant in the community in the summer of 1982, but the original structure was destroyed by

fire in the summer of 1983. The plant was rebuilt later that year, and major expansions were added in the 1990s. Like the large processing plants in Unalaska, the Trident Akutan plant is an AFA-qualified plant with its own pollock co-op. Also like the large Unalaska plants, it is a multi-species processing facility, and it accounts for a significant amount of regional crab processing as well as groundfish processing. Specific figures are confidential. Company representatives report that BSAI crab can comprise a significant percent of the total value of processing at the plant, although the present depressed status of most crab stocks has reduced this percentage in recent years. As a high-value species, however, crab is quite important to the overall operation of the plant (although pollock is still the prime mover in terms of labor requirements and overall economic operations).

In terms of the processing labor force, there has been little change reported in overall size, seasonal patterns, or composition in recent years. Pollock is still the driving force for Akutan employment dynamics. During periods when both pollock and crab may both require significant effort (primarily opilio season) the pollock product mix may be adjusted to less labor-intensive forms (surimi instead of fillets). The same labor force is used for all operations, adjusted as necessary in size by sending people out as the need for labor decreases once the pollock season is over.

In addition to its shore facility, Trident has operated the floating processor Arctic Enterprise in Akutan Bay since its purchase several years ago. Previously operated in Beaver Inlet on Unalaska Island, this is currently (2002) the only floater that operates in Akutan Bay on an ongoing basis, or has for several years. While multiple floaters used to be common, according to city officials this changed due to environmental constraints (as well as changing fishery economics). Around 1990, the U.S. Environmental Protection Agency declared the inner portion of Akutan Bay an "impaired water body" with the result that floaters could not operate in that area. While Akutan Bay was "taken off the list" in the late 1990s, according to city officials, floaters have not returned in number. The Arctic Enterprise operates outside of this inner bay area, but still within Akutan Bay itself. According to city officials, other mobile processing capacity for crab has been brought in by Trident in recent years to help with finishing up during crab seasons.

In terms of the relationship between the plant and the community, social interactions between Trident employees and the other residents of the community are somewhat limited by the fact that the Trident site is more or less an industrial enclave and is separated from the village proper by Russian Orthodox church-owned land, the sea plane ramp, and coastal bluffs. Access and interaction has changed at least to some degree in recent years, however, with the opening of a beach level road from the seaplane ramp to the Trident site and the donation and construction by Trident of a community building for the village that is utilized by workers and local residents alike. This building has a modest sized church with attached living quarters for the minister and a full sized gym. (Because the gym has "church windows," it is sometimes mistaken for a very large church.) The building is located adjacent to the seaplane ramp on land leased from the City of Akutan. As in years past, plant workers make incidental purchases at the village store, and frequent the Roadhouse tavern adjacent to the community that is also patronized by village residents.

In terms of local CDQ involvement in processing, unlike their participation in the groundfish fisheries, APICDA-owned processing capacity does not have a history of BSAI crab processing. APICDA partners with Trident for its CDQ crab processing, which has been most commonly processed in Akutan but is also sometimes processed in St. Paul or on a floater, depending on quota size and fishing conditions. Trident serves as a custom processor for this CDQ crab. APICDA also partners with the Starbound and Trident for CDQ pollock, and Trident's share of the CDQ pollock has usually been processed by the Akutan plant, while most of APICDA's share has been processed by the CP Starbound. Other APICDA CDQ species are harvested and processed primarily through non-Trident enterprises (APICDA 2002).

Support Services

Akutan differs sharply from nearby Unalaska in terms of opportunity to provide a support base for the commercial fishery. Akutan does not have a boat harbor or an airport in the community. There has been some recent (2001) investment by APICDA in a local mooring basin that will help local residents keep their vessels in the water. Located near the seaplane ramp, this facility includes a floating dock for the skiff-sized local vessels, and APICDA has also been involved with obtaining a trailer that can handle up to 45-foot vessels to facilitate getting local small boats in and out of the water. Other than the very small boat facility, there is no boat harbor in the community, although this has been in planning for a number of years. At present (2002), it is in the EIS stage, with construction and completion at least a few years away. APICDA has also reportedly earmarked matching funds in the range of \$1 million to be used when development of the boat harbor has begun. While these plans exist, the situation at present is that beyond the limited services provided by the plant, essentially no opportunity exists in Akutan to provide a support base for other major commercial fisheries. Indeed, alternative economic opportunities of any kind are extremely limited.

The only direct fishery support business in the community at present (2002) is a dive operation that involves a couple of individuals plus a couple of helpers on occasion, but there are other enterprises that derive benefits from the fishery in less direct ways. The Akutan Corporation does derive economic benefits from the local shoreplant through some sales of goods and services to local seafood plant employees, including check cashing services. The corporation owns and operates the community store and encourages case lot sales to vessels through offering 10 percent boat discounts. According to corporation staff, although vessels do tend to ship in their own supplies, or re-supply at the Trident plant, some of the vessels do make local purchases if Trident runs out of supplies or if direct shipped goods do not make it in due to adverse weather conditions.

Despite being the major landowner in the community, however, the Akutan Corporation does not derive substantial leasing income from the local seafood processor. Prior to ANCSA, a private individual outside of the community obtained ownership of the parcels of land that are the sites of the historic whaling station and the pot dock across the bay from the community, as well as the lands that are the present site of the seafood processing plant. Although according to city officials these lands changed hands in the late 1990s, they have remained in private ownership outside of the community. At present, the only land leased by the Akutan Corporation to the seafood processor is the antennae site on the hill above the processing facility. The Akutan Corporation does derive at least some income from direct or indirect fisheries-related activity through its ownership of the Bayview Hotel and the Salmonberry Inn. The Bayview Hotel, a six-room facility of which two are larger apartment-style accommodations, does see some business from such groups as marine pilots or fisheries observers, particularly when space is not available at the processing plant. The Salmonberry Inn is a former processing bunkhouse facility that is a five-room structure with four bunks per room that derives processing-related business, particularly when the processing activity ramps up in January and the processor is in need of overflow housing capacity. Another business in the community that derives income from fishery-related activity is the Roadhouse tavern. Owned by private individuals from Akutan but no longer physically resident in the community, this business regularly draws patrons from both the processing plant workforce and the community itself. Akutan Bay has also been the site of some transfer of product from at least one mothership to cargo vessels in recent years, but very little if any local business has resulted from these types of activities.

The Municipality and Revenues

In addition to benefits derived from borough taxes (including a 2 percent raw fish tax, as discussed in the introduction to the Alaska communities section of this document), the community benefits from municipal revenues deriving from a local 1 percent raw fish tax on landings made in the community. These revenues, of course, are dependent on price as well as volume of landings, which are, in turn, linked to relevant

TACs/GHLs. Table 2.3-7 presents information on Akutan municipal revenues for 1999 and 2000 obtained off of the DCED website. As is the case for other communities in the region, fish taxes have varied considerably from year to year, but more detailed information on local fish taxes cannot be presented due to confidentiality restrictions, given that there is but a single processor in the community. Clearly, however, fish taxes are a large proportion of local revenue, as processing is virtually the only industrial activity in the community. Akutan also receives revenue from Fisheries Resource Landing taxes, but these revenues are characterized as being "not very large amounts." Akutan does not have a local sales tax or property tax.

Table 2.3-7 Akutan Municipal Revenues, 1999 and 2000

Revenue Source	1999	2000
Local Operating Revenues		
Taxes	\$430,095	\$559,219
License/Permits	\$0	\$0
Service Charges	\$51,488	\$56,392
Enterprise	\$216,493	\$266,416
Other Local Revenue	\$96,016	\$127,420
Total Local Operating Revenues	\$794,092	\$1,009,447
Outside Operating Revenues		
Federal Operating	\$0	\$0
State Revenue Sharing	\$25,969	\$24,986
State Safe Communities	\$7,650	\$6,813
State Fish Tax Sharing	\$558,663	\$654,402
Other State Revenue	\$50,025	\$6,300
State/Federal Education Funds	\$0	\$0
Total Outside Revenues	\$642,307	\$695,038
Total Operating Revenues	\$1,436,399	\$1,704,485
Operating Revenue Per Capita	\$3,521	\$4,011
State/Federal Capital Project Revenues	\$0	\$0
TOTAL ALL REVENUES	\$1,436,399	\$1,704,485

Source: DCED Website, 2001, 2002

Unlike a number of other communities, the City of Akutan does not derive revenues from sales of water, power, wastewater, or other similar services to the seafood processing plant in the community. At the time of its construction, the plant was physically isolated from the community and thus was built as a completely self-contained facility. Although a road link to the community was subsequently established, the way services are provided to the plant has not changed.

Summary of Recent Community Fishery IFQ/Co-op Rationalization Experience and Implications for Likely Crab Rationalization Impacts

With respect to the crab fishery and related potential socioeconomic impacts to Akutan, the village is in a unique position. As a CDQ community, Akutan has the ability to access BSAI crab independent of direct participation in the fishery. As home community to a shoreplant, Akutan derives considerable fiscal benefits from inshore operations. As CDQ partners with both harvesting and processing entities with multi-species operations, they derive economic benefits from both of those sectors.

A change seen in the very recent past was the purchase of the Arctic Enterprise floating processor by Trident, and the move of the Arctic Enterprise from Beaver Inlet on Unalaska Island to Akutan Bay. The move of the Arctic Enterprise, combined with the increase in CDQ groundfish quota, means that both the industrial and village portions of the community appear to have captured more of the overall pollock quota post-AFA than was the case pre-AFA. No community level changes resulting from AFA co-ops per se are apparent. No community level impacts of halibut and sablefish IFQ programs are readily apparent either, given limited direct local resident engagement in the fishery and the fact that processing data are confidential.

In general, given the very few support sector businesses, the limited direct local engagement in most commercial fisheries (outside of the single processing plant), and the lack of municipal services provided to the fishery sectors, there is little information from previous "lessons learned" from AFA and IFQ rationalization programs to inform analysis of likely impacts of crab rationalization. For Akutan, how the local processor fares, and how the CDQ program fares, will determine how the community fares. Further, the specific potential social impacts to Akutan as a result of crab management changes depends upon how one defines the community of Akutan. If the traditional village of Akutan is the unit of analysis, the fishery would appear to have little direct impact on the day-to-day lives of individuals in the community, as long as the overall structure and revenue stays roughly the same. On the other hand, if the census/legal definition of Akutan is used, then Akutan is a community more than five times larger than its "traditional/Aleut" population, and that large margin of difference in population is associated exclusively with the onshore processing operation. Further, the fact that Akutan is an integral part of the AEB cannot be discounted, and fluctuations in fish tax-related revenue can and will have marked impact on the borough as a whole, not just the community of Akutan.

Differential Impacts of the Three Rationalization Alternatives at the Community Level

As summarized above, for Akutan the engagement in, and dependency on, the BSAI crab fishery is based primarily upon ties to local processing activity and secondarily on participation in the CDQ program. Beneficial or adverse impacts to the community of Akutan deriving from the different rationalization alternatives result from the differential outcomes for these activities.

Each of the rationalization alternatives have identical provisions regarding increased allocations to the CDQ program (inclusion of additional species and an increase in the included species set-aside from 7.5 to 10 percent of the total allocation), creation of captain's harvest quota shares (3 percent of the TAC), and a community development allocation to Adak (10 percent of the WAI golden king crab allocation). Each of these provisions are directed toward fostering beneficial community or social impacts for at least some groups or areas. Akutan, as a member of the APICDA, would directly benefit from the CDQ program increases. Impacts of the creation of captains shares and the Adak community allocation would not be significant for the community of Akutan.

Regionalization is a feature of the three-pie alternative and the IFQ alternative, but is not a part of the cooperative alternative. Regionalization is explicitly designed to create beneficial community or social impacts for at least some groups or areas. The north/south region designation was designed primarily to benefit the Pribilofs, while the west region designation in the WAI golden king crab fishery was designed primarily to benefit Adak.

Impacts of the west region creation would likely be insignificant for Akutan. Impacts of the creation of the north/south regional split in and of itself under the three-pie alternative are not likely to be significant for the community of Akutan, absent the accompanying community protection provisions discussed below. Regionalization under the IFQ alternative, which has no specific community protection provisions (save for a waiver of sea time requirements for eligible community purchase of harvest quota share, as discussed

below), would not hinder the type of processor consolidation that could have negative impacts on the community of Akutan, were local crab processing to exit the community. Under the three-pie alternative Akutan (if deemed an eligible community) would retain levels of processing activity seen during the qualifying period (due to a combination of regionalization and community protection features, as described below). Without community protection provisions, the regionalization featured under the IFQ alternative would not likely have impacts that would differ from the type of consolidation that could occur under the cooperative alternative, which has no regionalization component.

Additional community protection features of a “cooling off” period and a right of first refusal on transfer of processing quota shares are a part of the three-pie alternative (and are not a part of any other alternative). Eligible communities (those that had 3 percent of processing activity for covered species) would be assured that during the 2-year “cooling off” period processing quota would not be moved out of the community. Subsequent transfers would be subject to a right of first refusal that would allow an eligible community (through its CDQ group or another community group, if a CDQ group were not present) to obtain ownership and control over processing quota to retain local processing activity. (Due to confidentiality restrictions, it cannot be disclosed whether or not Akutan is deemed eligible for community protection provisions.)

For Akutan, if eligible, both of these features would have the potential to confer significant beneficial community and social impacts. The “cooling off” period would ensure that processing activity levels seen in the qualifying period would continue in the community, and the right of first refusal would ensure that the local CDQ group, APICDA, would be able to obtain processing quota if it were at risk for leaving the community in the future. Exercising the right of first refusal would result in a significant positive benefit to the CDQ group, and would most likely benefit the community to nearly the same degree. It is assumed that APICDA would manage any quota obtained for Akutan’s benefit, but APICDA represents a constituency across a number of communities and it is possible that at least some of the benefits derived from ownership of processor quota share obtained through exercising a right of first refusal on quota share originally generated by activity in Akutan would be realized outside of Akutan.

Whether or not these community protection features provide neutral or positive benefits to the community depend on what individual operation’s decision making process would have been regarding consolidation absent these provisions, which is unknowable. For example, without knowing confidential business information, it is not clear whether in the absence of community protection measures consolidation within the processing sector as a result of rationalization would increase or decrease activities in Akutan. Akutan, as a CDQ community, could not normally lose quota share to other communities within the borough without triggering the right of first refusal mechanism. Following the “cooling off” period, however, Akutan could lose local processor activity without having the right of first refusal mechanism triggered if the owner of the Akutan plant decides to shift the use of processing quota to one or more plants owned by the same entity outside of Akutan but within the south region. Whether or not this is a realistic scenario is unknown, but it is noted as a possibility.

The rationalization alternatives also differ on the ability of communities to obtain harvest quota share. Under the three-pie and IFQ alternatives, CDQ groups, or other community groups if a CDQ group is not present, in eligible communities (again, those with 3 percent or more of processing activity for covered species during the qualification period) would be able to purchase harvest quota share due to a waiver of sea time requirements that would otherwise prevent such purchases. By design, the ability to obtain harvest quota share could result in beneficial community and social impacts through communities becoming more directly engaged in the fishery.

In the case of Akutan, harvest quota shares, if purchased, would be obtained by APICDA. Given that Akutan is one of several community members of APICDA, benefits of harvest quota share ownership would be

spread across a base of multiple communities. While still clearly beneficial to Akutan, this geographic dispersion of benefits would lessen the overall impact of this feature on the community itself. Nevertheless, if exercised, this ability could result in beneficial community and social impacts through the community becoming engaged in the fishery in a way that it is not under existing conditions.

Another potentially distinguishing feature of the rationalization alternatives from a community or social impact perspective is the ability of harvesters to form co-ops under the three-pie and cooperative alternatives (but not under the IFQ alternative). For Akutan, this ability (or lack thereof) would not appear to result in significant beneficial or adverse impacts given its current nature of engagement with the fishery.

2.4 KING COVE

King Cove is located on a sand spit fronting Deer Passage and Deer Island on the south side of the Alaska Peninsula near its western tip. It is 18 miles southeast of Cold Bay and 625 miles southwest of Anchorage. Although there are numerous pre-contact sites throughout the area, the contemporary community of King Cove traces its founding to 1911 when Pacific American Fisheries built a salmon cannery on the present-day town site. The cannery operated continuously between 1911 and 1976 (also operating under the name Pacific Alaska Fisheries before it became Peter Pan Seafoods), when it was partially destroyed by fire. The adoption of the 200-mile fisheries limit spurred rebuilding. Incorporated in 1949, the City of King Cove encompasses 25.3 square miles of land and 4.5 square miles of water. It is a part of an organized borough (the AEB).

King Cove lies in the maritime climate zone with temperatures averaging 25 to 55°F, though extremes range from -9 to 76°F. Snowfall averages 52 inches, and total annual precipitation is 33 inches. Fog, common during summer, and high winds during winter, can limit accessibility.

Early settlers of King Cove were Scandinavian, Euro-American, and Aleut fishermen. Of the first 10 founding families, 5 consisted of a European father and an Aleut mother. For a number of decades, the community was primarily involved in the commercial salmon fisheries of the area, but with the decline of the salmon fishery, processing in the community has diversified into other species, including both Gulf of Alaska and Bering Sea fisheries, and both Bering Sea crab and groundfish have come to be important components of local processing operations. The shore processor in King Cove is now Peter Pan Seafoods, and the plant processes salmon, crab, and halibut, along with pollock, Pacific cod, and other groundfish. Other species, such as herring, are processed occasionally. In the not-too-distant past, some small operators conducted processing or tendering operations in and around King Cove, but currently Peter Pan is the only local operator. While cash buyers for salmon just outside city limits may be a thing of the past, Peter Pan does occasionally or seasonally operate mobile processing capacity nearby but outside of the city limits to supplement its shoreplant operations.

King Cove, like Unalaska, is incorporated as a First Class City, but unlike Unalaska is part of an organized borough. Like Unalaska, King Cove is not a CDQ community. King Cove is a historical commercial fishing community that has had processing facilities as part of the community for decades, like Unalaska, but unlike Unalaska it has had a significant residential commercial fishing fleet that delivers to the local seafood processors.

Community Demographics

King Cove is a community that traces its founding directly to commercial fishing. Unlike Unalaska, it developed around a commercial fish processing plant and did not grow from an existing traditional Aleut village. The contemporary community is ethnically heterogeneous, but much greater diversity is found among the population components associated with fish processing and support services than for those

associated with other economic activities such as fish harvesting, government, or education. While the fish processing employment force does display continuity from year to year, the local perception is that they are more transient than other King Cove residents and are not considered to be truly "local" residents as those with other occupations who do not live in company housing.

Total Population

Historically, King Cove has seen a large influx of non-resident fish tenders, seafood processing workers, fishers, and crew members each summer due to local salmon fisheries. With the increased importance of crab, followed by cod and pollock in the winter, a second employment/population peak has been seen in more recent years. Table 2.4-1 provides figures for community total population by decade from 1940 through 2000. These figures clearly include some processing workers but do not represent the numbers of persons present in the community during peak processing periods.

Table 2.4-1 King Cove Population by Decade, 1940-2000

Year	Population
1940	135
1950	162
1960	290
1970	283
1980	460
1990	451
2000	792

Source: Historical data from Alaska Department of Community and Economic Development. 2000 data from U.S. Bureau of the Census

Ethnicity

The ethnic diversity of population associated with an imported fish processing workforce is evident in Table 2.4-2. King Cove differs from other established major commercial fishing communities in the region, however, in that the percentage of its Alaska Native population component has increased at the same time as the community total population increased significantly. As shown in the table, the total population of the community grew by about 76 percent between 1990 and 2000. During this same time, the Alaska Native component of the population grew by 109 percent, increasing from 39 to 47 percent of the total population. It is likely that this represents population consolidation from smaller regional communities, as well as the natural increase of the excess of births over deaths.

Table 2.4-2 Ethnic Composition of Population King Cove, 1990 and 2000

Race/Ethnicity	1990		2000	
	N	%	N	%
White	127	28.2%	119	15.0%
African American	6	1.3%	13	1.6%
Native American/Alaskan	177	39.2%	370	46.7%
Asian/Pacific Islands*	125	27.7%	213	26.9%
Other**	16	3.5%	77	9.7%
Total	451	100%	792	100%
Hispanic***	53	11.8%	59	7.4%

* In the 2000 census, this was split into Native Hawaii and Other Pacific Islander (pop 1) and Asian (pop 212)

** In the 2000 census, this category was Some Other Race (pop 47) and Two or more races (pop 30).

*** "Hispanic" is an ethnic category and may include individuals of any race (and therefore is not included in the total as this would result in double counting).

Source: U.S. Bureau of the Census

Group housing in the community is largely associated with the seafood processing workforce. As shown in Table 2.4-3, 42 percent of the population lived in group housing in 1990 and 38 percent of the population did so in 2000. Information on group housing and ethnicity is available only for the 1990 census and is provided in Table 2.4-4 (2000 census information for these variables is not yet available). For 1990, ethnicity varied significantly between group and non-group housing, with the non-group housing population being 67 percent Alaska Native and the group housing population being less than 1.0 percent Alaska Native. All other ethnic groups comprised larger percentages of the group housing population than of the non-group housing population, although the difference for the white population was relatively slight compared to the other groups identified, which lived predominantly (Asian or Pacific Islander) or totally (Black, Hispanic, Other Race) in group housing. Group housing in King Cove is mainly associated with the fish processing shoreplant or a seasonal floating processor.

Table 2.4-3 Group Quarters Housing Information, King Cove, 1990 and 2000

Year	Total Population	Group Quarters Population		Non-Group Quarters Population	
		Number	Percent of Total Population	Number	Percent of Total Population
1990	451	189	41.91%	262	58.09%
2000	792	299	37.75%	493	62.25%

Source: U.S. Bureau of the Census 1990 STF2, Census 2000 Summary File 1

Table 2.4-4 Ethnicity and Group Quarters Housing Information, King Cove, 1990

Race/Ethnicity	Total Population		Group Quarters Population		Non-Group Quarters Population	
	Number	Percent	Number	Percent	Number	Percent
White	127	28.16%	57	30.16%	70	26.72%
Black	6	1.33%	6	3.17%	0	0.00%
American Indian, Eskimo, Aleut	177	39.25%	1	0.53%	176	67.18%
Asian or Pacific Islander	125	27.72%	109	57.67%	16	6.11%
Other race	16	3.55%	16	8.47%	0	0.00%
Total Population	451	100.00%	189	100.00%	262	100.00%
Hispanic origin, any race	53	11.75%	53	28.04%	0	0.00%
Total Minority Population	331	73.39%	139	73.54%	192	73.28%
Total Non-Minority Population (White Non-Hispanic)	120	26.61%	50	26.46%	70	26.72%

Source: U.S. Bureau of the Census 1990 STF2

Age and Sex

Table 2.4-5 provides information on age and the male/female ratio of King Cove's population. As shown, the community population is predominantly male, consistent with a transient male-dominated workforce, although the male-female imbalance was somewhat less in 2000 than in 1990.

Table 2.4-5 Population by Age and Sex, King Cove: 1990 and 2000

Attribute	1990		2000	
	N	%	N	%
Male	292	65%	472	60%
Female	159	35%	320	40%
Total	451	100%	792	100%
Median Age	NA		34.9 years	

Source: U.S. Bureau of the Census

King Cove school enrollment figures are displayed in Table 2.4-6. As shown, overall enrollment has been declining, with the 2002-2003 student count being less than two-thirds of the 1994-1995 figure.

Table 2.4-6 King Cove City School Enrollment, 1995-2003

Year*	Student Count
1995	162
1996	150
1997	143
1998	130
1999	133
2000	115
2001	122
2002	116
2003	103

* Year designation notes the calendar year in school year ended (e.g., 2003 refers to the 2002-2003 school year).

Source: Manual tabulation supplied by King Cove school staff, September 2002.

It is difficult to assign causality of the drop in student counts to any specific fishery conditions, but clearly the overall local fisheries economic decline has had an influence on general socioeconomic conditions in the community, and at the same time the school has had to face some very hard choices. With declining enrollments and overall funding challenges, the King Cove school has combined grades 1 and 2, as well as 3 and 4, and 5 and 6. Budget difficulties have also brought about the recent elimination of two teaching positions. As some funding is based on a student count basis, continuing declines in enrollment have meant continuing budget cuts. Beyond combination classrooms and cuts in teaching positions, the school has also restructured other services it provides, such as the lunch program, and some specialty classes and certified counseling services are not available. Given the importance of maintaining enrollments, potential employees for various positions in the community who have children are particularly valued. Despite the relatively large overall employment at the local seafood processor, only a handful of children whose families are associated with the processor attend the school, reportedly due to the high cost of living in the community, which makes it impractical to bring a family to the community on typical processing wages (other than for those in management, and even then some of the management positions are less than year-round jobs in the community). Housing is also in short supply, especially during peak processing seasons. Some families are reportedly considering sending children out to Mt. Edgecumbe school (in Sitka) as an alternative to allow them access to more academic resources. While no students from King Cove are currently reported to attend this school, several from Sand Point are, so there is regional precedent for this type of decision. While this could be academically advantageous to some students, it would pose further budgetary challenges for those remaining in the community.

Local Economy and Links to the Crab Fishery

In terms of employment, a relatively recent study concluded that more than 80 percent of King Cove's workforce is employed full time in the commercial fishery (USACE 1997). Fishing employment was followed by local government (borough and local) and then by private businesses. These results need to be interpreted in context, however, as this report ranked seafood processing after each of these other employers in terms of local employment, meaning that the vast majority of the workforce at the shoreplant were either not counted as community residents under the study methodology or that the study was conducted during an off-season time when most workers were not present in the community. Also, commercial fishermen are self-

employed, are difficult to enumerate, and thus are often not well represented in employment discussions. Thus, the 80 percent employment "dependency" of the local economy on the commercial fishing sector is probably underestimated.

The King Cove economy in general is cyclical, due largely to its strong relationship to fishing and fish processing. In recent years, because of a number of factors, including but not limited to low salmon prices, the community has experienced severe local effects from a number of fisheries-related downturns as well as non-fisheries-related events. Given that many of the factors cited for these effects are regional and cumulative in nature (low fish prices, Steller sea lion protection measures, competition from farmed fish, Area M changes, low Bering Sea crab GHLS, and other management and resource concerns), it is possible that King Cove has grown in size because of population movement from smaller regional communities in even worse economic shape. This dynamic is likely to continue but is not, however, likely to strengthen the local economy.

One recent indirect source of fisheries income in the community has been emergency relief funding. People participating in fisheries negatively affected by the imposition of measures to protect Steller sea lions and to promote the recovery of Steller sea lion populations have recently begun to receive compensation funds allocated by Congress. While this program has had positive local effects, the degree of long-term benefit remains to be seen and an overall evaluation is not possible at this time.

Subsistence continues to play an important role in the household economies for some families in the community. Joint production opportunities, where commercial gear or fishing vessels are used for subsistence pursuits, were mentioned by community residents as being important. For example, one skipper reported running to good hunting grounds following tendering activities in the Shumagin Islands, thereby saving fuel costs, while another example was given of fishermen bird hunting when out tending pots. Where stand-alone costs are unavoidable, some fishermen reported that costs were made more manageable by having several families involved to spread out the out-of-pocket expenditures. At least some individuals who are out near productive hunting grounds in the course of commercial fishing also act as designated hunters for others in the community to further reduce overall subsistence costs and increase productivity.

Harvesting

King Cove has a sizable residential fleet. Local vessels deliver primarily to the King Cove Peter Pan shoreplant, but outside vessels deliver to this plant as well. Outside vessels also provide income and employment opportunities for King Cove residents, both in terms of support service opportunities (as discussed in a subsequent section) and in terms of direct fishery participation employment, as noted below. Peter Pan representatives report that they have designed their local processing operations around serving the smaller range of the catcher vessel fleet, and the fishery around the Pribilof Islands (Schwarzmilller and Sterling, personal communication, 2002).

The local residential fleet in King Cove as a whole is primarily focused on salmon, with a secondary focus on cod. Within the overall fleet, however, there are several different types of vessels with different operational foci. According to local fishermen, there is only one vessel owned by a community resident that is greater than 58 feet. Not only is this the only locally owned vessel larger than the 58-foot-limit boats that trawls, it is the single locally owned vessel that fishes Bering Sea crab. The next largest vessels in the community are a group of 58-foot-limit seiners. Local fishermen stated that there were either six or seven of these vessels owned by local residents. According to local fishermen, this fleet is characterized by "everybody does everything," as, in addition to fishing salmon, these 58-foot vessels all trawl (or 'drag') for cod, and all pot for cod following the trawl season. (The local trawl fleet then consists of the seven or eight vessels in the community that are 58 feet or greater in length.) In addition to the versatile 58-footers, there

are numerous smaller vessels, with a number of seiners in the 42- to 44-foot range that participate in a range of fisheries, and a range of smaller vessels that have a particular focus on salmon, and drift or gill netting as gear specialties. A number of the smaller vessels also pot for cod. The smaller vessels are, of course, somewhat less flexible in their gear options and more constrained by weather and sea conditions than the 58-foot (and larger) vessels. In recent years, local salmon fishing effort has been constrained by Area M measures designed to lessen Yukon-Kuskokwim stock intercept potential by staggering openings, reducing quota, and providing smaller fishing windows.

According to local fishermen, the annual round for larger local harvest vessels in King Cove in recent years has included bottom trawling for cod starting in the third week of January and lasting through the first week of March. Following a 1-week break, the vessels switch to cod pot fishing in state waters, which ends around mid-March. Early June sees salmon activity start, which lasts through August. The autumn season has, in recent years, been a kind of "doldrums" for local activity, with "only a couple of boats" participating in the pot fishery, and the October trawling season not being promising enough to even attempt. One change that has been seen locally as of late is more vessels rigged for jigging, but these are primarily outside boats that work near the community (that stay in the area after salmon season), as it is still the case that few locals jig. According to local fishermen, three local vessels did qualify to fish pollock, but all have discontinued doing so. Also according to local fishermen, only one individual qualified for a substantial initial allocation of IFQ halibut (due to the particulars of the qualification parameters and conflicts with local fisheries during those years), but since the allocation others have acquired IFQ, so that there are now at least several local fishermen who do fish halibut in some quantity (with knowledgeable individuals estimating that three or so individuals have larger quotas than others, but that seven or eight individuals altogether have at least some reasonable amount). Also, according to local fishermen, few locals qualified for sablefish IFQ, and those who did have subsequently sold their IFQs, with one exception.

With respect to crab in particular, beyond the one locally owned relatively large vessel that fishes Bering Sea crab with a local crew (skipper plus four crew for a total of five persons on board), three other local boats (58-footers) did qualify for the Pribilof fisheries, but reportedly not one is active at present. Conditions are extremely difficult for these relatively small vessels, and one of these vessels was lost in the mid-1990s, with the loss of one life. Many more small vessels reportedly have fished the local tanner crab fishery during the years that it was open. Additionally, before seasons were changed from the fall to the winter, a time of year much less conducive to small vessels, several local boats in the 58-foot class were also reported to have fished in the Bering Sea crab fisheries but have not done so since the change a number of years ago.

There is also significant local direct participation in the Bering Sea crab fisheries on non-locally owned vessels. One outside owner keeps four Bering Sea crab vessels in King Cove most of the time, and two of these vessels are skippered by King Cove residents and have crews that are 100 percent comprised of King Cove residents (i.e., four crew in addition to the skipper), while the other two have outside skippers but local crew members. In addition to these four vessels, local fishermen estimate that about a dozen other King Cove residents have crewed aboard outside crab boats in any given season in recent years. These vessels and their crew opportunities become known to King Cove residents in a variety of ways. Most vessels spend at least some time in the community before and after crab seasons, an estimated 40 to 50 outside vessels store crab pots in the community, and others become known to locals when they act as tenders during other fisheries. Individuals who crew on these outside boats include, among others, owners of King Cove local fleet vessels. Thus, while only one locally owned vessel fishes crab in the Bering Sea, crabbing in the Bering Sea nonetheless represents a significant source of income and employment for commercial fishermen in King Cove. Additional employment from outside crab vessels being in King Cove is outlined in the support services discussion below.

The crew composition on local vessels reportedly varies widely by season. In one pattern that was reported as common for the 58-foot boats, four crew members are used in the winter (skipper/owner plus three) and three in the summer (skipper/owner plus two). Winter fishing is comprised of what could be termed 'professional' crew, while summer crew tends to be comprised of family members, including children. This, apparently, makes sense for at least two reasons. First, school-aged children are not available to crew on vessels during the school year. Second, returns have been so poor during summer salmon seasons during recent years that it has been difficult at times to get non-family crew (and, of course, hiring family crew during tough times helps household economies). Some community members volunteered the opinion that during the continuing low ebb in the local fisheries economy, family members have bumped others from crew positions and that during the winter fisheries older crew have bumped younger ones as positions became tighter and/or relatively more valuable. Others volunteered that younger crew in general are being used than in the past (to reduce costs and to get the job done when sufficient money was not available to pay crew consistent with past practices) and more children are fishing than ever before. Also, more girls are helping out than before. Systematic information has not been collected to verify or elaborate on either reported trend, but it is apparent from unsolicited comments that King Cove residents feel that declining fisheries are having an adverse impact on crew composition, although there does not appear to be unanimity regarding the particular form of that impact.

King Cove and Sand Point vessels have reportedly competed for the same fishing grounds in recent years, particularly during cod trawling near Sanak Island. Steller sea lion protection measures near Sand Point have reportedly had the effect of shifting effort into areas further to the southwest, including areas earlier targeted primarily by the King Cove fleet, more heavily concentrating effort than was the case in the past. The area to the east of the island sees significant trawl activity, and then the areas within state waters around the island see pot cod activity following the federal trawl effort. Sand Point vessels have felt the impacts related to the Steller sea lion protection measure of a 3-mile no-trawl zone around the Lookout Point haul-out as well as the 1-mile transit only zone around Clubbing Rocks, but these are relatively small exclusion areas compared to those in the Sand Point fleet's typical operating areas (e.g., Castle Rock, Bird Island, and Chernabura Island, among others).

Local vessels deliver primarily or exclusively to the processor in King Cove. While not typical, deliveries reportedly may be made in Sand Point for a number of reasons, including bad weather (the run between the two communities may take 8 to 9 hours in a typical vessel). Cod may also be delivered to Sand Point if the vessel is in the area, or salmon may be delivered there if the plant in King Cove does not want it for whatever reason. Salmon delivery patterns have changed over the years, as fishermen report in the past it was not uncommon to deliver to buyers on the grounds or to other cash buyers near the community. According to local fishermen, however, these buyers "got tired of being used as a wedge" to get higher prices when the bulk of deliveries still went to the Peter Pan shore plant. One fisherman noted that by not making sure that the case buyers had a sufficient volume of salmon, the fishermen themselves cut out other potentially competitive outlets for selling their catch. The fact that local fishermen basically have a single outlet for sales makes for some level of discomfort due to the effective degree of dependency of the fleet (and the community, for that matter) on a single company. According to at least some fishermen, the price set for some species influences the price given for other species, a situation that is markedly unfavorable to fishermen focusing on the species feeling the downward price influence. There is also some frustration among some fishermen in the community that Peter Pan directs fishing in a way that is not always favorable to local fleet interests. It is not surprising that a lack of competition would be troubling to local fishermen, and that the relationship between a fishing-dependent community and the local processor could become strained at times. Often seemingly cooperative behaviors can have a double-edged sword quality to them. For example, while the processor has in the past helped boats out financially during lean times, this has had the impact of creating greater indebtedness to the processor, which is then a cause for resentment. It is also reported that during the especially lean times in the past year or two, local vessel owners have made charges to the boat for groceries and supplies that were needed

for their households, increasing the debt load to the processor. This type of co-mingling of business and household economies is, of course, one of the potential drawbacks of small family-owned businesses, and it makes the relationship to the processor even more pervasive. The fact that the processor is foreign owned is also cause for speculation amongst fishermen regarding pricing and delivery policies.

The largest number of boats delivering to Peter Pan are indeed relatively small in size and relatively local to King Cove. While focused primarily on salmon, most of these boats may also deliver other fish, such as cod and halibut. Salmon markets have been especially poor for local fishermen recently. Price disputes are not uncommon in this context; in a recent year, a price was not negotiated with area processors until a month into the season, so that fishermen and processors missed the peak of the run. Both the processors and the harvesters claim to have lost money on the price paid for salmon that year. (With seemingly chronically depressed salmon prices in general, local fishermen have noted with some irony that disaster relief funding was made available to opilio fishermen in short order following a couple of very bad years.) Local plant personnel estimate that 20 to 25 percent of the cod delivered to the plant comes from Lower 48 boats, with the balance coming from King Cove and Sand Point vessels.

Boats that deliver BSAI pollock in King Cove are all non-local, either from Kodiak or the Pacific Northwest (mainly Seattle). According to senior plant staff, in the not-too-distant past, virtually all of the Gulf of Alaska pollock delivered at the plant was from King Cove or Sand Point vessels; however, more recently, vessels from outside the immediate region have made up nearly half of local Gulf pollock deliveries.

With one exception, BSAI crab boats that deliver to the local plant are from outside the community, typically from Kodiak or the Pacific Northwest. Some of these Pacific Northwest crab boats are moored in King Cove or other Alaskan ports, and there is interest in the expansion of local harbor facilities and moorage in a number of local communities (Northern Economics 1995, 1997; USACE 1997). King Cove recently expanded and improved its large boat harbor, with the dedication of the new facility taking place in September 2002. Some of these crab boats will participate in other fisheries (fishing for cod and halibut, tendering for salmon and herring), although most fish only crab for Peter Pan and tender in other fisheries as their primary revenue sources. Some will fish crab for Peter Pan and then go fish for brown crab. Peter Pan representatives estimated that about 30 crab boats would deliver to them in 2002, but this could vary as more crabbers have delivered to them in the past. It is expected that because of low quotas, most, if not all, BSAI crab fisheries will be "one trip" fisheries, with only time enough for each crab boat to fill up once. The Peter Pan crab fleet is composed mostly of independent catcher vessels, with a mixture of sizes and with owners from a variety of communities. Local (King Cove and Sand Point) crab boats tend to cluster at the lower end of the size range of this fleet, whereas Kodiak and Pacific Northwest crab boats are larger. With one exception, no local boats participate in the Dutch Harbor crab fisheries but rather concentrate on more local (Gulf of Alaska) and Pribilof area crab fisheries. The King Cove plant does take deliveries from vessels fishing in the North Region area, but, according to plant management, for vessels to make that long of a run the processor needs to give incentives to do so, and it only makes economic sense to offer these types of incentives to the larger vessels.

Harvest value and volume figures for crab vessels specifically owned by residents of King Cove cannot be discussed because the vessels are too few in number to meet confidentiality requirements. Those from Sand Point are similarly too few to discuss by community, but combining data from the two communities resolves this problem, and the two fleets do share many characteristics. For the period 1991-2000 (the most recent and longest time series information available), the number of vessels fishing from these two communities averaged seven vessels for Bristol Bay Red king crab, five vessels for opilio crab, six vessels for tanner crab, nine vessels for Pribilof red or blue king crab, and less than one vessel for Dutch Harbor brown crab. Much of this crab would probably have been delivered to the Peter Pan processing plant in King Cove, although for some of the more distant fisheries, deliveries would be made to other plants (shore or floating) that may

or may not be operated by Peter Pan. For the 1991-2000 period, 30 different vessels owned by residents of the two communities participated in the BSAI crab fisheries, and most (17, with 2 unknown) were 58 feet or less in length. These are multi-fishery/salmon boats and are limited in the BSAI crab fisheries by weather and sea conditions. Still, for these vessels BSAI crab contributed 68 percent of the value of their catch, with opilio as the most significant single fishery. For the combined fleet of those communities as a whole, BSAI crab contributes only 18 percent of the total value of the harvest. Larger vessels are clearly preferable for BSAI fisheries, however, as of the seven vessels from these communities active in the fisheries in 2000, five were over 58 feet in length. Many of the smaller vessels have dropped out of the BSAI fisheries, and most if not all more recent entrants are over 58 feet in length.

Processing

The King Cove plant was built around the local salmon fisheries, and like the common name in the community suggests, the plant was and still is a "cannery." In recent years, however, canned salmon has declined in importance as a product for a variety of reasons including, according to plant staff, changing tastes that correspond to changing demographics in the country (with the individuals who favor canned salmon aging and declining as a percentage of the overall population). Despite this decline, however, the King Cove plant still produces more canned salmon than the entire country of Canada, according to company sources. In addition to canned salmon, the facility produces a variety of fresh and frozen salmon products. The King Cove plant also processes a good amount of crab and has developed groundfish processing capability, with Pacific cod and pollock as the predominant species. Substantial amounts of cod are supplied from both the Gulf of Alaska and the BSAI regions. This plant also processes halibut on a regular basis, and herring and other species less often.

Through time, the King Cove plant has maintained a diversity of processing, with interspecies dynamics being somewhat fluid. Over the years the distribution and peak of employment effort at the plant have been changed with both stock changes and management changes, such as the effects of the AFA. Detailed production figures, however, cannot be disclosed because of confidentiality restrictions. In general, it can be stated that King Cove is somewhat unique among the four key regional groundfish ports as it is relatively more dependent upon Pacific cod than pollock, among the various groundfish species landed. The relative dependence of the plants on different species has varied over time and with stock fluctuations. For instance, 1993 was clearly a very good year for salmon, while 1996 and 1997 were both poor salmon years. While changes from 1999 to 2000 cannot be definitively stated to be other than statistical fluctuations, it is interesting to note that for King Cove the poundage processed and percentage of total plant dollars for crab decreased, while groundfish increased somewhat. Crab stocks (and quotas) have been declining. Gulf of Alaska pollock is obtained from the local small boat fleet as well as from a small number of outside boats, but BSAI pollock is obtained exclusively from larger-capacity nonresident boats.

Historically, the Peter Pan plant was founded as a salmon plant and added crab as a strong secondary species, then halibut, and cod and pollock. Of these species, only cod and pollock have strong markets at present for the King Cove Peter Pan plant. Halibut was cited as an example of the dislocations that can result from a rationalization program. Peter Pan was only one of several processors who claimed that the institution of halibut IFQs reduced their profit margin on halibut to such a degree that they currently process very little halibut. This is the stated condition for King Cove in particular.

The current (as of 2002) annual cycle of the plant begins with the fixed gear opening on January 1, with the first deliveries of pot cod arriving in the community between January 5 and 10. Crab related activity starts somewhere around January 6, as vessels that have been in the community gear up while those that have been moored outside begin to arrive, and people come to town to meet up with vessels. January 13 is usually a busy day with tank inspections, then the vessels leave for the January 15 opilio opening. Local deliveries are seen

around January 21, and with the short seasons, vessels may make only one or two deliveries total. If the fishing is "scratchy," the season extends to 3 weeks or so. Following the crab season, individuals and vessels tend to leave the community quickly, unless they fish IFQs. Around January 20, trawl seasons open up for Bering Sea pollock and cod, as well as for Western Gulf of Alaska cod and pollock. The King Cove plant tends to 'hold off' deliveries of Bering Sea pollock until the Gulf fisheries can be serviced, something that co-op conditions facilitate, to allow the plant to optimize their work on the other fisheries. Depending on season particulars, early season deliveries of Bering Sea cod may be taken, even if pollock is not, but boats may wait for fish to school up at the end of January. Western Gulf pollock activity may only last about a week, while Bering Sea pollock may last through the end of February. Pollock is a relatively new species for the plant and, as a result, the plant has relatively little pollock activity compared to large plants in, for example, Akutan and Unalaska (due to lack of qualifying history when the management of that fishery changed under the AFA). After trawl season in the Gulf there is a 1-week stand-down, followed by the state cod fixed gear fishery, with most local activity related to that fishery lasting about 3 weeks to the end of March or so. The 15 percent hold-back for jig gear in this fishery, if scratchy, may last until the first week of May. There are reportedly few halibut IFQ landings (or sablefish IFQ landings either) reportedly due to lack of ability to pay the prices given at ports more accessible to the road system and better capabilities to quickly move fresh product. Some flatfish are also processed at the plant, but there are apparently challenges in that market as well.

Summer activity at the plant begins early in June with the Bering Sea C/D pollock seasons and the beginning of salmon season. July is relatively slow for salmon, but August typically picks up again with the pink salmon runs, and August is also the time of C season in the Gulf of Alaska. Scheduling flexibility brought about by AFA co-op conditions also allows the plant to maintain at least some activity to help tide over the slow times in mid-summer. The summer also sees Peter Pan tendering salmon out of Kodiak and other areas, and balancing operations and adjusting supply to capacity in King Cove and Valdez. In some years, there is local activity related to the July 15 herring (for bait or food) opening, but Peter Pan did not participate in this fishery in 2002. On September 1, the last 40 percent of cod is released, but there has been little activity in King Cove related to this as it has been scratch as of late. Crab activity resumes in the community around October 6 or 7 in anticipation of the October 15 Bristol Bay red king crab opening. This has lately been a one-delivery fishing season for King Cove, with the season lasting from 3 to 5 days. October 1 sees D season pollock, and IFQ activity lasts through mid-November. Adak red king crab activities take place around the 2- to 3-day fishery that starts October 25, but this keeps very few processors active. From mid-November to January 1, activity at the plant is confined to maintenance operations.

Employment levels at the plant vary considerably by season. According to information obtained from the plant, over the last 5 years (1998-2002), employment peaks were seen from late January through March, with most weeks at or near 500 total employees on site. Secondary peaks of approximately 400 or somewhat more employees were common from mid-June through mid-August, but this was more variable, with some weeks in some years hitting 500 or more, and some weeks in other years being considerably less than 400 during this same period. On-site employee counts drop to about 30 persons during the end of year maintenance work. Employee counts between the winter and summer busy seasons vary considerably from week to week and year to year, from the mid-100s up to near peak levels, depending on the variability of activity associated with particular species fisheries in any given year.

Individual worker earnings have been down in recent years with the decline of crab stocks and the poor conditions in a number of other fisheries. According to plant personnel, the number of workers has not changed appreciably, because "you still have to bulk up" for the busy seasons, but workers are not getting the type of overtime hours that were common only a few years ago. In addition to direct processing employees and physical plant staff, the core management and administrative staff at the plant include desk/clerical, fisherman's accounting, payroll, office manager, plant manager, production manager, housing, and chief engineer positions.

Peter Pan also has a "support station" in Sand Point, consisting of a dock, a bunkhouse, and accounting support for fishermen. Services provided at this site include facilitating deckhand payments, stock room services, pot storage, and tendering. Peter Pan also runs a support station in False Pass offering the same services as in Sand Point, with the additional service of fuel sales.

Peter Pan owns most of the land in and around its immediate complex in King Cove, and housing is provided for workers on site. Peter Pan also leases an adjacent apartment building from the King Cove Corporation (the King Cove village ANCSA corporation), and at peak times rents space in the King Cove Corporation hotel some distance away from the worksite. The vast majority of workers at the plant are transient with respect to establishing a true residence in King Cove, but according to senior plant staff two or three families have established roots in the community. In general, however, it is reportedly hard to establish a family in the community or move a family to the community on processing wages (except for quite senior positions).

In terms of integration with the community economic and social context at large, the plant at King Cove is quite different from those in Unalaska/Dutch Harbor. As noted, compared to King Cove, the growth of commercial seafood processing in Unalaska/Dutch Harbor is a relatively recent development (at least in terms of continuity of operations at specific facilities). The King Cove processor has longstanding relationships with the local catcher fleet, which, in turn, is the source of most employment in the community (among permanent residents). This is a sharp contrast to Unalaska. Unalaska is the site of multiple shoreplants and has a much more "industrial" fishery than does King Cove. This is not a consistent pattern, however, as the Bering Sea pollock delivered to King Cove is not fished by the local small boat fleet, and Bering Sea crab delivered locally is largely delivered by outside boats (but with significant local involvement, as outlined previously). Despite the long-term stable relationship between the community of King Cove and its single processor, however, the direct ties to the wider social context of the community are less evident in King Cove than in Unalaska where, for example, senior processor personnel serve on the city council and numerous other boards and community committees. Certainly the fact that there is but a single processor in the community influences processor, local fleet, and community relations, but exactly how this serves to structure or shape relationships is a complex matter.

Changes associated with the recent restructuring of the groundfish fishery under AFA have been felt in King Cove. The processor in King Cove is qualified as an AFA (BSAI pollock) processor and benefits from a Co-op Processor Endorsement, as five catcher vessels did deliver at least 80 percent of their inshore pollock to the King Cove plant during the AFA-qualifying period (while delivering most of their pollock offshore to a mothership affiliated with the same company as the shoreplant – a very different situation than most other qualifying entities). The King Cove plant is relatively well located to process BSAI pollock and is somewhat on the periphery of Gulf of Alaska pollock. Pollock product mix varies somewhat from other AFA plants, with surimi being a relatively recent addition and primarily confined under present market conditions, according to senior plant staff, to utilization of pollock that would otherwise produce less than optimum fillets.

The annual processing cycles for King Cove processors have changed very recently, and this is in good part attributable to AFA and other recent fisheries management changes. The Peter Pan Seafoods 2000 Co-op Report indicates that the King Cove plant took delivery of Bering Sea pollock on 4 days in February, 5 days in March, 2 days in April, 10 days in September, and 5 days in October. The 2001 draft Co-op Report indicates eight vessels delivered BSAI pollock to King Cove on 17 days in February, 6 days in March, 11 days in June, 14 days in July, 13 days in August, and 9 days in September. This reflected, in some sense, an optimal plant utilization strategy given the Peter Pan pollock cooperative's pollock allocation. The change in this pattern for 2001 was probably due primarily to management measures instituted to foster the recovery of Steller sea lion populations. The BSAI pollock quota for 2001 was increased over that of 2000, but not enough to account for the increase in the number of processing days spread over a greater period of time. Additionally, BSAI Pacific cod may have been negatively affected by AFA sideboard measures and its

current production is less than in the past and has been declining. The Peter Pan Seafoods 2000 Co-op Report notes that the cod sideboard allocations of the five vessels delivering pollock to the King Cove plant were allocated to the mothership sector, and they report a reduction in their tendering needs for Pacific cod.

Crab deliveries and processing were much reduced in 2000 from 1999, due primarily to a reduction in quotas related to reduced stocks. AFA sideboard caps on BSAI crab have limited the amount of such crab that can be processed by the King Cove plant. This has required that the processor charter an uncapped floater (otherwise employed during crabbing in the Pribilofs) to process additional crab while moored near King Cove. Otherwise, production in King Cove would be essentially limited to the amount processed in the past (as adjusted for other allocations). Peter Pan representatives report that this in fact represents a production level lower than in the past and would require that they limit the number of boats from which they buy crab. To service these boats and maintain market share, Peter Pan has thus taken the step of chartering the Steller Sea (owned by an affiliated entity) as a crab processor. Given the present low crab stocks and associated low GHs, Peter Pan representatives report that they could physically process all the crab they currently harvest in the King Cove shoreplant, but that this would not be equitable to the Pribilofs (and may not be possible under the AFA crab caps). Certainly the use of the Steller Sea in the Pribilofs helps maintain/increase Peter Pan's market share in the crab fisheries in that area.

According to local plant management, the Steller Sea typically comes to the King Cove area to "help clean up" at the end of crab season. When the Steller Sea does process locally, it does so outside of the city limits of King Cove. By doing, so revenues from fish taxes do not accrue to the City of King Cove but are paid to the Aleutians East Borough (and, of course, the State of Alaska). According to plant personnel, this is important to stay competitive in price with Unalaska/Dutch Harbor (which has only a local 2 percent fish tax and no borough tax), and Kodiak (which has no local fish tax [although the local 1.5 percent severance tax is essentially a functional equivalent]), as fish taxes show up as deductions from the price paid to fishermen. While floating processors used to come into King Cove itself, apparently none have done so for quite a number of years. When not on crab in the Pribilofs or King Cove, the Steller Sea is out on the fishing grounds following the fleet in a variety of fisheries, including salmon in Bristol Bay, Sand Point, and Squaw Harbor, among others, and ranging from the Ketchikan area in Southeast Alaska to Dutch Harbor to the west along the Aleutian Chain.

Support Services

When viewed from one perspective, King Cove has little in the way of a fisheries support service sector, and in this way the community, though a major processing port, differs markedly from Unalaska or Kodiak. For example, in King Cove, the lone shoreplant has historically provided a variety of fleet support services that the plants in Unalaska no longer have to provide with the development of a support sector. From another perspective, however, outside of public works, tribal, and school employment, there is arguably little in the way of local employment that is not - in one way or another - directly linked back to supporting the fishing sector of the economy.

Beyond scale issues, the King Cove support services economic sector is also quite different from that of Unalaska as it does not have enterprises related to the groundfish offshore sector (nor does the community otherwise derive direct revenues from the offshore sector). The level of transportation services to the community is clearly fishery linked. Despite relative hard times in the different fishery subsectors, barge services to the community still continue on a regular basis. With a general decline in fisheries-related trade, however, connecting jet service through Cold Bay has been reduced, meaning that freight is more commonly bumped in favor of passengers than in the past.

Direct fishery support services that do exist in King Cove include marine fuel sales, crab pot hauling, crab pot storage, mechanical services, welding, taxi services, vessel supply, vessel watch, bar and restaurant trade, and a range of services provided by the King Cove Corporation. Additionally, the local tribal entity, the Agdaagux Tribe, provides a range of services to the community and is involved in infrastructure projects.

Marine fuel services in the community are provided by Peter Pan Seafoods. Peter Pan is also the only supplier for everyday vehicle fuel needs in the community. The City of King Cove is presently (2002) in the process of building a marine fuel delivery capability in the harbor, with construction underway of a pipeline to access a newly built fuel tank farm recently constructed on uplands near the harbor. The plans call for the fuel tank farm/delivery system to include both city and King Cove Corporation lands. There is also a one-person private fuel delivery service business in the community that supplies residences and buildings by truck. This service purchases the fuel locally and charges a mark-up per gallon to cover the cost of service and delivery. While this business itself is less directly linked to supporting the fishing sector of the economy than some others, like a number of the other support type of businesses in the community, the owner of this business also commercially fishes and in this way fishing directly ties back into the household economy of the owners of even seemingly stand-alone business enterprises.

Crab pot hauling in King Cove is provided by a family business (Mack Trucking). Although there were some others competing in the market in the early years of the business, it has been the only such business in the community for many years. Originally a single-person operation, this enterprise is run by the son of the founder. Different equipment configurations have been tried over the years, including a boom and truck system that could handle two pots per haul, to the present system where bobcats shift the pots and a flatbed with a four-pot capacity makes the hauls. With the present configuration up to 1,000 pots per day can be handled. This business did experience an initial decline in business when pot storage opportunities opened up in False Pass and St. Paul, but reportedly business has subsequently returned to normal for a number of reasons, including being more convenient than St. Paul due to occasional inability to access stored gear there in some conditions. One person affiliated with the business estimated that approximately 7,000 to 9,000 pots are moved and stored during a typical crab season. When pots are going out at the start of a crab season the load can be handled by one employee, as vessel crews are working on the pots as they arrive at the dock and so have a limitation on how fast they can be loaded on board. At the end of the season, however, a couple of extra drivers are needed to handle the flow from vessels going into storage all at once. Pots for cod fishing are also hauled by the business, but with a 60-pot limit per vessel and only 20 or so vessels fishing locally, this fishery involves roughly 1,200 pots total. In addition to pot hauling, the business also hauls seine gear, and provides truck and skiff rental services.

Crab pots are stored on lands owned by King Cove Corporation, City of King Cove, and Peter Pan. The King Cove Corporation estimates that it has about 50 percent of the local lands used for pot storage. The City of King Cove has a modest pot storage area, with the balance of storage taking place on Peter Pan-owned land. Peter Pan provides storage space as a free of charge service to vessels that deliver to the plant, while the Corporation and the City use pot storage as a revenue source, charging 25 cents per pot per month storage fees. As two private sector entities, the Corporation has an incentive relationship with Mack Trucking that is somewhat different from the relationship between the City and the company, but one common service provided by Mack Trucking is that they keep storage records for both the Corporation and the City and handle all of the invoicing for the two entities. All pots move across city-owned "T" and ferry docks (even those from Peter Pan-affiliated vessels that are going to be stored on Peter Pan property), and the City charges a \$1.50 per pot fee for every pot that crosses the dock (in either direction).

Marine mechanical services are provided in King Cove by a one-man operation (J&L Marine Repair), supplemented with temporary local hires for larger jobs. Housing for this individual is supplied through Peter Pan, and at present repairs are made either at the Peter Pan facilities or aboard vessels themselves, with tools

stored at Peter Pan or in a company vehicle, as there is no shop facility in the community. During the peak of crab season, this person reportedly essentially works "24/7," and is otherwise typically present in the community except for the month of December. This individual is a generalist, and in addition to handling mechanical repairs, he also does some hydraulic work (as do Peter Pan engineers/mechanics) as well as some electrical work. Peter Pan typically has one electrician on site, but outside of these individuals, there are no vessel systems support personnel in King Cove. Some speciality personnel, such as radar technicians, come through the community on a very infrequent basis. A related support business in the community is marine filter sales, a business that is as a sort of partnership between the marine mechanic and another business person in the community. While this was originally part of the mechanic's business per se, it became too large of a volume of sales to adequately handle along with the main mechanical business. This business sells oil, fuel, and air filters to the vessels, along with a few other products of secondary importance, such as engine cleaner. At present (2002) the business does not have a permanent building but is in the process of building a shop near the harbor that would house both the mechanic's operation and the filter/support business. This would potentially allow for some expansion of the business through having predictable hours in a known location (at present customers call for service over the radio). The managing partner of the filter business estimates that crab vessels account for about 75 percent of filter sales, while the remaining 25 percent goes to the local fleet. Whereas crab vessels tend to order filters in case lots (for their main and auxiliary engines and generators), local small vessel owners tend to pick up individual filters from stock on hand.

There are two one-main welding businesses in the community that do marine work as well. One of these is run as a secondary business by a fisherman, and the other is a full-time business run by a man who recently stopped fishing. Both businesses derive work from the fishing fleet, including crabbers.

Taxi services are another type of business that derives benefit from local fisheries activity. While there was only one active taxi service at the time of fieldwork for this project (September 2002), there are reportedly at least a couple of other individuals who have taxi licenses and run their services during the higher demand periods associated with seasonal fishing activities.

Vessel supply-related business is a significant part of the local support service economy. At present (2002), there are four stores in the community. Two of these are larger, more general purpose stores and two are speciality operations. Of the two smaller stores, one is run by Peter Pan on its premises and, while it is open to the public, it essentially functions as a convenience store for its employees, stocking a variety of food items as well as a limited selection of clothing, plus boots, rain gear, and other processing work-related items. The other small store, Ram's General Store, is open evenings and weekends and essentially functions as a convenience store for the two residential neighborhoods built some distance away from the main portion of the community in the early 1980s. The two large stores, Gould's and Alaska Commercial, carry a range of goods and derive a substantial portion of their business from fishing, though they reportedly vary in the nature and level of engagement with the fishery.

Gould's store is a family-owned business that was started in King Cove in 1939, moved into its present building in 1993, and is currently (2002) run by a son of the founder. In addition to functioning as a general store to the community, Gould's also derives business from grocery sales to fishing vessels (and includes delivery to the vessel as a free service) as well as the sales of various supplies. Gould's also has the community's sole liquor store and sells a range of household furnishings and appliances. The owner of the store estimates that between 20 and 30 percent of the overall business is attributable to sales to commercial fishing vessels, with the balance being made up of sales to the local community as a whole. Of the overall vessel sales, an estimated 30 to 35 percent is attributable to crab vessels in particular. When vessels spend more time in the community with tank inspections or even in the event of a strike, the upturn in business is seen over a longer period of time.

Gould's store is located near the Peter Pan Seafoods processing plant, and processing workers do constitute a portion of the business on a daily basis, with popular items reported as ethnic foods, soups, videos, CDs, tapes, and local souvenir clothing, along with personal care items. According to store management, with a tough local economic climate, residents are even more likely than normal to spend money outside of the community and ship goods in, with the impact that tough times bring an even loss in store business than may otherwise be expected as there are both absolute and market share business declines. Employment at the store is currently at 8 or 9 employees, including 3 part-time positions, down from a total of 14 to 15 employees in earlier years. When things get busier during peak fishing seasons, the store strategy is to attempt to use management and administrative staff to help with sales rather than to try to hire and train temporary staff. According to the store owner, the business climate in King Cove is a challenging one, and quite a few businesses have opened and closed in the community over the years. When fishing seasons are good, the store receives larger fishing-related orders, but during leaner seasons reportedly proportionally more palletized goods come in from Seattle for delivery to the vessels. The store also reports that during lean times there are greater problems collecting accounts receivable from the community as outside bills that are perceived to have a greater impact on credit ratings tend to be paid more quickly. Goods typically come in by barge, with Western Pioneer and Coastal Transportation each serving the community once per week. (Peter Pan also moves cargo in and out of the community but typically does not provide shipping services to other businesses.)

The Alaska Commercial Company (commonly called the "AC" store) is a relatively new entrant into the community, having taken over the lease on a King Cove Corporation building previously used as a ship supply type of store by Western Pioneer. Prior to transition to the AC store, Western Pioneer did transition from a more strictly supply store toward selling case lot groceries (which required rezoning from industrial to commercial). Perhaps because of its location closer to the harbor, this store is reported to derive a larger proportion of their business from outside vessels. In terms of the relative importance of commercial fishing to the business base of operation, the manager of this store stated that outside vessels, primarily crab vessels, accounted for roughly 40 percent of the overall business of the store. Things have changed with shorter crab seasons, however, as it is reportedly easier to resupply out of Seattle for very short seasons than it is for longer ones. Crew on these vessels also apparently purchase more "nice to have" and not just "need to have" items during good seasons, and less turnover of crews means a lesser volume of sales as well. Shorter and less lucrative seasons also reportedly translate into a lower volume of sales related to sprucing up vessels, as all but the most essential investments are deferred (meaning drop in sales is greater than the linear drop in activity). There has been some increase in non-crab transient vessels "prospecting" local fisheries during difficult times, but this has reportedly resulted in little extra business. Local commercial fishing accounts for another large segment of the business, but it is not possible to differentiate this part of the business from the general residential community trade, due to the family nature of most local catcher vessel operations. Unlike some communities, processing personnel in King Cove are reported to constitute a significant portion of local store sales, accounting for roughly 40 percent of non-food sales, with music sales comprising a marked proportion of these sales, but items such as rugs to personalize company living quarters, and hot plates and other small appliances being important as well. Some items, such as sportfishing gear, reportedly would not be stocked if not for processing personnel. Sales of goods to processing workers for shipment to families overseas, such as hardware, clothing, and money orders are also reported to be common. With processing personnel seasonal movements, this is a constant source of new business.

In terms of an annual cycle, the AC store manager reports that the January crab openings represent a "big push" for the store and provide a bit of an operating cushion for much of the rest of the year, which has become all the more important in the face of other fishery declines. After crab season there is a low, with another pickup seen related to cod activity in March and April. Salmon-related business brings a number of peaks and valleys during the summer months, but fall fishing-related business has been very slow in recent years until the crabbers come again in October for a couple of weeks. Following crab, business remains slow

for the balance of the year. Employment at the store has been around seven individuals, with around five during slow periods. With salmon season being very slow, the typical additional summer hires have not been made lately. The store manager reports that particularly because of the recent low salmon returns, there has been more welfare-related business than in any of the previous 5 years with which he has direct experience, with only one case 5 years ago, and an estimated 30 to 40 at present.

There is also some employment related to vessel watch services, which in turn ties back to moorage capacity in the community. Boat owners from outside the community who moor their vessels in the harbor will hire local individuals to act as watchmen and to handle any emergencies that may arise. Fees for this service are reported to be in the \$25 to \$30 per day range. For crab vessels, it is more common for outside vessels to be moored in the community in the relatively short interval between the fall and winter seasons than the much longer stretch between the winter and fall seasons. A couple of knowledgeable individuals estimated a typical level of local employment to be three or four boat watchmen who were responsible for five or six boats each.

There are very few other miscellaneous income sources in the community related to vessel services. An example of this very small scale type of service is the individual in the community who on occasion provides diving services to vessels to check out hulls and clear props or the like. Some vessel owners also derive some income chartering their vessels for runs to Cold Bay or other locations to move crew or parts when weather closes down air transportation or other logistical arrangements are simply less efficient.

There are two bars in the community, and each derives a substantial portion of its business from fishing-related patronage, but they vary in the nature of their engagement with that sector. Under previous ownership, the bar near the harbor (MC's) opened only during crab season, and derived its yearly income from crab season-related activity. Still characterized as being somewhat of a "fisherman's bar" this business is attempting to change that characterization and offers free shuttle service from the processor to the bar to help attract Peter Pan employees as clientele. This bar still sees marked crab season-related activity peaks during the October/November and January/February periods and the owner estimates that at present crab fishing-related sales make up roughly 30 percent of the overall yearly sales. Like some of the other support businesses in the community (particularly the stores), MC's does even more business when the crab fleet stay in the community is extended by a strike. During one recent strike year there were an estimated 90+ vessels in the harbor for a 2-week period. Like a number of other owners of businesses in the community that are dependent to a substantial degree on the crab fishery, however, the owner of MC's has other direct employment in the community, along with interest in another fishing-related business - though fishing-related business is a mainstay, the vagaries of commercial fishing conditions in recent years do not make for a necessarily solid or exclusive base for many household economies.

The second bar in the community is run by the King Cove Corporation, and is located in the Corporation building that also houses the hotel, Corporation offices, and a restaurant. The Corporation bar has not been as closely associated with any particular harvest activity as the other bar but apparently draws more clientele from the nearby processing plant, and it too benefits from increased activity related to the various annual peaks in harvest activities that bring an influx of personnel (and money) to the community. Crab-related business does bring marked pulses of business to the bar for at least "a couple of nights" around the seasons, but this can extend if vessels have to wait in the community to unload at the processor.

There are also a limited number of restaurants in the community. At the time of fieldwork (September 2002), a Chinese restaurant was open in the King Cove Corporation building, but others were not. At other times, there is a pizza and subs restaurant in the community (Town Pizza), and a bakery/burger/ice cream shop (A&E's) some distance out of town on the road to the airport. The latter business caters more to local residents with access to vehicles than to processing workers or outside fishermen on foot.

Beyond the bar and restaurant trade, the King Cove Corporation is also involved in a range of enterprises that act as fishery support services. These include such things as land leases to Peter Pan, crab pot storage, and involvement with the new marine fuel business as mentioned previously, along with running a 12-room hotel that accommodates processor personnel in peak/overflow situations and other fisheries-related guests. According to Corporation officials, rooms are often in demand during salmon, pollock, and cod seasons, and this demand can account for rentals of from 6 to 9 or 10 of the total of a dozen rooms in the facility for significant periods of time. (Other major block demands of the hotel include school and Borough government-related activities.) The Corporation also built and is leasing out the building occupied by the AC store, and the community Post Office building. The Corporation also owns the Russell Creek hatchery facilities, although this is inactive at present. A sand and gravel lease is another local activity, and the land that has been utilized under this lease also provides some of the Corporation's crab pot storage capacity. The Corporation provides employment for 8 or 9 local residents.

The Agdaagux Tribe provides 6-full time and 2-part time employment positions in King Cove on an ongoing basis and is involved in providing a variety of social services to the community through the administration of a variety of Bureau of Indian Affairs (BIA) and other programs, encompassing such diverse areas as child and elderly welfare programs, general and energy assistance, and alcohol and domestic violence programs. Tribal staff reports that with a decline in the economic vitality of local commercial fishing, there has been a marked increase in demand for a range of their social services. The tribe (and others in the region) is also involved in community clinic ownership and service provision. While many of these services are utilized primarily by long-term residents of the community, the clinic also sees service demand from the outside commercial fishing fleet. The tribe is also involved in building community infrastructure through the administration of BIA road building funds and is in the process of improving and paving the road system out to the airport, which will better support local transportation needs (that will service fishing and other local economic activities, as well as serve general residential transportation needs). A reported advantage of running the road funding through the BIA rather than other entities is more effective more local hire provisions, and this has resulted in employment for about a dozen local residents.

Between the fishing harvest and processing sector employment noted in earlier sections, and the support service sector employment noted in this section, there were no other private sector type of jobs in the community listed by multiple community contacts from all sectors. The King Cove private sector economy is very limited (and public sector jobs, though still a mainstay of local employment, have reportedly declined overall in recent years). While the local economy is, in part, constrained by relative isolation on the transportation system, a number of individuals in the community ventured the opinion that the transportation project that would link King Cove to Cold Bay offers hope of new economic opportunities. With construction scheduled to begin in 2003, it is currently conceived of as a combination road and hovercraft link, but it could eventually become an all-road system. In either configuration, it would eliminate the transportation bottleneck caused by the not infrequent closure of King Cove's airport due to adverse flying conditions, a circumstance that can last for several days. A surface transportation link to the Cold Bay airport, one of the state's major airport facilities and far less subject to closure due to adverse weather conditions, would provide a much more reliable means of getting vessel crews in and out of the community (maximizing the utility of the newly constructed harbor) as well as processing crews, and it could also potentially provide a viable avenue for the transportation of fresh product from the community (but this may be limited in actuality by project impact mitigation measures that could restrict such commerce).

While not a support business, the City of King Cove is in the process of converting the old clinic building (a city-owned structure on Peter Pan land) to a community resource facility that would house a workout area (furnished largely with donated equipment), a resource room with internet connections, an artist's store, a second-hand store, and an elder's resource room that would house local historical resources. This facility would function both as a community-related and fishery-related transient population resource. In recent years

there has reportedly been less community interaction with outside fishery and processing workers in city sponsored recreational sports events than in years past, but 3-on-3 basketball competitions still draw participants from all sectors of the community.

The Municipality and Revenues

As discussed in the introduction to the Alaska communities section, revenues derived from commercial fisheries landings in King Cove are integral to the overall economy of the AEB. In this section, community rather than borough revenues are presented. King Cove municipal revenues for 1999 and 2000 as summarized on the DCED website are shown in Table 2.4-7. Because the community has only one processor, detailed information on local fish taxes obtained from the community is not presented here due to confidentiality concerns.¹⁸ Local taxes in King Cove consist of a 3 percent general tax on sales, and a 2 percent city raw fish tax (in addition to the 2 percent borough raw fish tax; combined with the 1 percent Alaska seafood marketing institute tax, fish landed in King Cove are taxed at combined, local, borough, and state total rate of 5 percent). According to the City Manager, for the last decade or so about 60 to 70 percent of the City's general fund budget has come from sales taxes on an annual basis. Of the sales tax totals, in a typical year roughly two-thirds derive from fish taxes, and one-third derives from general sales taxes. Until recently, fish taxes split out approximately one-third from salmon, one-third from crab, and one-third from groundfish, but in the last few years, the proportion attributable to salmon has declined somewhat, while the portion associated with groundfish has increased.

Table 2.4-7 King Cove Municipal Revenues, 1999 and 2000

Revenue Source	1999	2000
Local Operating Revenues		
Taxes	\$1,011,597	\$1,165,613
License/Permits	\$2,558	\$400
Service Charges	\$353,608	\$352,848
Enterprise	\$882,537	\$934,065
Other Local Revenue	\$73,020	\$124,881
Total Local Operating Revenues	\$2,323,320	\$2,577,807
Outside Operating Revenues		
Federal Operating	\$12,685	\$14,518
State Revenue Sharing	\$29,546	\$26,857
State Safe Communities	\$23,209	\$14,034
State Fish Tax Sharing	\$257,555	\$313,467
Other State Revenue	\$112,536	\$10,686
State/Federal Education Funds	\$0	\$0
Total Outside Revenues	\$435,541	\$379,562
Total Operating Revenues	\$2,758,851	\$2,957,369
Operating Revenue Per Capita	\$3,993	\$4,407
State/Federal Capital Project Revenues	\$1,017,254	\$662,967
TOTAL ALL REVENUES	\$3,776,105	\$3,620,336

Source: DCED Website, 2001, 2002

¹⁸ Detailed fish tax revenue information for the community was presented in written form by the City during public testimony on crab rationalization issue before the NPFMC at the October, 2002 meetings.

There are no local property taxes on the seafood processing facilities or any other properties within the community. The City has a business impact tax on the books "aimed at processing" that could function as a revenue source like a property tax, but it is currently (2002) set at a rate of zero percent. That was scheduled to change as of January 2003. As currently conceived, the first 10 million pounds of processed product would be tax free, but beyond that the first 60 million pounds would be taxed at a rate to yield revenue of \$200,000 at the upper volume, with an annual revenue cap kicking in at that point. Institution of this revenue source will represent a marked departure from the way revenue is currently derived from local processing.

Beyond sales and fish taxes, the community derives revenue from a number of different fisheries-related sources. Local taxes on fuel transfers or sales, a strong source of revenues in some communities, has only recently begun to be assessed in King Cove. Peter Pan, the only marine fuel sales outlet in the community, had been paying these taxes for less than year at the time of fieldwork (2002), so no data on this revenue source are yet available. The City of King Cove provides water to the Peter Pan plant at a flat rate of \$8,333 per month, and sewer services at a flat rate of \$2,060 per month. Solid waste service revenues from the Peter Pan facility vary by the volume of waste generated, but City staff reports monthly revenues from this source have varied between approximately \$3,000 and \$8,000 per month in recent years. At present, Peter Pan generates all of its own power independently, as does the City, but both parties are reportedly interested in configuring the system to allow for the purchases of surplus power in either direction in the future. The City also generates fishing-related revenue, and crab fishing-related revenue specifically, through harbor or moorage fees, as well as through a per pot charge for crab pots moving across City docks (in either direction) that was recently increased from \$1 to \$1.50 per pot and pot storage fees on City lands of 25 cents per pot per month.

During the late 1990s, King Cove saw a growth spurt and undertook the building of a new clinic, water and hydroelectric system improvements, and harbor construction, but more recently there has been a substantial downturn in revenues. Data supplied by the City Manager indicates an overall decline in revenue of 24 percent from FY 2000 to FY 2002 (moving from approximately \$1.7 million to about \$1.3 million). According to City staff, the City was significantly short of budget this past year, and made payroll cuts, including cutting one police officer and one harbor employee. The City is currently deficit funding the general fund from savings and, along with local residents, the City has been the beneficiary of Steller sea lion protection-related relief funds that have helped fill the gap in revenue. In this year (2002), the City Manager states that even with \$175,000 worth of budget reductions, the City is still \$250,000 short and would be over \$300,000 short were it not for the Steller sea lion relief funds. Recent capital improvements have led to an accumulated debt services of \$3 million per year over the next 30 years, but the City's special revenue funds (often termed enterprise funds in other communities) are "all in the black" except for the harbor and port fund. For that fund, the expenditure side has been put in place, and while the revenue side has been set, it will take some time to be fully realized. Additional revenues for the water system will begin to accrue on January 1, 2003 when the City moves from flat rate to volume-related charges for Peter Pan, which uses approximately 80 percent of the system load. The water rates will increase to 90 cents per thousand gallons, or approximately \$185,000 for a 225-million gallon service requirement. Solid waste fees have moved upward with three rate increases in recent years.

Summary of Recent Community Fishery IFQ/Co-op Rationalization Experience and Implications for Likely Crab Rationalization Impacts

King Cove was chosen as a study community for the assessment of the social impacts of BSAI crab management alternatives because it is a community that is engaged in those crab fisheries, in terms of both harvesting and processing. In terms of analogous experiences for anticipating potential impacts under the BSAI crab rationalization alternatives, the community has experience with both IFQ and co-op types of

rationalization programs. King Cove harvesting and processing sectors were both affected by the implementation of IFQs for halibut and sablefish. An AFA-qualified processor is located in King Cove, so the community has seen first hand the impacts of operating a fishery under AFA style co-ops. As is the case with other communities, however, it is difficult to precisely separate out the impacts of these programs from other co-occurring fisheries developments and the interactive nature of fisheries dynamics as, for example, Steller sea lion protection measures have affected the community-based fisheries during this same time. In general, however, the main areas of previous rationalization associated impacts may be summarized as follows:

- Many local fishermen believe that the initial allocation of halibut and sablefish IFQs has unfairly deprived them of an opportunity to participate in these fisheries to the degree that they desire. This is an issue of the qualification period chosen for the initial allocation and the historical participation in the fisheries, and the change in the costs of entry into the fisheries (increased capitalization costs due to the need to buy IFQs). These are likely to also be local concerns for any crab rationalization program.
- Those local fishermen who have received halibut and/or sablefish IFQs have generally perceived them as a positive development, in that they have been able to negotiate price in a rational and competitive way. However, due to this same market/price dynamic, the number of local buyers for halibut is limited and the local price for halibut is low compared to the price commonly available elsewhere.
- For local processing, the IFQ system for halibut and sablefish has resulted in lower profit margins and a lower volume of fish processed, due to the higher prices offered by other markets and the ability of harvesters to deliver to those markets. This has affected local fish tax revenues and the community's overall economic activity.
- The AFA stabilized the volume of BSAI pollock processed in King Cove, but at the cost of limiting the amount above this allocation that the processor can process. In addition, through linked sideboard mechanisms, the AFA limits the amount of BSAI Pacific cod and crab that the King Cove processor can purchase. This limits their ability to expand production and, in times of quota reduction, exerts a downward influence on fish tax revenues for the City of King Cove.
- Other combined factors negatively affecting local commercial fisheries have accompanied the dynamics identified above. These include Gulf of Alaska pollock quota shifts from the western to the eastern Gulf, Area M salmon restrictions, and Steller sea lion-related fishery restrictions. These immediate factors have had a pronounced negative impact on local commercial fisheries, but there are also speculative concerns regarding BSAI vessels being able to expand to or focus more effort on the Gulf of Alaska than in the past due to advantages gained under BSAI rationalization programs. While the sideboards of AFA were intended to forestall such effects, and there is no hard evidence for such effects at present, these concerns are having an impact on the way local fishermen think about long-term strategies.
- It is difficult to assign causality, or degree of causality, for several social impacts that have been realized in the community as a result of these factors. Further, there are a number of difficulties quantifying changes that are believed to be taking place in the community. Example indicators of change in the community (and the problems therewith) include the following:

- Discussions with knowledgeable individuals indicate there has been a recent dip in volume for retail businesses in the community, but proprietary business information would be needed to quantify this impact.
- Local population may have increased but may be more indicative of a consolidation of population induced by a regional economy exhibiting overall weakness rather than growth due to a robust local economy. School enrollments have declined during a period of apparent overall growth.
- Commercial fishery data confidentiality restrictions preclude a detailed analysis of the relative role of fishery-linked impacts to overall community impacts, because not enough entities exist in the community to allow trend analysis for local impacts of individual fisheries.
- The local fishery support service sector is small. A range of support services is provided by the local plant itself. In this case, under AFA-related conditions, inventory has been reduced and there has been a reduction in labor hours for support service speciality personnel. Again, this cannot be quantified due to confidentiality restrictions. There are a number of small independent support service businesses that rely on fisheries activity for revenues, and these all appear to have seen a decline in activity in recent years. This is surely attributable, in part, to poor salmon fishing conditions over the last few years, as well as to low crab GHFs.

In short, King Cove has recently experienced a range of changes linked directly or indirectly to fisheries dynamics, and a number of these are adverse in nature. While causality is difficult to assign, some of these locally adverse impacts appear to be related to the particular structure of earlier fishery rationalization programs, but how much is due to rationalization itself as opposed to the particular form of rationalization employed in those fisheries is not clear.

To a large degree, the outcome for the community of King Cove under crab fishery rationalization is tied to the outcome for the local shoreplant, given the disproportionate engagement in the fishery through the processing sector rather than the harvest or support sectors. This is particularly true for impacts tied to municipal revenues derived from fish taxes. On the harvest side, some specific municipal revenues would likely decline with fleet consolidation independent of total delivery volumes (and associated fish taxes). These would include moorage/wharfage, pot transfer, pot storage, and other direct harvest-related fees.

The local harvest fleet is far more heavily dependent on species other than BSAI crab than on crab itself, but beyond the one locally based BSAI crab vessel, a number of local residents hold skipper and crew positions on BSAI crab boats whose owners reside elsewhere. Fleet consolidation-related impacts would likely have adverse impacts on these individuals, but the nature and intensity of those impacts depend on the structure of consolidation as well as subsequent decision making regarding differential advantages and disadvantages of moorage locations and the role of King Cove in those calculations.

The relatively few fishery support service businesses in the community would likely see a further reduction in activity due to the elimination of another peak activity season(s) with a slowing down and spreading out of crab-related activity. Indirect impacts of the slowdown and particularly fleet consolidation would be felt by virtually every private sector business in the community.

A major issue of local concern is the potential movement of rationalized processing between communities within a region, or even between plants owned by the same firm. Depending on company response to these conditions, King Cove could stand to either benefit or lose under these conditions.

Concern is expressed in the community regarding the large degree of influence business decision making at the processing company will have on the local economy, and the uncertainty this brings. On one hand, there are concerns that provisions that would function like processor quota shares would concentrate more bargaining leverage in what is already a one-company town, with results similar to what older fishermen remember from the fish-trap days. On the other hand, a rationalization alternative may change conditions such that consolidation of processing away from King Cove may make economic sense for the processing entity, leaving the community without any BSAI crab processing at all.

These concerns have resulted in the community taking a formal stance on the issue of rationalization. On August 31, 2002, the King Cove City Council adopted Resolution 03-04 opposing the three-pie crab rationalization alternative selected by the NPFMC as the preferred alternative. This resolution cites the need for local small boat fishermen to retain the flexibility to pursue several species, the current effective preclusion of the local small boat fleet from the fishery due to the timing of the crab seasons, and the limited markets available to local fishermen as current challenges, and it concludes that vesting the resource in individuals and corporations as proposed would "threaten the social and economic viability of our community." It is the expressed desire of the City Council that "the Bering Sea crab fishery should remain an open access fishery."

Differential Impacts of the Three Rationalization Alternatives at the Community Level

As summarized above, King Cove's direct engagement in, and dependency on, the BSAI crab fishery is based to a large degree upon ties to local processing activity and to a lesser degree on participation in the harvest sector. In an addition to the general types of impacts of rationalization on the community summarized above, beneficial or adverse impacts to the community of King Cove deriving from the different rationalization alternatives result from the differential outcomes for these activities.

Each of the rationalization alternatives have identical provisions regarding increased allocations to the CDQ program (inclusion of additional species and an increase in the included species set-aside from 7.5 to 10 percent of the total allocation), creation of captain's harvest quota shares (3 percent of the TAC), and a community development allocation to Adak (10 percent of the WAI golden king crab allocation). Each of these provisions are directed toward fostering beneficial community or social impacts for at least some groups or areas. King Cove, as a non-CDQ community, would not benefit from the CDQ program increases. Impacts of the creation of captains shares would likely benefit at least some community residents as individuals, but this provision is unlikely to result in significant impacts for the community itself. The Adak community allocation would not result in significant impacts to the community of King Cove.

Regionalization is a feature of the three-pie alternative and the IFQ alternative, but is not a part of the cooperative alternative. Regionalization is explicitly designed to create beneficial community or social impacts for at least some groups or areas. The north/south region designation was designed primarily to benefit the Pribilofs, while the west region designation in the WAI golden king crab fishery was designed primarily to benefit Adak.

Impacts of the west region creation would likely be insignificant for King Cove. Impacts of the creation of the north/south regional split in and of itself under the three-pie alternative are not likely to be significant for the community of King Cove, absent the accompanying community protection provisions discussed below. Regionalization under the IFQ alternative, which has no specific community protection provisions (save for a waiver of sea time requirements for eligible community purchase of harvest quota share, as discussed below), would not hinder the type of processor consolidation that could have negative impacts on the community of King Cove, were local crab processing to exit the community. Under the three-pie alternative King Cove (if deemed an eligible community) would retain levels of processing activity seen during the

qualifying period (due to a combination of regionalization and community protection features, as described below). Without community protection provisions, the regionalization featured under the IFQ alternative would not likely have impacts that would differ from the type of consolidation that could occur under the cooperative alternative, which has no regionalization component. For King Cove harvesters, regionalization may result in higher costs, depending on ultimate allocation of north region harvest quota to individual operations, but this information cannot be disclosed due to confidentiality restrictions.

Additional community protection features of a “cooling off” period and a right of first refusal on transfer of processing quota shares are a part of the three-pie alternative (and are not a part of any other alternative). Eligible communities (those that had 3 percent of processing activity for covered species) would be assured that during the 2-year “cooling off” period processing quota would not be moved out of the community. Subsequent transfers would be subject to a right of first refusal that would allow an eligible community (through its CDQ group or another community group, if a CDQ group were not present) to obtain ownership and control over processing quota to retain local processing activity. (Due to confidentiality restrictions, it cannot be disclosed whether or not King Cove is deemed eligible for community protection provisions.)

For King Cove, if eligible, both of these features would likely be neutral or beneficial in terms of community and social impacts. The “cooling off” period would ensure that processing activity levels seen in the qualifying period continue in the community, and the right of first refusal would ensure that a local community group formed for that purpose (comprised of both King Cove and AEB representatives) would be able to obtain processing quota if it were at risk for leaving the AEB in the future. Exercising the right of first refusal could result in a significant positive benefit to the local community group, but unlike some other communities, this group would not exclusively represent the interests of a single community. It is assumed that this group would manage any quota obtained that was based on King Cove activities for King Cove’s benefit, but due to the fact that the group would represent a constituency across a number of communities within the AEB, and it is possible that at least some of the benefits derived from ownership of processor quota share obtained through exercising a right of first refusal would be realized outside of King Cove. At present, whether anticipated processing consolidation would result, all things being equal, in a flow in to or out of King Cove is unknown (as such movements depend on individual business decisions that are unknown), so the relative significance of these protection measures to the community in relation to the status quo is unknown. What is known is that these measures give a degree of predictability and/or stability for the first two years of the program.

The rationalization alternatives also differ on the ability of communities to obtain harvest quota share. Under the three-pie and IFQ alternatives, CDQ groups, or other community groups if a CDQ group is not present, in eligible communities (again, those with 3 percent or more of processing activity for covered species during the qualification period) would be able to purchase harvest quota share due to a waiver of sea time requirements that would otherwise prevent such purchases. By design, the ability to obtain harvest quota share could result in beneficial community and social impacts through communities becoming more directly engaged in the fishery.

In the case of King Cove, harvest quota shares, if purchased, would be obtained by a to-be-formed community group that would be comprised of community and borough representatives. Given that King Cove is one of several communities within the AEB, benefits of harvest quota share ownership would be spread across a base of multiple communities (though presumably with a weighting toward King Cove based on disproportionate representation on the community group). While still clearly beneficial to King Cove, this geographic dispersion of benefits may lessen the overall impact of this feature on the community itself. Nevertheless, if exercised, this ability could result in beneficial community and social impacts through the community itself becoming directly engaged in the fishery in a way that it is not under existing conditions.

Another potentially distinguishing feature of the rationalization alternatives from a community or social impact perspective is the ability of harvesters to form co-ops under the three-pie and cooperative alternatives (but not under the IFQ alternative). For King Cove, the community or social impacts of this ability (or lack thereof) are not yet clear.

2.5 SAND POINT

Sand Point is located on Humboldt Harbor on Popof Island in the Shumagin Islands group. Off the southern shore of the Alaska Peninsula in the Gulf of Alaska, Sand Point is 570 air miles from Anchorage. The contemporary community of Sand Point was founded in 1898 by a San Francisco fishing company as a trading post and cod fishing station. Aleuts from surrounding villages and Scandinavian fishermen were the first residents of the community. Sand Point served as a repair and supply center for gold mining during the early 1900s, but fish processing became the dominant activity in the 1930s. Aleutian Cold Storage built a local halibut plant in 1946. Trident Seafoods operates the current processing plant, which primarily processes pollock, Pacific cod and other groundfish, salmon, and halibut. The Sand Point plant does not process BSAI crab, although it does process Gulf of Alaska crab, when it is available. Peter Pan Seafoods operates a buying station in Sand Point for their processing plant in King Cove. Sand Point is home port for the largest residential fishing fleet in the Aleutian-Pribilof region.¹⁹ Incorporated in 1966, the City of Sand Point encompasses 7.8 square miles of land and 21.1 square miles of water.

Sand Point lies in the maritime climate zone. Temperatures range from -9 to 76°F. Snowfall averages 52 inches, and average annual precipitation is 33 inches.

Sand Point is incorporated as a First Class City and, like King Cove and Akutan, is part of the AEB. Like Akutan and King Cove, Sand Point is home to one dominant shoreplant. Like Unalaska and King Cove, Sand Point is not a CDQ community. Sand Point, like King Cove, has historically been a commercial fishing community with processing facilities as part of the community for decades and it has a substantial residential commercial fishing fleet that delivers to the local seafood processors. With respect to the latter point, Sand Point is like King Cove and unlike Unalaska and Akutan.

Community Demographics

Sand Point is a community that traces its founding directly to commercial fishing. Unlike Unalaska and Akutan, it developed around a commercial fish processing plant and did not grow from an existing traditional Aleut village. Similar to the pattern seen in King Cove, the contemporary community is ethnically heterogeneous, but much greater diversity is found among the population components associated with fish processing and support services than for those associated with other economic activities such as fish harvesting, government, or education. As in King Cove, while the fish processing employment force does display continuity from year to year, the local perception is that they are more transient than other community residents and are not considered to be truly "local" residents as those with other occupations who do not live in company housing.

Total Population

Historically, Sand Point's population has fluctuated with fishing activity as individuals come to the community seasonally to serve as fish tenders, seafood processing workers, or harvest vessel crew members. Table 2.5-1 provides total population figures for the community, by decade, from 1900 through 2000.

¹⁹ Like King Cove, Sand Point is not geographically within the Aleutian Island chain, but socially and culturally the community is considered part of the Aleutian region. The community's residents are part of the Aleut Corporation, the ANCSA regional corporation, and the village is one of the constituent communities of the Aleutian/Pribilof Islands Association.

Table 2.5-1 Sand Point Population by Decade, 1940-2000

Year	Population
1900	16
1910	0
1920	60
1930	69
1940	99
1950	107
1960	254
1970	360
1980	625
1990	878
2000	952

Source: Historic data from Alaska Department of Community and Economic Development. 2000 data from U.S. Bureau of the Census

Ethnicity

The ethnic composition of Sand Point's population may be seen in Table 2.5-2. As shown, Sand Point has a plurality of Alaska Native residents, but the diversity of the population associated largely with fish processing may be seen in the fact that in 2000, Asian/Pacific Islander and "Other" groups combined were larger than the "White" community population component.

Table 2.5-2 Ethnic Composition of Population Sand Point: 1990 and 2000

Race/Ethnicity	1990		2000	
	N	%	N	%
White	284	32.3%	264	27.7%
African American	4	0.5%	14	1.5%
Native American/Alaskan	433	49.3%	403	42.3%
Asian/Pacific Islands*	87	9.9%	224	23.5%
Other**	70	8.0%	47	4.9%
Total	878	100%	952	100%
Hispanic***	78	8.9%	129	13.6%

Source: U.S. Bureau of Census.

* In the 2000 census, this was split into Native Hawaii and Other Pacific Islander (pop 3) and Asian (pop 221)

** In the 2000 census, this category was Some Other Race (pop 21) and Two or more races (pop 26).

*** "Hispanic" is an ethnic category and may include individuals of any race (and therefore is not included in the total as this would result in double counting).

Group housing in the community is largely associated with the seafood processing workforce. As shown in Table 2.5-3, 22 percent of the population lived in group housing in 1990 and 36 percent of the population did so in 2000. Table 2.5-4 provides information on group housing and ethnicity for Sand Point in 1990 (comparable data for 2000 are not yet available). As can be seen in the table there are clear differences

among various ethnic groups in the community. For example, very few Alaska Native residents of the community live in group housing, while comparatively few Asian or Pacific Islanders live outside of group housing. Individual housing in Sand Point has been in chronically short supply in recent years, a condition locally attributed to the fact that most housing is built through government agencies, and there has not been any recent residential construction. Local residents did report that some houses are occupied only seasonally, in conjunction with the summer fisheries, but that such houses were generally not available for rent, except perhaps to family, friends, and other "known" people.

Table 2.5-3 Group Quarters Housing Information, Sand Point, 1990 and 2000

Year	Total Population	Group Quarters Population		Non-Group Quarters Population	
		Number	Percent of Total Population	Number	Percent of Total Population
1990	878	189	21.53%	689	78.47%
2000	952	340	35.71%	612	64.28%

Source: U.S. Bureau of the Census 1990 STF2, Census 2000 Summary File 1

Table 2.5-4 Ethnicity and Group Quarters Housing Information, Sand Point, 1990

Race/Ethnicity	Total Population		Group Quarters Population		Non-Group Quarters Population	
	Number	Percent	Number	Percent	Number	Percent
White	284	32.35%	48	25.40%	236	34.25%
Black	4	0.46%	4	2.12%	0	0.00%
American Indian, Eskimo, Aleut	433	49.32%	3	1.59%	430	62.41%
Asian or Pacific Islander	87	9.91%	80	42.33%	7	1.02%
Other race	70	7.97%	54	28.57%	16	2.32%
Total Population	878	100.00%	189	100.00%	689	100.00%
Hispanic origin, any race	78	8.88%	58	30.69%	20	2.90%
Total Minority Pop	601	68.45%	146	77.24%	455	66.04%
Total Non-Minority Pop (White Non-Hispanic)	277	31.55%	43	22.76%	234	33.96%

Source: U.S. Bureau of the Census 1990 STF2

Age and Sex

Table 2.5-5 displays the age and sex distribution of Sand Point's population in 1990 and 2000. The predominance of males over females is consistent with disproportionate availability of male-oriented processing employment, as well as possible differential female/male emigration from the community.

Table 2.5-5 Population by Age and Sex, Sand Point: 1990 and 2000

	1990		2000	
	N	%	N	%
Male	557	63%	593	62%
Female	321	37%	359	38%
Total	878	100%	952	100%
Median Age	NA		36.5 years	

Source: U.S. Bureau of the Census

Table 2.5-6 provides information on school enrollments in Sand Point for the period 1991-2002. As shown, there has been year-to-year fluctuation over this period, with 1997 being year with the highest count for the range of years shown. Since 1997, enrollments have dropped in each successive year, declining from 150 students in 1997 to 114 in 2002, an overall decrease of 24 percent.

Table 2.5-6 Sand Point School Enrollment, FY 1991-2002

Fiscal Year	Student Count
1991	149
1992	145
1993	149
1994	141
1995	128
1996	136
1997	150
1998	130
1999	127
2000	125
2001	116
2002	114

Source: Adapted from spreadsheet supplied by C. Warner, Aleutians East School District, October 2002.

Local Economy and Links to the Crab Fishery

In terms of employment, 87 percent of Sand Point’s workforce is employed full time in the commercial fishery (USACE 1998). Fishing employment is followed by local government (borough and local) and then by private businesses. Seafood processing ranks after each of these other employers, meaning that the vast majority of the workforce at the shoreplants are not counted as community residents.

The Sand Point economy, like those of other heavily fishery-dependent communities in the area, is cyclical, and tied to fish harvesting and processing activities. There are, however, indications of an overall downward economic trend in recent years. A number of factors cited for these effects are regional and cumulative in nature (low fish prices, Steller sea lion measures, competition from farmed fish, Area M changes, negative

impacts to Sand Point resulting from AFA-related conditions, and other management and resource concerns). It is possible that Sand Point may grow in size because of population movement from smaller regional communities in even worse economic shape. This is not, however, likely to strengthen the local economy, and there is considerable local concern over school enrollments that have steadily declined since 1997.

There are few quantitative measures of economic activity in Sand Point that reflect the most recent dynamics. The Sand Point Mayor reported that in FY 2001, sales tax receipts are significantly less than for the previous year, by somewhat over 20 percent (Gardener, personal communication, 2001²⁰). Sales taxes are comprised primarily of the raw fish tax and taxes on general retail sales. Information available on the value of processing in Sand Point is not totally consistent with this fish tax information but is subject to estimation problems, especially for products with pricing mechanisms like that of roe. It is likely that roe prices in 1999 and 2000 account for the higher than expected tax receipts. Volume of production at the Sand Point plant declined significantly in 2000, after hitting peaks in 1999 that were the highest since 1993.

The dynamics of the "available labor force" were also noted to have recently changed. Local resident wage and salary jobs have in the past been fairly well differentiated by sex – men either fished or worked at some "outside" occupation in a "land" department such as construction, maintenance, or fire and police. Women tended to fill office and service positions. Employers have started to see a change in this pattern, as more men are applying for steady (even if relatively low paying) jobs on land rather than fishing. The most commonly cited factor for this was the projected low salmon price, with the expectation that salmon members crew shares would not amount to very much. Other families have considered moving. The common pattern in the past has been for locals to graduate from high school and either go fishing or move to another community. There has been relatively little turnover in local jobs, as these jobs tend to be highly valued by those who occupy them since there are relatively few of them (and there are of course jobs that are held by more transient non-locals). Local opportunities are seen as quite constrained, and the local Native Corporation is looking more for non-local investment opportunities rather than local ones. It was pointed out by several people that development opportunities in Sand Point are quite limited. Limited air service makes the shipment of fish products very difficult and precludes a great number of "value added" enterprises. Reeves Aleutian Airlines flew relatively large planes into Sand Point but has been replaced by PenAir, which flies smaller planes and is more focused on passenger and mail service than on cargo.

Harvesting

Since the Sand Point plant does not process BSAI crab, there is no processor (Trident) crab fleet in Sand Point. However, a limited number of Sand Point catcher vessels have historically participated in these crab fisheries, as have those of King Cove. As discussed in the King Cove community profile (above), total vessel numbers are too low to be able to discuss the fleet communities separately due to confidentiality restrictions, so that the fleets for Sand Point and King Cove are discussed as one category. For the period 1991-2000 (the most recent and longest time series information available), the number of vessels fishing from these two communities averaged seven vessels for Bristol Bay Red king crab, five vessels for opilio crab, six vessels for tanner crab, nine vessels for Pribilof red or blue king crab, and less than one vessel for Dutch Harbor brown crab. Much of this crab would probably have been delivered to the Peter Pan processing plant in King Cove, although for some of the more distant fisheries deliveries would be made to other plants (shore or floating). For the 1991-2000 period, 30 different vessels owned by residents of the two communities participated in the BSAI crab fisheries, and most (17, with 2 unknowns) were 58 feet or less in length. These are multi-fishery/salmon boats, and are limited in the BSAI crab fisheries by weather and sea conditions. Still, for these vessels BSAI crab contributed 68 percent of the value of their catch, with opilio as the most significant single fishery. For the combined fleet of those communities as a whole, BSAI crab contributes only 18 percent of the total value of the harvest. Larger vessels are clearly preferable for BSAI fisheries,

²⁰Gardener, Glen, Mayor of Sand Point AK. In-person interview in Sand Point 03/20/01.

however, as of the seven vessels from these communities active in the fisheries in 2000, five were over 58 feet in length. Many of the smaller vessels have dropped out of the BSAI fisheries, and most if not all more recent entrants are over 58 feet in length. Unlike King Cove based vessels, at least some Sand Point vessels have fished further west in the Aleutians and delivered crab to Adak in the last couple of years, as noted in that community profile, although apparently none have yet permanently relocated to that community. More detail on the characteristics of the non-crab fishing fleet delivering to the Trident plant in Sand Point can be found in the "AFA Report to Congress."

Processing

The Sand Point plant does not process crab and has not processed herring since 1996, and in its groundfish operation has emphasized pollock over Pacific cod. Through time, the Sand Point plant has become somewhat less diversified. The plant is currently seeking new species and product opportunities, and these dynamics have changed the distribution and peak of employment effort at the seafood plants, which have been further influenced by the effects of the AFA.

Detailed production figures cannot be disclosed for the local Trident Seafoods plant because of confidentiality restrictions. The plant varies in its pollock product mix and can produce surimi as well as fillets. The relative dependence of the plant on different species has varied over time and with stock fluctuations. For instance, 1993 was clearly a very good year for salmon, while 1996 and 1997 were both poor salmon years. While changes from 1999 to 2000 cannot be definitively stated to be other than statistical fluctuations, the pattern for 1999 and before had been for pollock to contribute more than non-pollock groundfish, both in terms of weight and value. This was reversed for 2000. These changes are made somewhat more tentative due to the lack of halibut data in the year 2000 data set.

Given common ownership with the Akutan Trident plant, the Sand Point plant, prior to the AFA, obtained Bering Sea pollock in coordination with that plant. This operation is unique among inshore operators for the degree of coordination across regions and for the way Bering Sea pollock processing is managed between regions. This plant did not show up in the 1991 BSAI pollock harvest data but did appear in the 1994 data, and it increased in volume from 1994 to 1996. The trend since 1996 has been for a decline in the amount of BSAI pollock that this plant processes, with a sharp decline between 1999 and 2000, which corresponds with the implementation of AFA for onshore plants.

In terms of functional economic or social integration with the community at large, the plant in Sand Point is quite different from those in Unalaska/Dutch Harbor or Akutan. As noted, compared to Sand Point (and King Cove), the development of commercial seafood processing in Unalaska/Dutch Harbor and Akutan is a relatively recent development (at least in terms of continuity of operations at specific facilities). The Sand Point processor has longstanding relationships with the local catcher fleet which, in turn, is the source of most employment in the community (among permanent residents). This is a sharp contrast to Unalaska. Unalaska is the site of multiple shoreplants and has a much more 'industrial' fishery than does Sand Point, but this is changing, particularly with respect to Bering Sea pollock, which is not fished by the local small boat fleet. The boats delivering BSAI pollock to Sand Point are 'Bering Sea' boats, of the same type delivering to the inshore sector elsewhere.

Peter Pan Seafoods operates a support station in Sand Point for its King Cove operations. This station supports fisheries that use tenders for one reason or another. Historically, such fisheries have been pollock (still open access in the GOA, and time-constrained in the "A" season in the Bering Sea), salmon, and pot cod. The size of quotas or runs, price structure, and the speed of the fishery all affect how much tendering takes place in Sand Point as opposed to direct delivery to the King Cove plant.

Support Services

The fishing-related support services sector of the Sand Point economy is similar to that of King Cove and unlike that of Unalaska/Dutch Harbor, with its relatively well-developed support services. In Sand Point, like King Cove, the primary shoreplant has historically provided a variety of fleet support services. In terms of relationships between inshore and offshore components of the groundfish fishery, Sand Point is in a quite different position than Unalaska/Dutch Harbor or Akutan. Unlike Unalaska/Dutch Harbor, Sand Point does not have enterprises related to the offshore sector nor does it derive direct revenues from the offshore sector (although the plant in Sand Point is part of a company that also owns catcher processors).

Retail and other support activities in Sand Point are difficult to gauge, and company records are not available. The Native Corporation started a retail grocery store to provide some price competition for the long-time single grocer in the community (the processing plant also has a store, which is used mainly by its processing workers). This investment was made in 1997, when fishing conditions looked good, along with the purchase of a local NAPA auto parts store. The NAPA enterprise went out of business in 2000, but the store has been doing comparatively well. Corporation officers estimate that the more established store does approximately four times as much business as their store, and that store certainly stocks a much wider range of goods. The corporation has owned a local tavern since 1975, and it has consistently made a profit. The corporation's hotel is also successful, although it is busier in the winter than in the summer. A private bed and breakfast that was started recently has developed a strong business and tends to be full year-round. There are a limited number of restaurants in the community.

The Municipality and Revenues

As noted in the introduction to Alaska communities section of this document, Sand Point is part of the AEB and has important revenue ties to the borough. Sand Point community-specific revenues for 1999 and 2000 as found on the DCED website are presented in Table 2.5-7. More detailed local fish tax information cannot be presented due to confidentiality restrictions resulting from the fact that there is only one processor present in the community. Local revenue sources include a 3 percent sales tax and a City 2 percent raw fish tax (in addition to the borough 2 percent raw fish tax). Community services are perceived to be in danger from decreased revenue flows resulting from reduced processing. Sand Point does not have local property taxes.

Table 2.5-7 Sand Point Municipal Revenues, 1999 and 2000

Revenue Source	1999	2000
Local Operating Revenues		
Taxes	\$287,282	\$397,888
License/Permits	\$0	\$0
Service Charges	\$130,118	\$172,114
Enterprise	\$613,358	\$630,887
Other Local Revenue	\$75,227	\$90,365
Total Local Operating Revenues	\$1,143,646	\$1,403,309
Outside Operating Revenues		
Federal Operating	\$38,047	\$28,294
State Revenue Sharing	\$41,384	\$27,275
State Safe Communities	\$28,228	\$17,919
State Fish Tax Sharing	\$537,974	\$644,525
Other State Revenue	\$37,950	\$11,900
State/Federal Education Funds	\$0	\$0
Total Outside Revenues	\$688,519	\$732,507
Total Operating Revenues	\$1,832,165	\$2,135,816
Operating Revenue Per Capita	\$2,176	\$2,452
State/Federal Capital Project Revenues	\$213,727	\$504,358
TOTAL ALL REVENUES	\$2,045,892	\$2,640,174

Source: DCED Website, 2001, 2002

Summary of Recent Community Fishery IFQ/Co-op Rationalization Experience and Implications for Likely Crab Rationalization Impacts

Changes associated with the recent restructuring of the groundfish fishery under the AFA have been felt in Sand Point. While the local Trident plant qualified as an AFA (BSAI pollock) processor, it did not obtain a Co-op Processor Endorsement, as every boat that delivered BSAI pollock to this plant delivered over 80 percent of its BSAI pollock to another plant owned by the same company in the Bering Sea. The operational pattern for the Sand Point plant was to serve as a "relief valve" for this Bering Sea plant during the open access race for fish. This optimized or maximized the amount of BSAI pollock that the parent company could process. With the implementation of the AFA and the end of the race for fish, the BSAI pollock season was lengthened and the rate of harvest (and processing) reduced. This much reduced the need to divert pollock to be processed at the Sand Point plant and seems to have confined this need to the "A" and "B" roe seasons. The reason given for this was that the need to harvest roe at its peak imposes a natural and inevitable "race for roe" that at times resulted in a harvest of more fish than could be processed by the Bering Sea plant alone. Sand Point and company managers saw little need to process "C" or "D" season BSAI pollock in the Sand Point plant. The imprecise processing figures we have for 2000, compared to 1999, seem to be consistent with this description of the patterns of change, as the Sand Point plant processed significantly less BSAI pollock than in the year before, as well as significantly less pollock overall. Steller sea lion measures, and a shift of GOA pollock quota to the Kodiak Shelikof area, no doubt have a significant role in this change as well. Overall, it is not possible to draw conclusions from the AFA co-op experience that could be directly generalized to crab rationalization alternatives, due to the unique nature of Sand Point with respect to the pollock fishery. It does, however, perhaps provide a cautionary note regarding the fragility of inter-community transfers of product with management regime shift.

Differential Impacts of the Three Rationalization Alternatives at the Community Level

As summarized above, Sand Point's direct engagement in, and dependency on, the BSAI crab fishery is based on participation in the harvest sector. In an addition to the general types of impacts of rationalization on the community summarized above, beneficial or adverse impacts to the community of Sand Point deriving from the different rationalization alternatives result primarily from the differential outcomes for the harvest sector.

Each of the rationalization alternatives have identical provisions regarding increased allocations to the CDQ program (inclusion of additional species and an increase in the included species set-aside from 7.5 to 10 percent of the total allocation), creation of captain's harvest quota shares (3 percent of the TAC), and a community development allocation to Adak (10 percent of the WAI golden king crab allocation). Each of these provisions are directed toward fostering beneficial community or social impacts for at least some groups or areas. Sand Point, as a non-CDQ community, would not benefit from the CDQ program increases. Impacts of the creation of captains shares would likely benefit at least some community residents as individuals, but this provision is unlikely to result in significant impacts for the community itself. The Adak community allocation would not result in significant impacts to the community of Sand Point.

Regionalization is a feature of the three-pie alternative and the IFQ alternative, but is not a part of the cooperative alternative. Regionalization is explicitly designed to create beneficial community or social impacts for at least some groups or areas. The north/south region designation was designed primarily to benefit the Pribilofs, while the west region designation in the WAI golden king crab fishery was designed primarily to benefit Adak. Impacts of the west region creation would likely be insignificant for Sand Point. Similarly, impacts of the creation of the north/south regional split under the three-pie and IFQ alternatives are not likely to be significant for the community of Sand Point, at least from a processing perspective, given the current lack of crab processing in the community. For Sand Point harvesters, regionalization may result in higher costs, depending on ultimate allocation of north region harvest quota to individual operations, but this information cannot be disclosed due to confidentiality restrictions.

Additional community protection features of a "cooling off" period and a right of first refusal on transfer of processing quota shares are a part of the three-pie alternative (and are not a part of any other alternative). Eligible communities (those that had 3 percent of processing activity for covered species) would be assured that during the 2-year "cooling off" period processing quota would not be moved out of the community. Subsequent transfers would be subject to a right of first refusal that would allow an eligible community (through its CDQ group or another community group, if a CDQ group were not present) to obtain ownership and control over processing quota to retain local processing activity. Due to confidentiality restrictions, a definitive list of eligible communities cannot be provided, but it is assumed that Sand Point does not qualify given the known lack of processing under existing conditions. Given this assumption, "cooling off" and right of first refusal features would not work to protect Sand Point interests. Rather, they would serve to make it more difficult for Sand Point to engage in processing in the future, unless processor quota were transferred following the "cooling off" period from (1) another processing facility within the south region owned by the same firm that owns the Sand Point facility or (2) a non-CDQ community within the same borough (such as King Cove).

The rationalization alternatives also differ on the ability of communities to obtain harvest quota share. Under the three-pie and IFQ alternatives, CDQ groups, or other community groups if a CDQ group is not present, in eligible communities (again, those with 3 percent or more of processing activity for covered species during the qualification period) would be able to purchase harvest quota share due to a waiver of sea time requirements that would otherwise prevent such purchases. By design, the ability to obtain harvest quota share could result in beneficial community and social impacts through communities becoming more directly engaged in the fishery. In the case of Sand Point, it is assumed that the community does not meet the

eligibility criteria for this program feature, so the community would not benefit from an ability to own and control harvest shares under any of the alternatives.

Another potentially distinguishing feature of the rationalization alternatives from a community or social impact perspective is the ability of harvesters to form co-ops under the three-pie and cooperative alternatives (but not under the IFQ alternative). For Sand Point, the community or social impacts of this ability (or lack thereof) are not yet clear.

2.6 ADAK

The community of Adak is located on Kuluk Bay on Adak Island approximately 1,300 miles southwest of Anchorage and 350 miles west of Unalaska/Dutch Harbor, in the Aleutian Island Chain. Adak is the southernmost community in Alaska, on the same latitude as Canada's Vancouver Island. It is also the westernmost civilian community in Alaska (and in the United States), located directly south of Siberia. Adak, not a part of an organized borough, is located in the Aleutians West Census Area. Incorporated as a Second Class City in 2001, the city of Adak encompasses 122.4 square miles of land and 4.9 square miles of water.

Adak lies in the maritime climate zone and is characterized by persistently overcast skies, high winds, and frequent cyclonic storms. Winter squalls produce wind gusts in excess of 100 knots. During the summer, extensive fog forms over the Bering Sea and North Pacific. Average temperatures range from 20 to 60°F, but wind chill factors can be severe. Total precipitation is 64 inches annually, with an average accumulated snowfall of 100 inches, primarily in the mountains. Large earthquakes were experienced locally in 1957, 1964, and 1977.

At the beginning of the historical era, Adak Island was heavily populated but was eventually abandoned in the early 1800s as the Aleut hunters followed the Russian fur trade eastward, and famine set in on the Andreanof Island group. In 1913, under an executive order (No. 1733) Adak became part of the Aleutian Islands National Wildlife Refuge (NWR) as part of a federal effort to both protect sea otters that were on the brink of extinction due to being overhunted for their furs, and to facilitate additional development of a fur trade based on fox farming in the region.

According to information supplied by D. Corbett (personal communication, 2003) of the U.S. Fish and Wildlife Service (USFWS), a synopsis of reports and general information on U.S. government reservations in Alaska compiled by H.D. Gray in 1938 shows that from 1924 and 1926, Adak was leased by an entity named Adak Stock Propagation. Annual reports are missing from 1925, 1927, and 1928, but reports from 1929 through 1936 show that Adak Ranching Company of Seattle leased the island for an annual fee of \$50. Some years had minimal or no trapping, but for three of the years in that span, the value of furs taken from the island were valued at between \$17,000 and \$18,000 per year. No information is available following the 1936 leases which were due to expire in June 1938. Information circa 1937-1938 lists H.E. Bowman as the manager of Adak Ranching Company operations. Gray's compilation notes that improvements on Adak were valued at \$9,000 and included 12 cabins, while an August 1936 report by "Homer W. Jewell, Alaska Game Warden" that states: "We are informed that there are eleven cabins and five barabaras on Adak Island. We noted three of the cabins." Gray's compilation also shows adjacent Kagalaska Island leased on an annual basis from 1921 through 1936 by Andrew Snigaroff of Atka, with improvements valued at \$1,000, including 2 cabins.

According to interviews conducted by Corbett (personal communication, 2003), use of Adak was tied to the community of Atka, and one of her interviewees from Atka had trapped both Adak and Kagalaska. Apparently different villages along the Aleutian Chain considered a number of different islands as being

under their control for trapping activities. Residents of Atka, the closest full-time community to Adak, trapped on multiple islands. For example, Andrew Snigaroff, the influential Atka resident who was shown as the lease holder for Kagalaska, also often spent the trapping season at Amchitka that was leased, but understood as “owned,” by the village of Atka. It was apparent to Corbett from interviews that Adak, notwithstanding recognition of formal lease arrangements, was understood by Atkans as “theirs” and that they had traditional rights to trap there. While H.E. Bowman owned or managed the Adak Ranching Company, leased the islands from the government, transported trappers to and from the islands, and bought the furs, the Aleuts did not consider themselves employees, but perhaps saw their roles more as “independent contractors.” It was, according to Corbett’s interviews, the Aleuts who put up the cabins and put the foxes on the islands.

Despite the earlier abandonment of Adak as a place of year-round settlement, it is clear that trapping as well as hunting, fishing, and other subsistence activities by residents of Atka, if not other villages, continued to occur on and around Adak at least seasonally until World War II broke out. Although little is apparently documented about the immediate pre-War years, according to USFWS staff, all during the time Adak was part of the Aleutian Islands NWR and up through the beginning of the War, there were regularly used, established trapping camps on the island. Several of these were used annually by residents of Atka (D. Corbet, personal communication, November 2002). Senior Aleut Corporation personnel also noted during interviews for this project that there was use and at least some occupancy of the island up until such use was terminated by the War and the post-War continuing military presence on the island.²¹

The U.S. Department of the Interior (USDO) has retained ownership of the island through the present day, although the northern part of the island was originally withdrawn from direct USFWS management because of military exigencies associated with World War II. While never technically leaving NWR status, the military exerted primary jurisdiction and the USFWS secondary jurisdiction during military use of these lands. During the war, Adak was the site of both Army and Navy facilities; after the war the Army base was transferred to the U.S. Air Force and renamed Davis Air Force Base. Later, the Navy assumed control of all military facilities on the island. Three Naval commands operated on the island including the Naval Air Facility (NAF), Naval Facility (NAVFAC), and Naval Security Group Activity (NSGA). Today the island is a part of the Alaska Maritime NWR, a successor USFWS-administered entity established in 1980 that encompassed the earlier established Aleutian Islands NWR and 10 other pre-existing refuges as well as new lands scattered along and off of the coast of Alaska. While the northern portion of the island that was developed for military use remains the property of the USDO, it continues under military withdrawal status at least for the present and as such is not directly managed by the USFWS.

During the War, a substantial military buildup on Adak allowed U.S. forces to mount a successful offensive against the Japanese forces that had earlier captured and occupied Attu and Kiska Islands farther west in the Aleutians. After the War, Adak was developed as a Naval Air Station, and it also played an important role during the Cold War as a submarine surveillance center.

In the period following World War II, the U.S. Navy developed the community of Adak to support both military personnel and dependent families, transforming it into what became easily the largest community in the southwestern part of the state. In addition to housing, the military constructed several well-equipped facilities and recreation venues at Adak. These included a movie theater, roller skating rink, swimming pools,

²¹ The occupancy of Adak immediately prior to World War II is not well documented in the secondary materials available at the time of this writing. According to the President of the Aleut Corporation (V. Tutiakoff, personal communication, October 2002), however, interviews have been done in recent years with individuals who had relatives on Adak at the time of the buildup of U.S. forces on the island, and who were subsequently displaced. At about this same time, there was a general consolidation of a number of very small villages throughout the Aleutian area, and many fewer settlements were repopulated after the War than existed in the decades beforehand. There are other lands in the region under federal jurisdiction at this point that may be future candidates for civilian repopulation similar to Adak. This would include, for example, Attu, which was a site of an Aleut village up until its capture by the Japanese in 1942, and to which the federal government did not allow residents to return following the War.

ski lodge, bowling alleys, skeet range, auto hobby shop, photo lab, racquetball and tennis courts. A new \$18-million hospital was built in 1990. At its peak, the installation housed approximately 6,000 naval personnel and their family members, along with a limited number of personnel from other governmental agencies, such as the USFWS, and civilian contracting personnel.

The end of the Cold War and the associated military base realignment and closure process brought sweeping changes to Adak. In 1994, severe personnel cut-backs occurred, and family housing and schools were closed. The station officially closed on March 31, 1997. The majority of Adak Island and the naval facilities are at present (2002) in the process of being acquired by the Aleut Corporation, the regional ANCSA corporation of the Aleutian/Pribilof region, under the auspices of the base closure and realignment and federal land transfer process. This will be a multi-step process, with the land first reverting from Department of Defense (Navy) control to USDOJ (USFWS) control. Next, the USDOJ will swap lands on the northern end of Adak Island on an acre-for-acre basis with Aleut Corporation lands in the eastern Aleutians. The USFWS is not interested in managing the northern end of Adak as a part of the Alaska Maritime NWR due to the type of development that has already occurred there and the subsequent relatively low wildlife values, but it is interested in incorporating the non-Adak Aleut Corporation-owned lands with much higher wildlife values into the refuge (e.g., lands with significant bird cliffs and no problematic non-indigenous species, such as rats).

Not all lands that were controlled by the military on the northern portion of the island will pass into Aleut Corporation (or other private) ownership. A significant portion of land on the southeastern edge of the former military-controlled area will be retained as federal land. This area has high wildlife value and is contiguous with the USFWS-retained southern portion of the island. A discontinuous land-locked portion of land, the Mount Reed Exclusion Area to the southwest of the city of Adak, will be retained by the USFWS for the protection of the endangered Aleutian shield fern, Alaska's only endangered plant. Finally, some lands around Andrew Lake and Andrew Bay on Adak's northern coast will be retained at least for the immediate future, pending cleanup of the significant amounts of unexploded ordnance that remain in the area.

At present (2002), the land transfer agreement has been concluded between the USDOJ and the Department of Defense/Navy, has passed through Congress, and is awaiting Presidential signature. After this process is finalized, a clock starts to run on the proposed land swap between USDOJ and the Aleut Corporation. Assuming the process goes forward in a timely fashion, the land exchange process will result in approximately 47,000 acres of the northern portion of Adak being transferred to the Aleut Corporation. From this, some lands in and around the community proper will be subsequently transferred to the City of Adak.

Establishment of a non-military community on Adak has preceded formal land transfer. Members of approximately 30 families relocated to Adak in September 1998 to start a civilian community on site. Most of these original relocating residents were Aleut Corporation shareholders, and a school was reopened to support this population. The community incorporated (as a Second Class City) in April 2001.

The present institutional context of Adak is somewhat complex, due to the transitional process from a military to a civilian community being incomplete. For land to be transferred under the base realignment and closure process, a Local Reuse Authority (LRA)²² is formed. In this case, the LRA is the Adak Reuse Corporation

²² An LRA is "any authority or instrumentality established by State or local government and recognized by the Secretary of Defense, through the Office of Economic Adjustment, as the entity responsible for developing the redevelopment plan with respect to the installation or for directing the implementation of the plan" (32 CFR 175, Section 175.7 [Procedures]). In the case of Adak, present plans call for the ARC (i.e., the LRA) to dissolve when transfer occurs, rather than remaining in place to implement the plan. The ARC is intended to facilitate conveyance, in accordance with the following: "The Federal Government may best contribute to such reutilization and redevelopment by making available real and personal property at military installations to be closed to communities affected by such closures on a timely basis, and, if appropriate, at less than fair market value" (PL 103-160, Title XXIX, Subtitle A, Section 2901). Adak is perhaps unique among national base closure and reuse experiences in that it is not a community

(ARC), a non-profit entity formed for this purpose and composed of representatives from various entities in the region. According to senior Aleut Corporation staff, these entities included the Aleut Corporation, the City of Atka, the Aleutian regional school district, and the Aleutian/Pribilof Islands Association/AFN villages, with additional seats held by the fishing industry, a transportation interest, the APICDA, and the community of Unalaska (although it is reported that a number of these seats turned over early in the process or were not active for at least some portions of the reuse process). Given this composition, the ARC, while formed specifically for Adak reuse needs, is more nearly a regional entity than a community-based entity, *per se*.²³ While the assets of Adak are still under Navy ownership, the ARC is holding a transitional Master Lease agreement for the base. In turn, the ARC has sublet portions of the base and assets considered to have the potential for economic return to the Aleut Enterprise Corporation (AEC), a for-profit subsidiary of the regional Aleut Corporation. Formed to develop economic opportunities on Adak, the AEC, like its parent Aleut Corporation is not strictly a community based entity; though Adak-focused, it is run for the economic benefit of shareholders far beyond Adak. In a similar vein, while the AEC has focused its operations on Adak, there are at least tentative plans to extend AEC business ventures (e.g., marine fuel services) beyond the community itself. At present (2002), operation of the airport is the only undertaking in the community run directly by the ARC²⁴ and there are a total of "five or six" ARC employees in the community. The City of Adak operates community utilities and some of the existing facilities, but most of the earlier noted recreational facilities, except for the swimming pool, are now closed.

Community Demographics

The contemporary community of Adak traces its origin to a military settlement, not a traditional Aleut village like Unalaska, or a commercial fishing outpost like King Cove. Adak, in its most recent historical configuration, lost its "reason for being" as a result of the base realignment and closure process in the mid-1990s. While there has been a continuity of the physical structure of the community - structures built by and for the military are housing current residents and businesses - the community has seen a population turnover

that is attempting to recover from the loss of a base. Rather, it is a community that is attempting to form in the wake of a base closure. On the other hand, Adak may be conceived of as part of a greater Aleutian regional 'community' as represented by the Aleut Corporation and through historic Aleut ties to the land (and the wide ranging use patterns common in Aleut lifeways. While Adak arguably contributed very little to the other communities in the region during its operational military days, as there was virtually no social or economic interaction with other communities in the region (save for facilitating transportation links to Atka), as a newly organized civilian community the redevelopment of Adak would appear to be consistent with the federal policies on closed bases being used as economic engines for economically challenged areas: "It is DoD [Department of Defense] policy to help communities impacted by base closures and realignments achieve rapid economic recovery through effective reuse of the assets of closing and realigning bases - more quickly, more effectively and in ways based on local market conditions and locally developed reuse plans" (32 CFR 175, Section 175.4 [Policy]). The Adak case is also somewhat different than at least most other base realignment and closure experiences, given the earlier military withdrawal status from USDOJ lands, and that lands and assets are transferring in whole to another federal entity for subsequent 'swapping' with the Aleut Corporation, rather than going directly to the ultimate re-users of the properties.

²³ Essentially by definition there was no civilian community of Adak when the ARC was formed and, given its composition and constituency, the interests of the ARC may not be identical to the interests of the residents of Adak at any given time in the transition process. In this sense the Adak LRA experience is somewhat different to that seen in many other cases of base closures where there was an existing adjacent community both pre- and post-base closure from which an LRA was constituted.

²⁴This is not intended to be a long-term arrangement as the Aleut Corporation would like to see the Alaska Department of Transportation and Public Facilities assume responsibility and operational control of the airport. It is recognized that longer-term funding needs to be secured for airport operations, and the Aleut Corporation is in the process of attempting to help facilitate a funding package that would include partial funding from USDOJ/USFWS as well as the Department of Defense in recognition of ongoing federal civil agency use and at least a modest level of continuing military use or potential use of the facilities (locally estimated at between 4 and 10 flights per week between all military branches, including those serving installations elsewhere in the Aleutians). Precedent in Alaska for this type of allocation of military funding to a largely civilian airport may be seen in King Salmon and at least one or two other facilities. There may also be a federal interest in the Adak airport due to the number of international flights that transit the area on a daily basis.

with conversion to a civilian settlement, such that the present population of the community comes from an entirely different set of socioeconomic and cultural circumstances than those who built the physical community. From a demographic perspective, the Adak of 2000 is literally not the same community as the Adak of 1990. Although the contemporary population does not have an Aleut majority, the community is very much an Aleut community by virtue of the driving role of the Aleut Corporation in its foundation and development and the predominant role of Aleut individuals in local governmental positions. Adak did not qualify as an Alaska Native village under the terms of ANCSA, due to the fact that it was essentially a non-Native community at the time of the passage of the Act (1971).

The contemporary civilian population of Adak initially grew out of an outreach program to shareholders of the Aleut Corporation. This program brought people to the island early in the transition process, and included employment related to transition, caretaking, and operation of the initial service enterprises. According to the AEC, this served to expose people to living on the island and the opportunities that were available there, which has increased retention. Non-shareholder related residents have come to the community primarily through contractor employment as well as through government and fishery related employment. At least a couple of current residents of Adak were stationed on the island during previous military service, and at least some had local experience as contractors to the military prior to conversion to a civilian community.

Total Population

Table 2.6-1 provides population figures for Adak, by decade, for the period 1970-2000. As shown, the population more than doubled between 1970 and 1990. Following the closure of the military facilities in the 1990s, however, the population of the community in 2000 was less than 7 percent of the 1990 figure.

Table 2.6-1 Adak Population by Decade, 1970-2000

Year	Population
1970	2,249
1980	3,315
1990	4,633
2000	316

Source: Historic data from Alaska Department of Community and Economic Development. 2000 data from U.S. Bureau of the Census

According to the AEC, Adak's population experiences marked seasonal fluctuations, and the community consists of approximately 200 to 225 permanent, year-round residents (S. Moller, personal communication, January 2002). During fieldwork in the fall of 2002, some local business persons in Adak estimated the permanent year-round population as much lower than these figures, but it is unclear whether individuals had different ideas about what constitutes permanent residency, if there had been recent changes, or if some persons were simply inaccurate in their estimates. What is clear is that there is considerable variation from season to season, and there has been considerable fluctuation over time due to the evolving nature of the community and the changes in the employment base over the course of that evolution. In terms of annual fluctuations, during the peak fishing seasons a substantial number of additional individuals come to the community to work at the processing plant. Another population spike occurs during "Navy contractor season" from June to September, as during that time contractors come to the community to work on various cleanup and transition projects. As the transition from military to civilian community has progressed, however, these numbers have decreased substantially in the last couple of years. These types of changes are

not limited to direct contracting work. According to Adak's mayor, the City has at present (2002) around 10 employees total, which is also a substantial decline from levels seen earlier in the transition process. Clearly, the population of the community is somewhat in flux as the transition to a civilian community nears completion and the nature of locally available employment changes.

Ethnicity

Table 2.6-2 provides information on the ethnic composition of the population of Adak in 1990 and 2000. As shown, in addition to a dramatic population reduction, the ethnic composition of the community has changed dramatically during the decade. For example, the Native American/Alaska Native component of the population approximately doubled in size from 1990 to 2000, and when combined with the overall population decline, this population segment went from comprising about 1 percent of the population in 1990 to about 35 percent of the population in 2000. It is important to note, however, that none of the Native American/Alaska Native residents identified themselves as Aleut in the 1990 census; therefore, even within this population cohort there has essentially been a 100 percent turnover between 1990 and 2000. All other ethnic groups showed dramatic reductions in absolute numbers, although Asian/Pacific Islanders gained in relative proportion of the population while other groups stayed about the same or declined. Preliminary interview data suggest that there is at least a small degree of population continuity over military - post-military time span among contractor-employed personnel, but this has not been quantified to date.

Table 2.6-2 Ethnic Composition of Population, Adak, 1990 and 2000

Race/Ethnicity	1990		2000	
	N	%	N	%
White	3,655	78.9%	157	49.7%
African American	501	10.8%	4	1.3%
Native American/ Alaskan	55	1.2%	111	35.1%
Aleut	0	0.0%	-	-
Eskimo	2	0.0%	-	-
American Indian	53	1.1%	-	-
Asian/Pacific Islands*	331	7.1%	37	11.7%
Other**	91	2.0%	7	2.2%
Total	4,633	100%	316	100%
Hispanic***	255	5.5%	16	5.1%

* In the 2000 census, this was split into Native Hawaii and Other Pacific Islander (pop 6) and Asian (pop 31)

** In the 2000 census, this category was Some Other Race (pop 0) and Two or more races (pop 7).

*** "Hispanic" is an ethnic category and may include individuals of any race (and therefore is not included in the total as this would result in double counting).

Source: U.S. Bureau of Census

The group housing situation in Adak is markedly different than in Unalaska and King Cove.²⁵ While group housing in the latter communities has normally been associated with the seafood processing workforce, in Adak group housing was associated with the military. As shown in Table 2.6-3, 30 percent of the population lived in group housing in 1990 when Adak was still a military community, and none of the population lived in group housing in 2000 after conversion to a civilian community. At present (2002), only two housing units are occupied to the north or west of the airport runways, and virtually all of the community residents live in the Sandy Cove housing area in the southeast portion of the community. Table 2.6-4 provides 1990 census information on group housing and ethnicity for Adak (2000 census data for these variables are not yet available). These data are reflective of military population structure, and not of the contemporary civilian community (but are presented here for the sake of continuity of treatment with the other communities profiled).

Table 2.6-3 Group Quarters Housing Information, Adak, 1990 and 2000

Year	Total Population	Group Quarters Population		Non-Group Quarters Population	
		Number	Percent of Total Population	Number	Percent of Total Population
1990	4,633	1,391	30.02%	3,242	69.98%
2000	316	0	0.00%	316	100.00%

Source: U.S. Bureau of the Census 1990 STF2, Census 2000 Summary File 1

Table 2.6-4 Ethnicity and Group Quarters Housing Information, Adak, 1990

Race/Ethnicity	Total Population		Group Quarters Population		Non-Group Quarters Population	
	Number	Percent	Number	Percent	Number	Percent
White	3,655	78.89%	1,066	76.64%	2,589	79.86%
Black	501	10.81%	222	15.96%	279	8.61%
American Indian, Eskimo, Aleut	55	1.19%	16	1.15%	39	1.20%
Asian or Pacific Islander	331	7.14%	53	3.81%	278	8.58%
Other race	91	1.96%	34	2.44%	57	1.76%
Total Population	4,633	100.00%	1,391	100.00%	3,242	100.00%
Hispanic origin, any race	255	5.50%	81	5.82%	174	5.37%
Total Minority Population	1,106	23.87%	361	25.95%	745	22.98%
Total Non-Minority Population (White Non-Hispanic)	3,527	76.13%	1,030	74.05%	2,497	77.02%

Source: U.S. Bureau of the Census 1990 STF2

²⁵ Similarly, Adak is not comparable to other regional communities in terms of the infrastructure or other physical attributes of a community both in absolute terms or in terms of ratios of various service units to population. Constructed to support a military-related peak population nearly 20 times larger than the current population, and to support technically and logistically complex air, surface, and submarine combat and support operations, the physical community of Adak is of scale very much larger than required to support its current civilian population and economy. This situation is not unprecedented in the region, as it very closely parallels the circumstances of Unalaska following World War II (although, in the Unalaska case, most military facilities were cordoned off from the community through the late 1950s).

Age and Sex

Table 2.6-5 provides information on age and the male/female ratio of Adak's population in 1990 and 2000. Perhaps counterintuitively, Adak has a greater male-to-female imbalance as a civilian community (in 2000) than it did as a military community (with dependent families) in 1990. The predominance of males in the 2000 community population is attributable to a male-dominated transient workforce. Also, according to local residents, Navy policy did not allow non-directly employed personnel on the island until 1997 or so. As the large majority of contractors were male at the time, this had a marked influence on the male-female ratio. As an example of recent changes in the demography of the island, one current resident characterized herself and a relative as "the first two wives on the island," an event that occurred a few months before the main civilian population relocated to the island. Also, according to local residents, Navy policy discouraged civilian families with children from coming to the island for a substantial period of time due to unexploded ordnance dangers (a stance that some found inconsistent with the previous presence of large numbers of military families), and this has also had an impact on the sex and age structure of the present community.

Table 2.6-5 Population by Age and Sex, Adak: 1990 and 2000

Attribute	1990		2000	
	N	%	N	%
Male	2,777	59.9%	205	64.9%
Female	1,856	40.1%	111	35.1%
Total	4,633	100%	316	100%
Median Age	NA		35.2 years	

Source: U.S. Bureau of Census

The Adak school, part of the Aleutian Region School District and operated by the REAA, is a kindergarten through grade 12 facility. School enrollment figures for the years since Adak became a civilian community are presented in Table 2.6-6. As shown enrollments have fallen substantially from a high of around 50 students during the first couple of years the school was reopened to around 20 at present, a decrease of around 60 percent. According to school staff, this drop is likely associated with the changing nature of work and contracting on Adak. Over the last few years, contracting has been more focused on unexploded ordnance cleanup, and these crews tend to be comprised of individuals from outside who rotate through the community. In contrast, earlier environmental remediation work involved larger numbers of individuals who brought their families to the island with them, and a greater percentage of the direct work was accomplished through the regional Aleut Corporation or its subsidiaries which, in turn, attracted a higher proportion of workers from communities within the region. As this work has wound down and the associated contracting employment opportunities have dropped off, a number of families with school-aged children have left the community, at least some of whom have apparently returned to their previous home communities within the region.

Table 2.6-6 Adak School Enrollment, 1993-2002

School Year	Student Count
1998-1999	48
1999-2000	51
2000-2001	36
2001-2002	27
2002-2003	19

Source: Data supplied by L. Giddings, School Assistant, October 2002.

Local Economy and Links to the Crab Fishery

The Aleut Corporation is currently developing Adak as a commercial center and a civilian community with a private sector economy, and this development focuses heavily on the potential for commercial fishing, and support of commercial fishing activities, in the Western Aleutians area of the Bering Sea and the North Pacific Ocean. One indicator of the direct involvement of the Aleut Corporation in the community may be seen in the fact that the President of the Aleut Corporation, who also serves as the executive director of the Adak Reuse Corporation, has moved to Adak to help support these efforts. The nearest neighboring community is Atka, which also participates in commercial fishing, but with a strong focus on halibut as opposed to the broader range of fisheries pursued on Adak. Unlike Adak, Atka is a CDQ community (and an ANCSA village, also unlike Adak). There is concern on the part of the community of Adak and the regional Aleut Corporation, the developers of Adak, that the development of fisheries-related opportunities in Adak be undertaken in such a way as to not adversely impact present and future opportunities in the community of Atka.²⁶

Other local economic activity in Adak includes contract work performing environmental cleanup of the former military facilities. Visitor attractions include wildlife such as seals and otters, caribou hunting, fishing, hiking and World War II military installation facilities. With approximately 16 miles of paved roads, and other gravel and dirt roads, accessibility to lands outside the immediate community is relatively good for the region.

²⁶ It should be noted that villages within the region encompassed by the Aleut Corporation belong to two different CDQ groups, the Central Bering Sea Fisherman's Association (St. Paul) and the APICDA (Akutan, Atka, False Pass, Nelson Lagoon, Nikolski, and St. George). Adak and Unalaska are not CDQ communities, but Unalaska participates in APICDA programs as an *ex officio* member. This being the case, Aleut Corporation interests on fisheries development issues in Adak may not be identical to the interests of each CDQ group or community in the region, although Aleut Corporation shareholders make up a greater or lesser proportion of the population of every community in the region.

Further, some residents of Adak have cited benefits received by residents of Atka as a result of the development of Adak, such as bringing local fuel prices down and increasing the availability of air and surface transportation. However, it is known that at least in the past there was some ambiguity on the part of Atka residents regarding potential positive and negative impacts of having Adak develop as a community in the same general area, particularly in terms of fishery development-related issues. In the absence of discussions with Atka residents, it is not clear whether the benefits of the development of Adak are now perceived to outweigh the possible regional competition costs to the community of Atka. Additionally, there were some indications that at least some residents of other communities in the region were of the opinion that the development of Adak and the fostering of fisheries development in Adak may be "taking another slice" out of a limited pie, meaning that any gains by Adak would be losses from other (established) communities. Again, however, it is not known how widely held or deep these types of concerns are. As many residents of at least a majority of other regional communities are Aleut Corporation shareholders, theoretically there would be at least some direct benefit to these individuals of the successful redevelopment of Adak, but how these unknown gains compare to potential competitive losses is unclear.

In a number of ways, the dominant economic entity in contemporary Adak is the AEC. According to its Executive Director, the AEC has received funding in the neighborhood of \$10 million from the Navy over the last few years to caretake, operate, and downsize the facilities at Adak during the transition period. A number of these tasks have been, in turn, subcontracted out to other entities, including the City of Adak. In one way or another, the AEC is involved in most economic activities in the community either as an active participant or as a landlord.

Like other communities in the region with commercial development, Adak's economy is marked by seasonal variation. Rather than being nearly exclusively fisheries driven as is the case in other communities, however, locals report that there are two main "seasons" on Adak: fishing season and "contractor season." Local fisheries activity peaks in the first few months of the year when cod effort is most intense and overlaps with crab and other fisheries, although there are secondary peaks at other times during the year.

"Contractor season" refers to the peak summer activities of Department of Defense contractors associated with environmental cleanup of the former military facilities and the disposal of unexploded ordnance from previous military use. In addition to being in transition from a former military community to a civilian settlement, Adak's economy is in transition as contractor-oriented activities decrease and fisheries activity (and other private sector activities) increase. In earlier years, contracting workforces were considerably larger and contractor personnel support services were more extensive than is now the case. For example, there used to be a galley operation to support the crews, but this service closed in September 2001. Contractor personnel have to a large degree remained self-sustaining or self-contained vis-a-vis the rest of the community; however, as personnel now typically prepare their own food from supplies they arrange to have brought in on the barge or via air freight. (Some contractor personnel do make at least some local store or restaurant purchases, and at least some hunt and fish locally and/or purchase fresh fish off of local vessels.) At present (2002), contractors arrive around the last week of May, with full crews present in the community by the first week of June. Numbers of workers present drop off in September, but at least a skeleton crew is present in the community through the last barge at the end of November. According to local Navy sources, up to about 70 total contracting personnel were present in Adak in 2002, but this varied during the season with around 60 present for the early part of the summer, and around 40 present through September. These numbers are expected to be considerably lower in 2003 and beyond, with the bulk of the unexploded ordnance cleanup around the community completed. Tentative plans call for between 15 and 20 personnel to be present in 2003 to work on petroleum-related cleanup around the community. Like processing personnel who work in Adak, seasonal contracting personnel are typically hired from elsewhere, with the prime contractor and subcontractors hiring from a wide region, including Anchorage and the Lower 48. The focus of the contractor work for the Navy has been to create conditions that will support a "finding of suitability of transfer" of the 47,000+ acres from the Department of Defense to the USDOJ (and subsequently to the Aleut Corporation and ultimate users/purchasers), and as such this work is self-terminating.

Adak is the site of considerable USFWS activity and will remain so after land transfer occurs. One of two staffed subunits within the Alaska Maritime NWR (along with the Pribilofs), while there are only three permanent, full-time employees assigned to Adak at present (2002), the community serves as a critical logistics base for USFWS field camps and operations elsewhere in the western Aleutians. Upwards of 100 USFWS personnel pass through Adak during the May through September field season and these individuals may spend from 2 weeks to a month in Adak before heading to their ultimate field site. Additional personnel are assigned directly to Adak seasonally, and the USFWS Adak facilities and personnel are also used to support natural resource studies (and/or management) by a variety of entities, including NMFS, the U.S. Geological Survey, the State of Alaska, and various universities.²⁷ USFWS visitor services have changed in

²⁷ Such inter-entity cooperation is common in the region, as NMFS and the USFWS share facilities and personnel resources in the Pribilofs as well. The USFWS also works with the U.S. Coast Guard on Attu, and the National Park Service that manages some of the historic military resources in or around the Alaska Maritime NWR, including submerged cultural resources (primarily sunken

Adak as the community has changed. Formerly an NWR headquarters with a staff of between 15 and 25, there is also a relatively large visitor center in Adak that is not currently in use. Designed to provide services to a community of over 6,000 persons, this facility cannot be efficiently run with the current small staff and relatively low post-military visitor service demand. Alaska Maritime NWR headquarters are now located in the community of Homer, but local maintenance and carpenter shops are still used to support ongoing operations. In terms of present demand, from October 2001 to October 2002, the Adak USFWS facilities saw 210 visitors from cruise ships (a form of visitation new to the community), 150 general visitation contacts, and 275 participants in the unexploded ordnance awareness program run by the USFWS (also known as "blue card" training). Participants in the blue card training included about 150 fish processing workers (including personnel from the local shore plant as well as floaters that were in the community at least temporarily), 100 Navy contractors, and 25 members of the general public.

According to senior Aleut Corporation officials, one of the challenges in creating a private sector civilian economy has been the transition from a outside contractor to a resident worker configuration. Typical contracting positions pay relatively high hourly wages and include subsidized housing and free utilities. With the transition to a truly local economy, the wage rates seen in contracting cannot be maintained, nor can the type of housing and utility subsidies that were previously common, and this has reportedly been a difficult adjustment for a number of residents or potential residents. In addition to fishery, fishery support, federal, and federal contractor related local economic activities, the Aleut Corporation is attempting to foster the development of secondary economic sectors based on research and oil development support in the Russian far east, among other undertakings.

Harvesting

As a new civilian community, Adak does not have an established residential fishing fleet. According to field interviews, there are at present (2002) two fishing vessels owned by full-time residents of the community. One of these vessels, a 32 footer, has reportedly not yet fished much around the community but is set up for jigging cod and longlining halibut, while the other one, a 24 footer, has fished Pacific cod within the 3-mile limit. (A third boat in the 22- to 24-foot range is also present in the community but has apparently not been active in the most recent seasons.) A fourth vessel, a 40 footer, is from Kodiak but is considered by some as a local boat because it has been present in Adak for over a year and has locally fished black cod and halibut. According to local residents, at least some other vessels "have painted Adak on the transom" in the recent past but are owned and operated by individuals from outside of the community. At least two IFQ holders were resident in Adak but have more recently left the community, and this past year (2001) three 58-foot vessels targeting halibut and black cod spent the period from May through October/November in the community. While the current, truly local fleet is still somewhat fluid and few in number, the community is actively promoting the growth of a small boat fleet, and a larger number of persons who spend at least some time in the community are fishing there. According to community sources, four or five small vessels (under 60 feet) participated in local fisheries in 2001. Most deliveries to the local plant, however, are made by larger boats from outside of the area.

It is locally anticipated that area small boat set-asides that the community successfully lobbied for with the Board of Fish, particularly in combination with relatively poor returns in the Area M salmon fisheries, will make Adak fishing opportunities attractive to small vessel owners from the Alaska Peninsula/Eastern Aleutians area. According to the AEC, there have been specific efforts directed at recruiting fishermen to make the transition to the area, and a total of between 8 and 12 small vessels are expected to fish locally in 2002. Local entities strongly desire the growth of a local small boat fleet and the development of a year-round day fishery.

vessels) around Kiska and Attu.

The community is also attempting to attract more vessels to the area with small boat harbor improvements. Currently underway, this project would result in approximately 4 acres of a 30-foot depth that would be out of all seas, although sheltering from all winds is not possible in this area of the harbor. Current harbor facilities, while extensive, were designed for larger military vessels and are not well suited for a small boat fleet.

One recent development in the harvest sector has been the formation of the Adak Native Fisherman's Association. As of the time of fieldwork for this project (October 2002), this entity had not yet had a general membership meeting but had held an initial board meeting a few weeks earlier. As a Native entity, it will qualify for some types of funding not available to non-Native entities, with the drawback being it is at least initially not inclusive of the entire community (given that the majority of Adak's population is non-Native).

Processing

While the current processing operations on Adak have a relatively short history, processing did take place on the island at least sporadically during the time it was a military base. While systematic research on this topic has not been undertaken, according to interviews conducted for this profile, crab processing took place in the Finger Bay area. Reportedly, while these operations were some distance away from the military area, spouses of locally stationed servicemen occasionally worked at these operations to earn some extra income (and to bring home crab) when processing operations found themselves short of personnel (as apparently did service personnel themselves, although less frequently). Reportedly, processors were either allowed or not allowed to operate locally in any given year depending on the policies of the individual Adak installation command personnel present at the time, but former servicemen spoken to recall processing taking place when they were in Adak in the late 1960s and early 1970s, and then again during fall seasons in the late 1970s. Given base security issues, processing personnel had very little interaction with the military community at Adak, although reportedly processors were sometimes allowed to visit the Post Exchange under escort. Crew transfers also required Navy escort at that time. One former serviceman reported that he earned income from processing operations in the then 1970s by providing mail pickup and trash dumping services on a weekly basis.

At present, there is a single shore processing plant in Adak, and despite a short history of operations it has seen a number of ownership changes since its inception. The plant was started by a partnership of two individuals who responded to an invitation for proposals from the Aleut Corporation. Operating as Adak Seafoods, the first processing took place in this plant in late February 1999. The plant continued to operate under this name until the summer of 2000. In mid-July 2000, Norquest became a partner in the operation with one of the original owners, and the plant did business in this manner until late July 2001. The individual still active from the original partnership took the plant back over for period of August through December 2001. In January 2002 Icicle Seafoods became a partner in the operation, which is currently operating as Adak Fisheries, LLC. Despite these changes, one of the two individuals who started the plant is still active in its ownership and operation.

The plant operates in two 150-foot by 180-foot leased bays in the "Blue Shed" building adjacent to Pier No. 5 on the north shore of Sweeper Cove at the south end of the main community area.²⁸ Adak Fisheries also leases cold storage space in a building just east of the Red Shed along Sea Wall Road. Cold storage capacity

²⁸ There are 12 such bays in three similar buildings adjacent to Piers No. 3 and 5. The "Red Shed," furthest to the east, houses City transportation-related equipment and operations; and the "White Shed," the middle of the three, is used primarily for storage. The Red Shed, which houses Adak Fisheries operations in its two southernmost bays, is westernmost of the three. Adak fisheries currently (2002) has administrative offices in a building between the Blue Shed and the White Shed, but construction is currently underway to allow the offices to move into the Blue Shed next to the processing operations.

is supplemented by the use of vans or containers stored adjacent to the processing facility, both for additional space and to help control utility costs.

It appears that the 1999/2000 operation primarily bought and processed cod, with some crab as well. In 2000/2001 the crab component (in terms of percentage) was increased and the overall amount of cod (in absolute terms) was increased as well. For 2001/2002 the operation has again substantially increased its throughput, especially for cod once Icicle acquired its interest in the plant. During this year (2002), main species run at the plant are Pacific cod, halibut, sablefish, brown crab, red crab, and thornyhead idiot. Pacific cod is characterized as the major species run by the plant, followed by crab, then by halibut and black cod.

In terms of an 'annual round,' the first vessel that will be fishing brown crab typically shows up in the community on January 2. On January 15, Pacific cod opens, and the first delivery is taken at the plant around the first week of February. About a dozen vessels, both longliners and trawlers, make deliveries. Around the third week of March, halibut and sablefish deliveries begin and, while Pacific cod processing drops off in March, crab does not normally finish until April. The local (western Aleutian) crab fishery was characterized as slower than in the eastern Aleutians and has been generally open August through April (although the plant does not process crab during that entire time). In contrast to the crab fishery, the local cod fishery is characterized as faster than in the eastern Aleutians. The local halibut and sablefish fisheries continue through August, along with thornyhead idiot, before the fisheries for other species become too busy. Crab deliveries to the Adak plant generally start again during the last week of August or the first week of September, and last year (2001) there was a short state test fishery for red crab opening in November. The last boat of the year typically delivers around December 18 or 19, and the plant shuts down for the rest of the year.

In terms of employment cycles, during the most recent year (2001-2002) approximately 98 employees were utilized during the busy January through March period, with about 23 or 24 employees being on site the balance of the year, except for when employment dropped down to about 8 cleanup, maintenance, and preparation personnel who are present when the plant is closed from about the third week of December through the first week of January or so. Housing is provided in approximately 30 former military housing units rented from the Aleut Corporation, with approximately 4 workers housed in most of the units during peak times. The processor does not have mess hall facilities, but workers receive a weekly food allowance and have kitchen facilities in their housing units. Workers are typically hired out of Seattle on a 6-month contract basis with many employees finding the company by word of mouth. At present (2002), there are no processing families in the community, but at least a few of the processors have been in the community for substantial periods of time, and at least one processing employee has become engaged with the community to the point of being on the local volunteer fire department.

There have been a number of changes each year during the relatively short period of time the plant has been operating in Adak, so there is some difficulty with characterizing a "typical" year. For example, during the 2002 winter season, Icicle's first year for cod in Adak, the shoreplant was supplemented with a floating processing capacity (the Discovery Star) during the cod season. The shoreplant was used to dress out all the cod landed but lacked sufficient freezing capacity, which was supplied by the floater. The floater was in Adak for 6 weeks, and during this time it served as a work platform for a good part of the "extra" or peak labor force. (It also served as a mess hall for the processing crew during their shift when there was not time for normal eating arrangements.) The floater was also used to load finished product onto a tramper alongside, easing temporary storage and transfer logistics. After cod, when the need for labor was reduced, the floater moved on to pursue herring elsewhere, taking its workforce with it. This was a short-term solution to the lack of freezing capability, and it is expected that it will be repeated only once or twice before new facilities are in place.

Local plant officials reported that approximately seven crab vessels have been delivering to the plant on a regular basis, with others less frequently. The cod delivery fleet includes a range of different vessel types. Several of the vessels delivering cod in 2001-2002 were 58-footers from Sand Point. (Vessels from Sand Point in particular have reportedly found conditions in Adak relatively attractive given the Area M and Steller sea lion-related challenges in their home waters.) A rough estimate of 10 AFA-qualified trawlers (90 to 130 feet) fish their cod sideboards and deliver to Adak. Also as a rough estimate, about two-thirds of the cod landed locally was delivered by the AFA-qualified vessels. Boats from the Aleutian/Alaska Peninsula region deliver halibut and sablefish, as do vessels from outside the area, but information on the number of vessels and IFQ holders selling to the plant is imprecise. The pattern described is one where several IFQ holders will essentially pool their shares and fish them on one boat, to minimize expenses and maximize profits. The boat(s) fished can vary from trip to trip.

The relationship between the plant and the community is somewhat different than that seen for other communities profiled, as Icicle has entered into a long-term relationship with the Aleut Corporation, which, in turn, directly and through subsidiaries owns, manages, and/or operates much of the community infrastructure and property. This relationship gives Icicle exclusive abilities with respect to some local processing and in return requires that Icicle support attempts to build a local fishery by agreeing to essentially handle landings for all local fisheries as well as to pay prices pegged to regional norms established in Dutch Harbor.

The community has also seen at least some crab and groundfish activity related to other seafood firms, but nothing that has been stable over time in a manner similar to Adak Fisheries. A number of offloads by both groundfish and crab catcher processors have taken place in or near the community, with Pier No. 3 being used several times for this purpose. It is also not uncommon to have freighters moored near the community awaiting loads. The relative importance or magnitude of these activities can be seen in the fact that during 2001-2002, nearly one-fifth of total state revenues received locally derived from resource landing taxes. The fact that vessels cannot typically clear Customs in the community, however, does serve as a limiting factor on potential foreign trade/economic activity.

Support Services

At present, virtually all of the facilities on the northern part of Adak Island, which encompasses the City of Adak, are still owned by the Navy. Private businesses that wish to operate in these facilities at present (2002) typically sublease facilities from the AEC. (Apparently the only exception to this generalization is the Veterans of Foreign Wars [VFW] hall, which leases its facility directly from the Navy.) According to some business owners, this arrangement has served to slow support business development in the community because at the Navy's direction, all leases have provisions for rapid termination should the land transfer process not take place as anticipated, making investment in the new community even more of a risk than would otherwise be the case. Additionally, there is some uncertainty about the ultimate ownership of lands in the community, such as whether businesses will be able to purchase buildings but would be restricted to leasing lands from the Aleut Corporation rather than being able to purchase them, and so on. The same holds true for housing at this point (i.e., whether or not land could be purchased with the housing units, and what the roles of the Aleut Real Estate Company, Aleutian Housing Authority, banking institutions, or other entities will be in the process of transitioning to private ownership and use, whether or not there will be lease to purchase provisions, and so on).

Adak is in the process of developing support service capabilities for the fishing fleet. According to the AEC, the initial transition to a civilian community took place in phases as the Aleut Corporation and its subsidiaries took over support service infrastructure, starting with fueling and then moving into housing, followed by port facilities. One challenge the community faces is that, according to local business owners, vessels that have

fished in the Adak area in past years are used to being self-sufficient and may not realize that supplies and services are now available locally or, even if they do have an awareness of availability, still have established relationships elsewhere.

Adak has become the main marine refueling station for the adjacent portion of the North Pacific. The island's underground tank farm has a storage capacity of approximately 22 million gallons of marine diesel, bunker grade fuel, gasoline, and jet fuel. Local fuel services are run by the AEC. Although the AEC formerly was engaged in a number of different enterprises and still rents out vehicles in the community, it is now (2002) reportedly focusing primarily on fuel sales and is attempting to divest itself of what are considered to be more tangential ventures. According to local staff, the ongoing basic storage capacity is around 2 to 4 million gallons at any one time. Currently (2002), the facility has five employees, and a rough estimate of the ratio of fuel sales to vessels versus other (community) users was given as between 70/30 and 60/40, with the local power plant accounting for a large portion of sales within the community. This ratio is expected to climb on the marine sales side, given that efforts are underway to scale down local power plant operations to better match demand that is much less than was needed when the former military power plant was constructed. While the shore processor itself is on the main power grid, not all of its operations create demand from the grid. For example, it has provided for some of its cold storage capacity through the use of vans or containers with their own generating capabilities. While offshore catcher-processor and mothership entities do call on the community, there is reportedly relatively little fuel sales to that component of the fishery compared to their overall presence. Among the harvest fleet, most sales are reported to be to Seattle and Dutch Harbor vessels. Fuel sales have reportedly picked up in recent years in direct relation to the easing of Navy restrictions on access to the island. In addition to fuel sales, the Adak facility also stocks oil and filters for vessels, and it can take used oil from vessels as well.

Constructed to accommodate U.S. Navy vessels, the port facilities on Adak, consisting of three deep water docks and fueling facilities, can support a wide variety of civilian vessels. Research ships, station work vessels, cruise ships, factory trawlers, and fishing boats use the port facilities at Sweeper Cover and Kuluk Bay. At-sea processors have used the port for transfer of product as well as a supply stop, and this has generated opportunities for shippers. At present (2002) there is no small boat harbor in the community, but it is a priority for the community.

Adak's aviation infrastructure also benefits from its military airfield history. Its airport, Mitchell Field, is the largest airport in the Aleutians and is equipped with IFR electronic navigation and weather reporting systems. Support features include control tower and terminal buildings, paved taxiways and aircraft parking areas, maintenance hangers, and a fire and crash station. During the current (2002) transition period, the airport is managed and run by the ARC, although plans call for this entity to dissolve upon successful transfer of lands to the Aleut Corporation.

Commercial cargo jet service is currently (2002) provided by Evergreen International Airlines, and Peninsula Airways serves the community for passenger flights from Anchorage 4 days per week during the summer and 3 days per week in the winter. Several air cargo companies also make Adak a refueling destination on their flights between Alaska, Eastern Russia, and Sakhalin Island. Air carrier employment in Adak is limited to one PenAir employee, and one individual who serves as the agent for Evergreen and who also handles ramp and baggage services for PenAir. The latter individual has recently taken on a second employee, and others assist during peak times as well.

In terms of direct support to the fleet, in addition to basic port services, Adak offers a limited number of "soft" support services such as facilities for crew transfers, and storage for supplies and product. A full support sector with entities providing a wide range of services such as hydraulic, electronic, and electrical systems service and repairs has not yet developed.

One of the existing dedicated specialty support service businesses operates out of a former military machine shop, and the person who runs this operation offers machining, welding, and fabrication services. The only tool and machine shop west of Dutch Harbor, while this enterprise is also the only welding business in Adak, there are others in the community who can provide welding or fabrication services for small jobs or in an emergency, including personnel at the processor. As a civilian entity, it was originally started as an operation to support cleanup contractor operations; the business now has a contract with the City for improvements on Piers 3 and 5, including the fabrication of access ladders. Over the past year, this business has seen trade from fishing vessels, with more substantial work on two vessels in particular, and some cable/drag line fabrication, welding piece work, anchor repair for another couple of vessels, and some "nickle and dime" work on two others. In terms of the relative importance of vessel work to date, the owner of the business characterizes vessels as providing "a little on the side" so far, as there are not enough vessels in the community to provide significant income. Also, according to the business owner, income potential from vessels is limited by the fact that a number of owners or operators are as of yet unaware that machining services are available in Adak. For example, one vessel this past summer did without a part on a net sounder for a month, only discovering the availability of these types of services just before the end of the season. Vessels needing types of work requiring haul-out, floating dry dock, or other substantial waterfront service infrastructure typically seek out services in Dutch Harbor or beyond. It is conceivable that these types of services could be developed in Adak through a partnership of existing service providers and the City, but none are available at present. Apparently during the Navy years, temporary vessel repairs, such as patching, could and would be performed at Adak using salvage and repair divers, but actual repairs would take place in Washington. Reportedly, there is one individual present in Adak who has done some vessel work-related diving, but this individual is not trained as a welder, so typically even temporary in-water repairs require repair divers to be flown out from Dutch Harbor. At present, the machine shop and its equipment are still owned by the Navy, and the business proprietor will enter into a new agreement for lease of the building and use of the equipment when the land transfer is concluded. Typically a one-man operation at present, another individual who has a full-time job with the City is also helping out with the fabrication of some of the pier equipment (and others may be added during peak work loads). Such moonlighting is common in the community where individuals with specialized skills are in short supply and a variety of fishery-related support services are needed. For example, one of the electricians for the City sometimes is called upon for help at the processing plant, and one of the individuals who works in the transportation department at the City is sometimes called upon to do mechanical/diesel and hydraulics work (and the City has the only facility in the community that can press hydraulic fittings). In fact, the operator of the machine shop is an exception to the rule on Adak, having one enterprise as an exclusive focus (although the enterprise does provide a variety of services.) During busy fishing seasons, one outside support firm has flown out an individual to help for a month or two, but otherwise fleet support services are handled primarily by the individuals or enterprises mentioned, or through the local processor.

Other direct fisheries support businesses have shown interest in locating in Adak. While a larger number have made inquiries, two commercial fishing/trawl supply companies, one domestic and one foreign based, have visited the community within the recent past. Reportedly both (and likely other firms) are awaiting land transfer prior to making a commitment to locating in Adak.

The local general store, known as the Ship's Store as well as the Adak General Store, is an enterprise of the Tigara Corporation (an Alaska Native village corporation entity based in Point Hope, on the North Slope). It is located in a former community housing administration and support building in the Sandy Cove housing area leased from the AEC. According to local staff, the store has been in operation for approximately 3 years. It is the only general store in the community and, according to the store manager, it derives approximately 90 percent of its business from the fishing industry and about 10 percent from local year-round residents. Store sales to vessels are sometimes facilitated through the local processor in the form of a purchase order

that is then settled out of vessels delivery of catch to the processor. The store does not receive business from all vessels associated with the community, as a number of the vessels that harvest or deliver locally will resupply in Dutch Harbor potentially as a result of several factors, including established business relationships (and/or other operating cost/benefit factors, such as fuel prices and fish prices). In addition to sales to vessels calling on the community, the store sees a considerable amount of fishery-related business from processing workers. Unlike the situation seen most by other communities, processing workers on Adak do not eat in company mess facilities and so patronize the store for basic foodstuffs. Although workers do bring or ship in some staples, the influx of around 100 processors during the first quarter of the year, each with a weekly food stipend, represents a significant increase in business at the store. The facility manager estimates that roughly 60 percent of total business for the year is seen in the first quarter of the year when fisheries activities are at their peak. There is reportedly some sales increase with the additional personnel in the community during "contractor season" but this is reported to be relatively minor as these employees apparently ship in a great deal of their own food. Among challenges faced by the store, as reported by the manager, is the lack of frequent, reliable barge service. This results in stocking and cost issues. For the store to be able to service vessels, plans must be made far in advance and additional freezer space leased from the ARC to ensure adequate inventory on hand. It also equates to high costs for fresh food, with the store manager citing air shipping costs as \$11 on a single gallon of milk and a round \$1,100 on \$500 worth of produce. Other challenges in the recent past have been a reliable power supply, with concern that an interruption of service would result in the loss of most of the store inventory this past year. Store employment also varies seasonally. During the busy season the store will employ the manager, a checker, and a bagger, but during the slow season employment may drop to the manager and his spouse.

There is a single restaurant in the community (the "Bake and Tackle") that is housed in the former Navy base McDonald's restaurant building. As the name implies, the Bake and Tackle is a multi-faceted business, with fishing gear and some other merchandise available in addition to foodstuffs and cooked meal services. Limited food service is also available evenings at the community's only bar, the Capt. Pat Kelly VFW hall. As a designated "commercial VFW," the Adak VFW, unlike most VFWs, is open to the general public. Despite the "commercial" designation, the VFW is run as a non-profit entity, with at least a portion of revenues generated returned directly to Adak and its nearest neighbor, Atka, in the form of funds for community benefit programs.

The Bake and Tackle and the VFW are run by the same couple, usually with one additional employee at the Bake and Tackle, and several additional employees at the VFW. VFW employment, in addition to the full-time owner/manager includes a part-time bookkeeper and bartending and cook staff. Approximately 14 persons are signed up as available staff, but according to the manager approximately 3 are actively employed at any given time. (Both of these businesses provide good examples of how Adak residents tend to combine employment/income opportunities. The woman who is primarily responsible for the Bake and Tackle also runs a house cleaning service, employing the same person who helps out at the restaurant. The man who is primarily responsible for the VFW also does some engineering work in the community in addition to being involved in the other enterprises.) Both the Bake and Tackle and the VFW see a considerable amount of fishery-related business. According to the owners, more business is generated by cod and halibut fishermen, however, than by crab fishermen. In addition to the restaurant trade, the Bake and Tackle also supplies boats with foodstuffs, including fresh vegetables and milk, often on short notice. The restaurant (and the VFW) also sees a significant amount of business from processing workers. Unlike most other shore-based processors in the region, the Adak processor does not have a mess hall or other food service facilities for its employees. Rather, processing workers are given a weekly food stipend and have cooking facilities in their housing units. According to the business owner, the restaurant sees approximately 60 percent of its business from summer contract (primarily base cleanup) workers, about 30 percent from supplying boats, and about 10 percent from city residents.

The pattern of involvement in multiple types of employment or businesses in Adak is not uncommon, given the small size and nature of the community. For example, the community's only police officer is also involved in overseeing city operations and functions as part of a three-person city management team with the mayor and the city finance director. He also is involved in a number of private business ventures as well, including small video store (Blue Card Video²⁹) located in the high school building, and this is the same individual who acts as an agent for the cargo airline and provides baggage and ramp services for the passenger airline that together provide some employment for two additional individuals. Another example is the community fire chief, who is also the harbormaster as well as a commercial fisherman.

Another small business in the community that functions as a fishery support business is Zac's Enterprises. Run by a couple, this business provides crab pot hauling among other services. (Crab pots are stored on AEC land for a rental fee, or for free on land leased by the local seafood processor as a service for delivering vessels.) As presently configured, the loader can handle four pots at a time, and the company has recently acquired a 50-ton crawler crane that is used to haul small vessels. Last year (2001), this company also provided boat watch services for three vessels over the 2-week Christmas break, and for another vessel for over 2 months. The individuals in this business were also involved in building the small floating dock in the harbor and noted that as facilities improve for small vessels in Adak, there will be significantly more support service opportunities than there are at present. This enterprise also facilitates crew transfers for factory trawler vessels, including providing logistical support, and arranging temporary housing for crews in transit. They also provide offshore mail and parts expediting services. Like other small businesses on Adak, Zac's provides a variety of non-fishery services as well, such as snow plowing, and is involved in other employment in the community, including air transportation services.

The excess community housing supply has provided other support business opportunities as well. For example, the Hotel Adak is an enterprise that operates a total of 18 housing units leased from the AEC (that, in turn, obtains them from the ARC, which holds the master lease), of which 12 are active rentals, 1 is occupied by the hotel operators, 1 houses the hotel housekeeper, and 4 are inactive at present (2002). According to the operator, the hotel does get fisheries-related business through crew transfers and others transiting through the community, with an estimated 15 percent of the overall hotel business attributable to such use, with the opportunity limited by the relatively small size of the current fleet. Most of the hotel fishing-related business is from larger vessels, including factory trawlers, as crew shifts on the smaller catcher vessels can be easily accommodated using the housing leased by the shore processor. Most of the current hotel business derives from government contractor use, primarily with transient managers as the guests. As for larger contracting operations, the general crews are housed in blocks of leased units separate from the hotel operation itself. (The local housing supply also functions as a direct fishery support service separate from the hotel as, for example, Adak Fisheries/Icicle Seafoods is leasing about 30 of the housing units in the community.) The hotel business has marked seasonal peaks, with the winter being very slow, except for the occasional vessel crew that gets 'weathered in' in the community. The units used for the hotel are residential units in the Sandy Cove housing area (i.e., the same pool of housing units used for residences by the permanent population). While barracks type facilities may have been more suited for hotel operations, all things being equal, most of these facilities are reportedly not in current repair. According to the current operator, the specific future of the hotel enterprise is somewhat unclear due to unknowns related to land and building dispositions after transfer from the Navy. Like all other support business operators in the community, with the exception of the machine shop and the manager of the local store, the couple who operate hotel are involved in a variety of other support enterprises or community services, with one individual providing local cable, phone, and UPS services, and the other working at the clinic.

²⁹ The name Blue Card derives from the long-standing mandatory training on unexploded ordnance (UXO) required of individuals working or living on Adak. To document successful completion of the training, attendees were given a blue card. Classes were formerly held in the room the video store now occupies in the high school building. Today (2002) blue card training is given by USFWS personnel and is largely videotape based.

The AEC is currently pursuing an approach of providing the larger support service building blocks, such as fisheries development, fuel services, and port services, with the goal of providing a foundation or opportunities for the establishment of other support businesses in the community to help round out the local economy. The infrastructure inventory held by the AEC represents a very large asset for the community, allowing businesses to not have to start from scratch when coming to Adak. For example, Adak Fisheries leases (on a monthly basis at present [2002]) bays in the Blue Shed for processing, space in an adjacent building for office and storage space, space in the White Shed for storage, and space in the Cold Storage building.

The community clinic is also called upon to provide services to vessel crews. Like a number of other clinics in the region (e.g., the clinic in King Cove), the Adak clinic is run by the Eastern Aleutian Tribes. Located in several rooms on the first floor of the high school building, the clinic has a staff of two: an administrator and a physician's assistant. According to the clinic administrator, approximately one-half or less of the patient demand currently comes from fishing vessels. While during the military days Adak had a full hospital in the community, the current Adak clinic has more modest capabilities. For example, x-ray services are not available locally, meaning that individuals may have to be flown off island for what otherwise would be some relatively basic diagnostic services.

The community does see a minor amount of business related to tourism. According to one local business owner, in recent years three cruise ships came to the community, but little came of that as "the tourists had no place to spend their money." According to USFWS personnel, while there is promotion of tourism by local and regional entities, including the Aleut Corporation, cruise ships tend to end up in Adak as an alternate port if they are weathered out of their primary destination, as opposed to having Adak itself as a primary destination. Reportedly two of the ships were on west to east cruises and one was on an east to west cruise. Primary draws for these cruises have been the World War II military history at Attu and Kiska, the volcanoes of the Aleutians and far eastern Russia, and a retracing of Bering's route. Tourism also occurs in the form of hunters coming to the island for caribou, and the community sees some very modest economic gain from that activity.

As noted by several business owners, the support services sector of the local economy in particular, and the overall economy of Adak in general, will likely change once formal land transfers are complete, and current and potential entrepreneurs understand the ultimate disposition of lands and the opportunities available in the community. At least a few enterprises that have shown an interest in Adak (e.g., a water bottling operation was mentioned by a few residents) but have taken a wait-and-see attitude during the transition time. In the present context of uncertainty, it is difficult to anticipate the specific course of Adak's economy, but it is clear that fisheries development is the cornerstone of a sustainable economy for the foreseeable future.

The Municipality and Revenues

Information on municipal revenues parallel to that presented for other profiled communities does not exist. The community was incorporated in April 2001 and several months later instituted a 3 percent sales tax and a two-cents-per-gallon fuel transfer tax to form a revenue base. Through the sales tax, fisheries are expected to provide a significant portion of community revenues. There are no local property taxes in Adak. At the time of fieldwork for this project (fall 2002), no detailed tax information was yet available from the recently completed fiscal year (the first full year as a civilian community) and, according to City staff, there were a number of changes that took place during the first year that would make interpretation of quantitative data less than straightforward in any event.

In terms of relative expected contribution of fisheries to local municipal revenues, local projections for FY 2003 (July 2002-June 2003) show that approximately 92 percent of anticipated local revenues from state

sources are expected to derive from shared fish tax and landing taxes, and approximately 85 percent of direct city revenues are expected to derive from the fuel transfer tax, harbor fees, and sales tax revenues. Harbor fees are locally estimated to derive about 90 percent from commercial fishing-related wharfage and moorage (although this revenue source may change somewhat in the future as, according to city staff, ownership of dock facilities is "still being sorted out"). Overall sales taxes themselves are expected to account for about three-quarters of all direct city revenues and of these about three-quarters are expected to derive from local fish taxes.

In addition to state and city general revenue sources, the city also derives utilities revenue from fisheries-related activity. These revenues come from provision of utilities to the processing plant, including electricity, garbage service, and water/sewer services. Fisheries account for a significant portion of these revenues as well.

Despite being a new community, a new government, and a new fishery participant, it is clear that the community of Adak, as presently constituted, is substantially dependent upon commercial fisheries. This dependency has become relatively greater in the few years since the local plant opened, as this was the same time during which base cleanup and closure activities were winding down. According to City staff, however, the city itself receives no direct benefit (at least in the form of revenues) from cleanup activities. On the contrary, some city leaders argue that federal funding of military cleanup activities on Adak has actually put the city at a competitive disadvantage for federal funding of projects that would be of more or longer-term economic benefit to the community (as the cleanup allocations that are consumed by contractors and other off-island entities show up as federal funding to the city, and additional federal funds are all that much harder to come by).

At present, City priorities are conversion and downsizing of the former military power plant to more efficiently serve the community and the construction of a small boat harbor. Like other local institutions, the City of Adak is adjusting to the evolving nature of the community, recently (September 2002) having transitioned from a strong mayor form of government to a city manager form of government. According to senior City staff, there is also a high priority being placed on getting the City out of debt.

Summary of Recent Community Fishery IFQ/Co-op Rationalization Experience and Implications for Likely Crab Rationalization Impacts

Adak does not have first-hand experience specifically with IFQ and co-op rationalization programs in the same sense as the other communities profiled in this document as a result of the different general fishery histories in the communities. Essentially, the structure of the previously established programs in the halibut, sablefish, and pollock fisheries have served to exclude later developing Adak from those established fisheries. As a result, preclusion is a major issue or obstacle in Adak's attempt to foster a fisheries-oriented local economic base. Crab approaches based on historical participation, such as the system proposed under the rationalization alternatives, present similar challenges.

Although a community dominated by Aleut institutions (e.g., the Aleut Corporation and the AEC), and one that has featured major investments by these entities, Adak is not an ANCSA community and did not qualify for inclusion in the CDQ program (and thus has no CDQ experience). Adak has a much different socioeconomic history than typical CDQ program communities in any case, as it has not experienced high levels of unemployment, poverty, and lack of economic development opportunities that were at least a partial impetus behind the formation of the CDQ program itself. Rather, the danger for Adak with the rationalization program is the preclusion of economic development rather than a lack of improvement for a chronically problematic economy. With no established history of processing until very recently, Adak does not qualify for substantial allocations under the general terms of the "three-pie" rationalization program. In recognition

of the developing nature of Adak's economy, however, and the central importance of the fisheries to that economy, Adak is being considered for a direct community allocation unlike those seen elsewhere in the program. Given the evolving nature of the community and its institutions, there was initially some question as to the appropriate entity to receive or administer a community-based allocation, but a new entity with a community-wide constituency will be formed for the purposes of administering this allocation.

The relationship between the community of Adak and Western Aleutian Islands (WAI) golden king crab (also commonly known as Adak brown king crab) stock exploitation is somewhat different than the other fisheries that are being considered for rationalization. When discussions of the rationalization program began several years ago, the WAI golden king crab stock was not fully exploited, and was not therefore in the same apparent need of rationalization as other stocks. For example, approximately 12 percent of the GHL was not harvested during the rationalization qualification period. More recently, however, (and especially since Adak shore processing operations have begun), the guideline levels have been fully exploited.

Differential Impacts of the Three Rationalization Alternatives at the Community Level

As summarized above, for Adak the engagement in, and dependency on, the BSAI crab fishery is based primarily upon ties to local processing activity while the community attempts to expand and diversify the commercial fisheries component of its economic base. Beneficial or adverse impacts to the community of Adak deriving from the different rationalization alternatives result from the differential outcomes for these activities.

Each of the rationalization alternatives have identical provisions regarding increased allocations to the CDQ program (inclusion of additional species and an increase in the included species set-aside from 7.5 to 10 percent of the total allocation), creation of captain's harvest quota shares (3 percent of the TAC), and a community development allocation to Adak. Each of these provisions are directed toward fostering beneficial community or social impacts for at least some groups or areas. Adak, as non-CDQ community, would not directly benefit from the CDQ program increases. Impacts of the creation of captains shares are not likely to be significant for the community of Adak, given the minimal local engagement in the harvest sector during the qualifying period.

Adak would experience significant beneficial impacts from the proposed Adak community allocation provisions, and is the only non-CDQ community that is receiving a community development allocation. Under each of the rationalization alternatives Adak would receive a community development allocation of 10 percent of the WAI golden king crab fishery. This would be an "off the top" allocation, and would be administered by a community group formed for this purpose.³⁰ The allocation would be a set-aside of harvest quota, and could be used in a number of ways to benefit the community. The overall GHL in this fishery has been 2.7 million pounds annually for the last several years, meaning that Adak's allocation would be 270,000 pounds at the current GHL. Over the period of 1990-2000, ex vessel prices have ranged from \$2.15 to \$4.90 per pound, implying gross revenues ranging from \$581,000 to \$1,323,000. The average ex vessel gross revenue in that period was \$840,000 for the amount of crab included in the allocation (at an average price of

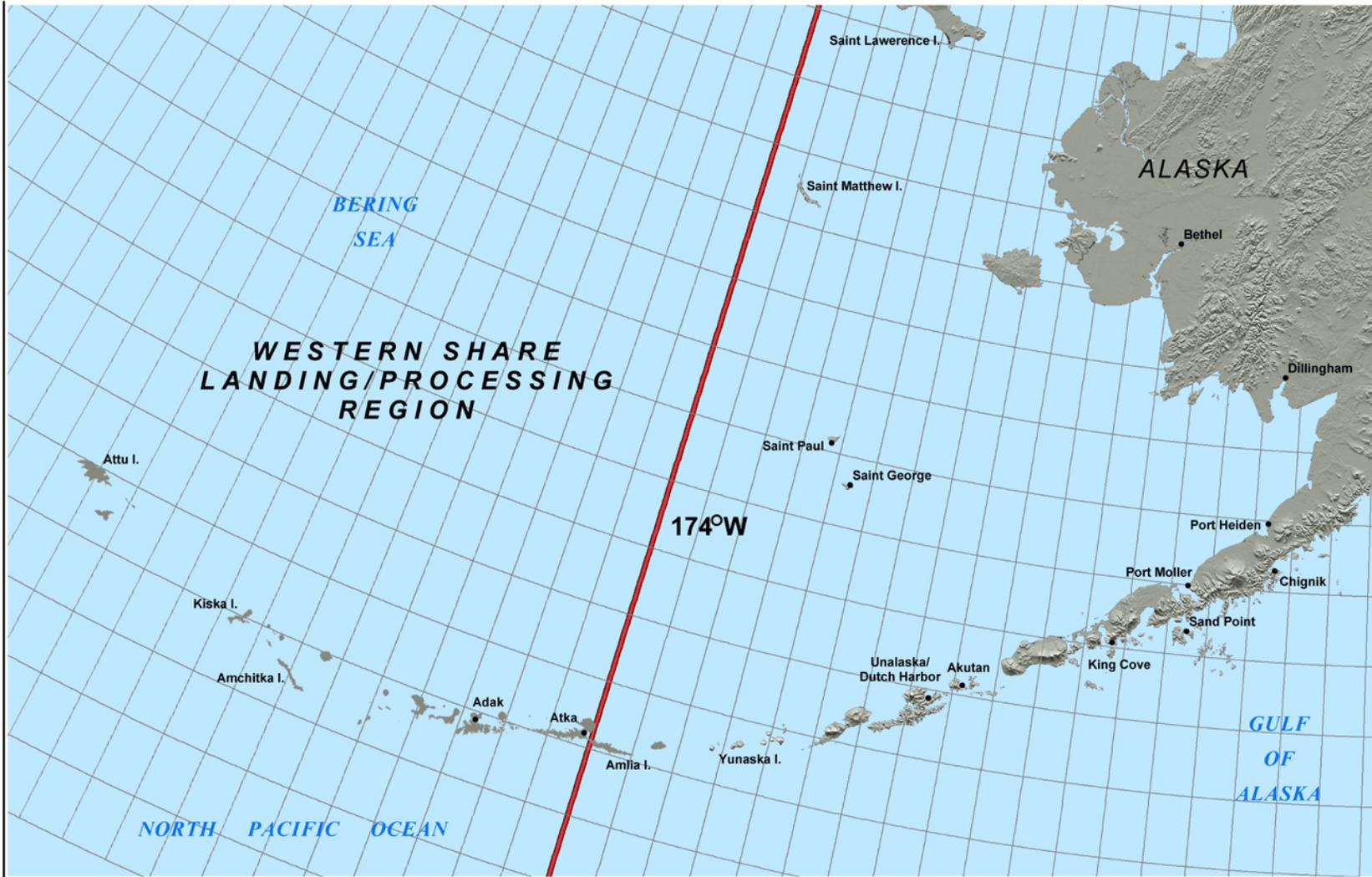
³⁰The NPFMC motion incorporated into the Three Pie Voluntary Cooperative Alternative provides that an allocation would be made to the community of Adak from the Western Aleutian Islands (Adak) golden king crab fishery in an amount equal to the unused resource during the qualifying period. This allocation, however, would be capped at 10 percent of the total allocation in that fishery. Since approximately 12 percent of the GHL was unharvested during the qualifying period, the 10 percent cap would apply. The allocation to Adak would go to a nonprofit entity representing the community with a board of directors elected by the community. Shares could be held in trust by the Aleut Enterprise Corporation for a period not to exceed 2 years if the community organization is not formed prior to implementation of the program. Share holdings of the community organization would be governed by CDQ-type management and oversight to ensure the benefits of the allocation are realized by the community. This allocation is independent of any other requirements of the rationalization program (e.g., IPQ landing requirements, regionalization, or other community protections).

about \$3.10 per pound). This would be a significant beneficial impact to the community, both in terms of revenues and in terms of increased engagement in the fishery.

Regionalization is a feature of the three-pie alternative and the IFQ alternative, but is not a part of the cooperative alternative. Regionalization is explicitly designed to create beneficial community or social impacts for at least some groups or areas. The north/south region designation was designed primarily to benefit the Pribilofs, while the west region designation in the WAI golden king crab fishery was designed primarily to benefit Adak.

In general, the north/south regional split would not appear to have significant impacts for the community of Adak, but the west region designation would have significant beneficial impact for the community. Under the regionalization provisions of the three-pie and IFQ alternatives (but not the cooperative alternative), 50 percent of the WAI golden king crab fishery harvest quota shares would be designated for delivery in a west region, defined as lands west of 174 degrees west longitude. This line would essentially mandate deliveries of half of the WAI golden king crab to sites along the Aleutian Chain beginning immediately east of the community of Atka and extending to the western end of the chain (see Figure 2.6-1 “Western Aleutian Islands Golden King Crab Fishery Regionalization Landing/Processing Area”). The remaining 50 percent of the harvest shares within the fishery would not be regionally designated, and could be delivered east or west of the line. While the community of Atka could benefit from the west region designation, and some of the crab could be processed by mobile processors in uninhabited areas in the west region, clearly the community of Adak stands to significantly benefit from the implementation of west region delivery provisions due to its having the only developed crab shore processing capacity in the region. Using the same period and average figures noted above, the west region harvest shares would equal approximately 1,215,000 pounds (that is, 50 percent of the remaining GHL following the removal of Adak’s 10 percent community development allocation). Using the average price of about \$3.10 per pound for the 1990-2000 period, this would be approximately \$3,767,000 in ex vessel value of deliveries a year under current GHL conditions, of which Adak would be assumed to capture a substantial portion. Of course, value to the community would depend on actual GHL, ex vessel price, and delivery patterns, and these could be expected to vary considerably from year to year. Even though the impact cannot be quantified with a degree of certainty, this feature would clearly represent a significant beneficial impact to the community under the three-pie and IFQ alternatives. The cooperative alternative does not have a regionalization feature, so this type of benefit would not accrue to Adak under that alternative, and Adak may or may not lose relative share to processors elsewhere compared to baseline conditions, but it almost certainly would compared to likely outcomes of the three-pie or IFQ alternatives with their regionalization feature.

Under the three-pie alternative, if determined to be eligible, the community of Adak could benefit from the community protection provisions requiring a “cooling off” period of no movement of processing quota share out of the community. Adak, however, would not be eligible to qualify for right of first refusal provisions, as the unique allocation in the WAI golden king crab fishery was designed by the Council to protect Adak community interests in lieu of the right of first refusal. (Due to confidentiality restrictions, it cannot be disclosed whether or not Adak is deemed eligible for community protection provisions.) However, the community of Adak currently has more crab processing activity than was seen during the rationalization qualification period, so the “cooling off” period does not necessarily confer a net benefit to the community by itself. Adak is different from all other communities with respect to its relatively heavy dependency on the WAI golden king crab fishery and relatively light engagement with other crab fisheries. Under the IFQ alternative there are no direct community protection provisions (other than the waiver of sea time for community groups purchasing harvester shares). Otherwise, Adak would not benefit from community protection provisions under either the IFQ or the cooperative alternatives.



Source: Alaska Dept. of Natural Resources



150 75 0 150 Miles

Scale: 1:9,504,000; 1 inch = 150 miles

**Western Aleutian Islands Golden King Crab Fishery
 Regionalization Landing/Processing Area**

Whether or not these community protection features provide neutral or positive benefits to the community depend on what individual operation's decision making process would have been regarding consolidation absent these provisions, which is unknowable. For example, without knowing confidential business information, it is not clear in the absence of community protection measures whether consolidation within the processing sector as a result of rationalization would increase or decrease activities in Adak.

The rationalization alternatives also differ on the ability of communities to obtain harvest quota share. Under the three-pie and IFQ alternatives, CDQ groups, or other community groups if a CDQ group is not present, in eligible communities (again, those with 3 percent or more of processing activity for covered species during the qualification period) would be able to purchase harvest quota share due to a waiver of sea time requirements that would otherwise prevent such purchases. By design, the ability to obtain harvest quota share could result in beneficial community and social impacts through communities becoming more directly engaged in the fishery. In the case of Adak, harvest quota shares, if purchased, would be obtained by the to-be-formed community group. If exercised, this ability could result in beneficial community and social impacts through the community becoming engaged in the fishery in a way that it is not under existing conditions.

Another potentially distinguishing feature of the rationalization alternatives from a community or social impact perspective is the ability of harvesters to form co-ops under the three-pie and cooperative alternatives (but not under the IFQ alternative). For Adak, this ability (or lack thereof) would not appear to result in significant beneficial or adverse impacts given its current nature of engagement with the fishery.

2.7 ST. PAUL

The community of St. Paul is located on a narrow peninsula on the southern tip of St. Paul Island, the largest of five islands in the Pribilofs. St. Paul Island lies 47 miles north of St. George Island, 240 miles north of the Aleutian Islands, 300 miles west of the Alaska mainland, and 750 air miles west of Anchorage. St. Paul, located in the Aleutians West Census Area, is not part of an organized borough. The City of St. Paul, incorporated in 1971, encompasses 40.3 square miles of land and 255.2 square miles of water.

The climate of St. Paul is arctic maritime. The Bering Sea location results in cool weather year-round and a narrow range of mean temperatures varying from 19 to 51°F. Average precipitation is 25 inches, with snowfall of 56 inches. Heavy fog is common during summer months.

The Pribilofs were encountered in 1786 by Russian fur traders who landed first on St. George and originally named the larger island to the north St. Peter and St. Paul Island.³¹ Beginning in 1788, the Russian American Company relocated indentured or enslaved Aleuts from Siberia, Atka, and Unalaska to the Pribilofs to hunt fur seals, and the contemporary population of the two islands trace their ancestry to those original hunters. The island was administered by the Russian American Company until the sale and transfer of Alaska from Russia to the United States in 1867.

In 1870, the Alaska Commercial Company was awarded a 20-year sealing lease by the U.S. Government, and provided housing, food, and medical care to the Aleuts in exchange for seal harvesting. In 1890, a second 20-year lease was awarded to the North American Commercial Company. However, the fur seals had been over harvested and a period of severe local poverty ensued. The 1910 Fur Seal Act ended private leasing on the

³¹ A relatively detailed history of the community of St. Paul and a description of previous engagement in the commercial fisheries of the area may be found in the community profiles developed for the NPFMC's Social Impact Assessment of the Inshore/Offshore-1 Amendment Proposal (IAI 1991), and will not be recapitulated here beyond a brief overview.

Islands and placed the community and fur seals under the U.S. Bureau of Fisheries. Food and clothing were scarce, social and racial segregation were practiced, and working conditions were poor.

During World War II, the Pribilof Aleuts were moved to Admiralty Island in Southeast Alaska as part of the evacuation of civilian residents from the Bering Sea. Unlike other Aleutian residents, they were confined in an abandoned cannery and mine camp at Funter Bay. In 1979, the Pribilof Islanders received \$8.5 million in partial compensation for the unfair and unjust treatment they were subject to under federal administration between 1870 and 1946.

In 1983, Congress passed the Fur Seal Act Amendments, which ended government control of the commercial seal harvest and the effective federal domination of daily life on the island. Responsibility for providing community services and management of the fur seals was left to local entities. Funds totaling \$20 million were provided to help develop and diversify the Pribilof economy - \$12 million to St. Paul and \$8 million to St. George. The amendment assumed that commercial harvests would continue and become a major source of local funding, but the U.S. Senate failed to ratify the Fur Seal Treaty in 1984, thus ending commercial seal harvesting on St. Paul (commercial sealing had ceased on St. George a decade earlier). (Ownership of fur seal pelts is now prohibited except for subsistence purposes, and a subsistence seal hunt occurs annually.) On St. Paul, most of the transition funds were used to upgrade inadequate community infrastructure, including major investments in the harbor. The federal government in 1983 also apparently assumed that the State of Alaska would provide substantial harbor improvement funding to supplement the federal transition funds, but the state was seemingly not in a position to do so. Thus, federal withdrawal took place without commercial sealing continuing, state assumption of the harbor development project, or substantial funding available for economic development and diversification, all key assumptions for the development of a self-sustaining local economy.

Incorporated as a Second Class City, today St. Paul is a port for the central Bering Sea fishing fleet, and port and harbor improvements have been the basis for recent economic development. The local commercial halibut fishery got its start in 1981, and a crab processing plant was built several years later. Local residents hold commercial fishing permits for halibut, a few own halibut IFQs, and local boats also fish for CDQ halibut. Trident and a local buyer (PASCO, owned jointly by the local Indian Reorganization Act (IRA) organization and the village ANCSA corporation) have been the local buyers for halibut. Cold storage construction was recently completed. In the recent past, UniSea and Icicle floating processors operated in the harbor, others operated nearby but outside the harbor itself, and up to nine offshore processors have been serviced out of St. Paul. More recently, UniSea has discontinued operations in the community.

Community Demographics

As briefly outlined above, St. Paul has yet an entirely different origin than the other communities profiled (other than nearby St. George). Today's community traces its roots directly to the forced migration and population of a commercial sealing outpost on previously uninhabited lands under Russian dominion. In this way it does not have the continuity to a prehistoric past like Unalaska, an original foundation in the commercial fishery like King Cove, or a grounding in military exigencies like Adak. St. Paul (along with neighboring St. George) has by far the largest proportion of Alaska Natives relative to total population of any of the communities profiled. As with these other communities, however, local residents perceive the fishing industry as the best economic opportunity for the community, especially given St. Paul's status as a CDQ community and the potential advantages for development this status entails.

Total Population

Information on the total population of St. Paul by decade for the past 120 years is presented in Table 2.7-1. As shown, the population declined between 1880 and 1910, but increased every decade between 1910 and 1990. Between 1990 and 2000, however, the population declined by approximately 30 percent. This can perhaps be at least partially accounted for by a reduction in the enumeration of fish processing employees (see discussion of ethnicity below). The long-term construction of the harbor began in 1984 and, while projects continue, it was officially opened August 3, 1990. Thus, the contracted labor force for this (and other) projects may have also peaked in 1990. Current adverse local (and regional) economic conditions may also be contributing to an overall population decline (see school and especially opilio crab stock decline discussions below).

Table 2.7-1 St. Paul Population by Decade, 1880-2000

Year	Population
1880	298
1890	244
1900	214
1910	201
1920	212
1930	247
1940	299
1950	359
1960	378
1970	450
1980	551
1990	763
2000	532

Source: Historic data from Alaska Department of Community and Economic Development, 2000 data from U.S. Bureau of the Census

Ethnicity

Table 2.7-2 presents information on ethnicity of the St. Paul population for 1990 and 2000. As shown, the 2000 population is considerably less diverse than the 1990 population. In 1990, Alaska Natives accounted for two-thirds of the total population, while in 2000 the population was 86 percent Alaska Native. African Americans and Hispanics, present in the 1990 census, were absent in 2000, while Asian/Pacific Islanders and "Other" individuals were present at less than 10 percent of their 1990 totals. These minority groups are characteristically significant components of the fish processing workforce in Western Alaska, and are typically absent in Western Alaska communities with no fish processing. Fish processors commonly live in group housing provided by their employer.

Table 2.7-2 Ethnic Composition of Population St. Paul 1990 and 2000

Race/Ethnicity	1990		2000	
	N	%	N	%
White	164	21.5%	69	13.0%
African American	12	1.6%	0	0.0%
Native American/ Alaskan	504	66.0%	457	85.9%
Aleut	485	63.6%	-	-
Eskimo	8	1.0%	-	-
American Indian	11	1.4%	-	-
Asian/Pacific Islands*	44	5.8%	3	0.6%
Other**	39	5.1%	3	0.6%
Total	763	100%	532	100%
Hispanic***	62	8.1%	0	0.0%

* In the 2000 census, this was split into Native Hawaii and Other Pacific Islander (pop 3) and Asian (pop 0)

** In the 2000 census, this category was Some Other Race (pop 0) and Two or more races (pop 3).

*** "Hispanic" is an ethnic category and may include individuals of any race (and therefore is not included in the total as this would result in double counting).

Source: U.S. Bureau of Census

Group housing in St. Paul has historically been largely associated with federal employment, temporary construction projects, and seafood processing. Federal employment declined significantly prior to 1990, and so is probably not a major component of the population differences between 1990 and 2000. As shown in Table 2.7-3, 26 percent of the population lived in group housing in 1990, but only 4 percent did so in 2000. This sharp drop is attributable to a reduction in enumeration of fish processing employees (but whether this was due only to a decline in such activity, or at least partially to change in the timing of such activity, is not clear). It is also likely a function of a decline in "special projects" (with outside workers) as well. Table 2.7-4 provides 1990 census information on group housing and ethnicity for St. Paul (similar information for 2000 is not yet available). Also as shown, ethnicity varied strikingly between the group and non-group housing, with the non-group housing population being 88 percent Alaska Native and the group housing population being only 2 percent Alaska Native.

Table 2.7-3 Group Quarters Housing Information, St. Paul, 1990 and 2000

Year	Total Population	Group Quarters Population		Non-Group Quarters Population	
		Number	Percent of Total Population	Number	Percent of Total Population
1990	763	196	25.69%	567	74.31%
2000	532	22	4.13%	510	95.87%

Source: U.S. Bureau of the Census 1990 STF2, Census 2000 Summary File 1

Table 2.7-4 Ethnicity and Group Quarters Housing Information, St. Paul, 1990

Race/Ethnicity	Total Population		Group Quarters Population		Non-Group Quarters Population	
	Number	Percent	Number	Percent	Number	Percent
White	164	21.5%	99	50.5%	65	11.5%
Black	12	1.6%	12	6.1%	0	0.0%
American Indian, Eskimo, Aleut	504	66.1%	4	2.0%	500	88.2%
Asian or Pacific Islander	44	5.8%	42	21.4%	2	0.4%
Other race	39	5.1%	39	19.9%	0	0.0%
Total Population	763	100.0%	196	100.0%	567	100.0%
Hispanic origin, any race	62	8.1%	59	30.1%	3	0.5%
Total Minority Population	605	79.3%	102	52.0%	503	88.7%
Total Non-Minority Population (White Non-Hispanic)	158	20.7%	94	48.0%	64	11.3%

Source: U.S. Bureau of the Census 1990 STF2

Age and Sex

Table 2.7-5 provides information on the age and the male/female ratio of St. Paul's population in 1990 and 2000. As shown, there was a larger male to female imbalance in 1990 than is seen in 2000. This, like the changes seen in overall population, ethnic composition of the population, and proportion of the population living in group quarters, can be attributed to the lack of a transitory or mobile labor force in 2000, which has resulted in the community having less of an "industrial" or "institutional" type of population and more of a "residential" type of community population.

Table 2.7-5 Population by Age and Sex, St. Paul: 1990 and 2000

Attribute	1990		2000	
	N	%	N	%
Male	478	62.6%	294	55.3%
Female	285	37.3%	238	44.7%
Total	763	100%	532	100%
Median Age	NA		31.9 years	

Source: U.S. Bureau of Census

The St. Paul school, a part of the Pribilof School District, provides kindergarten through twelfth grade classes. School enrollment figures for the 1993-2002 period are displayed in Table 2.7-6. As shown, student counts during this span peaked in 1995, and the current (2002) enrollment is about three-quarters of that seen in 1995. According to senior school staff, currently there are approximately 16 to 18 local residents attending high school "off-island," while approximately 24 attend the local high school. Until the early 1990s, the St. Paul school only provided education through the tenth grade, and all eleventh and twelfth grade students attended school off-island. Thus, while there is strong community support for the local school, there is also a strong local tradition of attending high school off-island (Carden, personal communication 2002).

Table 2.7-6 St. Paul School Enrollment, 1993-2002

Year	Student Count
1993	118
1994	127
1995	153
1996	141
1997	140
1998	127
1999	121
2000	114
2001	110
2002	116

Source: Data supplied by school district staff, October, 2002.

Local Economy and Links to the Crab Fishery

The federally controlled fur seal industry dominated the economy of St. Paul until the mid-1980s. The presence of large seal populations still contributes to the local economy, as the rookeries and more than 210 species of nesting sea birds attract almost 700 tourists annually, and the community is working to further develop eco-tourism.

There is also a reindeer herd on the island, a remnant from a previous commercial venture. Residents utilize halibut, fur seals (1,645 may be taken each year), reindeer, marine invertebrates, plants, and berries for subsistence. Locally obtained subsistence resources are shared and exchanged with relatives and friends living in other communities, sometimes in return for subsistence resources obtained elsewhere, such as salmon.

The overall importance of the commercial fishery to the community may be seen in the fact that the local raw fish tax is the largest single local source of funds for the City of St. Paul. In terms of the relative importance of crab, opilio is by far the most important commercial species, crab or non-crab, for St. Paul processors and thus for revenues for the City of St. Paul.

In recent years, economic activity associated with harbor development in the support of commercial fishing has been quite important, and especially so in conjunction with the local development of those fisheries. St. Paul, as a CDQ community, has a viable opportunity to partner with the fishing industry in these ventures. Summary information on local CDQ group-related employment is only available for 1994-1997 and ranged from 89 in 1994 to 15 in 1997, with average earnings ranging from \$9,807 to \$14,880 (CBSFA website 2001). Due to the recent drastic reduction in opilio crab stocks (and quotas), St. Paul has also recently shared

in the receipt of Opilio Crab Disaster Funds, as has the Aleut Community of St. Paul (the local IRA organization) and the Central Bering Sea Fisherman's Association (CBSFA).

Harvesting

The local fishing fleet focuses primarily on halibut in the local area (4C), although there is interest in expansion into other areas. As discussed in the Inshore/Offshore-1 community profiles (NPFMC 1991), Tanadgusix Corporation (typically referred to as "TDX"), the local ANCSA village corporation, fostered the growth of this fleet, beginning in 1981, by providing loans for boats and, in the early years, operating a facility to buy and process the halibut.

The CDQ program, which was implemented in 1992 as part of the groundfish management changes of Inshore/Offshore-1, allocated a percentage of the pollock quota to CDQ communities to aid in economic development through involvement in Bering Sea commercial fisheries. St. Paul is the only community that is the sole member of its own CDQ group (the CBSFA). The CDQ program expanded in 1998 to a number of other species, including crab, in addition to pollock. The CBSFA is currently (2002) allocated the following percentages of the overall CDQ allocations – pollock 5 percent, halibut (area 4C) 90 percent, sablefish (Bering Sea) 18 percent, turbot (Bering Sea) 14 percent, turbot (Aleutian Islands) 5 percent, Pribilof red and blue king crab 100 percent, opilio crab (Bering Sea) 19 percent, Bairdi tanner (Bering Sea) 19 percent, Pacific cod 20 percent, Atka mackerel 10 percent, yellowfin sole 8 percent, most flatfish species 10 percent, rockfish other than arrowtooth 8 percent, Arrowtooth rockfish 9 percent, most Pacific Ocean Perch species 10 percent, and various percentages of prohibited species CDQ caps.

About 31 community residents currently hold commercial fishing permits for halibut. Most local boats are in the 22- to 26-foot range, with 34 feet being considered "large" for a local boat. The fleet also includes quite small skiffs fished only in very good weather. In terms of gear differentiation by vessel size, a 34-foot boat can handle a self-baiting system for halibut fishing, while smaller boats cannot.

The summer halibut season is a central organizing activity for the entire community (P. Swetsof personal communication 2002), and CDQ halibut is especially important in this regard (Kudrin personal communication 2002). Fifty-eight people are on the list to receive mailings from the CBSFA, but only local residents are allowed to fish for CDQ halibut. The CBSFA sets the terms under which they fish. Most recently, fishermen were limited to landing 5,000 pounds a day and received payment from the processor minus an approximate 6 percent charge paid to the CBSFA to offset the costs of administering the program. The season usually starts June 15 and lasts until the processor leaves or shuts down the line, which occurred on September 15 in 2001. There were 49 actual fishing days for halibut in 2001 (with some limitation due to weather) and 99 percent of the CBSFA CDQ halibut quota of 913,500 pounds was harvested. In 2001, 24 boats were eligible to fish and 20 actually fished. The highest producers in the fleet harvested 70,000 to 110,000 pounds of CDQ halibut over the season, and the participants with lowest seasonal totals still all harvested well over 5,000 pounds each. A few fishermen also own IFQs (most through initial allocation, but at least one fishermen has purchased local halibut IFQs).

Local fishermen are also interested in developing a local cod fishery and have sold a limited amount of cod caught as by-catch in the halibut fishery to various processors. Cod is not yet a target fishery for the local fleet, although its development is one of the long-term goals stated in the CBSFA's quarterly CDQ reports to the State of Alaska. The Trident plant in St. Paul has processed cod, although this cod was purchased primarily (or totally) from non-local boats. There are other fisheries of interest to the local fleet, such as the hair crab fishery.

According to ownership data supplied by NPFMC, all crab deliveries to processors in the Pribilofs are made by non-local boats from other Alaskan communities and the Pacific Northwest. While these data indicate there is little or no local crab fleet in St. Paul, there has, however, been recent local investment in crab harvesters through the local CDQ group. While not showing up as majority ownership, these investments still mean there is a local stake in harvest issues. Furthermore, it is not uncommon for at least a few local residents to serve as crew members on vessels in which the CBSFA has an ownership stake, so that in most years one or two St. Paul residents earn crew shares in Bering Sea crab fisheries.

The level of harvesting, and processing, of crab in the Pribilofs and more specifically around St. Paul has depended on resource population levels and quotas that have fluctuated substantially in recent years. Floating processors and catcher processors processed most of this crab through the 1980s and continue to process much of it. Since 1992, however, shoreplant operations on St. Paul have grown in local importance. The relative production of shoreplant and floating processors in and near St. Paul in recent years cannot be discussed quantitatively because of data confidentiality restrictions. Information for the area designated as the "north region" for the purposes of crab rationalization alternatives and options analysis involving a regionalization component (i.e., all areas on the Bering Sea north of 56° 20' north latitude, see Figure 2.7-1 "North and South Regionalization Landing/Processing Areas") is discussed in the following section. Although community-specific data cannot be parsed out for this region, it is clearly understood through common knowledge that most of the processing within the north region takes place in St. Paul.

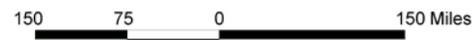
Processing

In terms of the history of local processing efforts, contemporary local shore processing can trace a continuity to a TDX pilot project to harvest and process local halibut that began in 1981. One source suggested that they were using the "Anderson plant," which had been built in the 1970s (Joe Plesha, personal communication, January 2002). Small volumes of halibut were processed in 1981-1983 and increased significantly in 1984. TDX sold the operation to the local IRA Council in 1984, which operated it until 1988. After 1988, the facilities were upgraded and leased to an outside operator, Pribilof Island Processors (PIP), which reportedly processed halibut, cod, and crab – although total amounts may have been relatively small. PIP went out of business in 1991 and its assets, including the St. Paul operations, were acquired by Unipac. Unipac continued to operate the existing facilities but also built a large crab plant. Unipac processed a significant amount of crab in 1992-1994. In 1994, Trident Seafoods purchased the Unipac assets and has operated the crab plant since then. More recently, TDX and the Aleut Community of St. Paul have jointly operated as another local buyer for halibut, doing business as PASCO, and attribute the increased local price for halibut to this increased competition. The first year they processed the halibut with their own crew, using facilities leased from Trident. In 2001, according to local sources, a different custom processing arrangement instituted by Trident had the effect of resulting in less profit for PASCO. As a result, PASCO is seeking to start a small independent processing facility to gain control over a larger portion of their total operation.

The Trident plant, in terms of value and probably total pounds, has relied primarily on crab. Trident reports that immediately after crab they process cod, but the amount varies from one year to another. Recently Trident has explored the salt cod market. In a "normal recent" year the yearly cycle is expected to be crab opening about January 15 with about 150 processors (nearly all non-local) on hand. All boats delivering crab are non-local. The crab quota would be expected to last until February 5, when two-thirds of the processors would be "sent home" (laid off) and about 50 retained for cod and CDQ crab (if any) until March 15 or so. The targeted cod fishery is also fished by non-local boats, although some by-catch cod may be delivered by local boats during the halibut fishery. Halibut processing takes place from mid-June through September and employs a processing crew of about nine, of whom two or three are typically local. CDQ halibut is very important during this period and is fished exclusively by local boats. Local boat-owners also own some



Source: Alaska Dept. of Natural Resources



Scale: 1:9,504,000; 1 inch = 150 miles

**North and South Regionalization
Landing/Processing Areas**

regular halibut IFQs, which are delivered into St. Paul, and a few non-local fishermen have delivered regular IFQ halibut to St. Paul in the recent past. Processing employees have had minimal interaction with full-time St. Paul residents.

A number of floating processors have also operated in the area and have established consistent relationships with various regional communities. Icicle and Norquest are the two major floaters who are currently processing crab in the Pribilofs. Another operator, UniSea, processed crab in the Pribilofs during the mid- and late-1990s, but has sold their platform (the UniSea³²) and did not process crab in the Pribilofs in 2000 or 2001. Icicle processes inside the St. Paul harbor, while Norquest processes outside of the harbor itself, as well as in other in other locations in the Pribilofs. Other enterprises may also have used floaters to process crab in and around St. Paul and St. George as well.

As a general rule, quantitative data regarding the processing of most commercial fisheries species in St. Paul, or even for the north region as a whole, cannot be given because of confidentiality restrictions. Further, because of confidentiality considerations, for those few instances where data can be discussed, only quantitative information for St. Paul itself or the for the north region as a whole, but not both, may be revealed. For crab, those few cases include (1) opilio crab and (2) all nine relevant BSAI crab species combined. These two instances provide the only combinations of data where the number of processor entities (four or more) allow for data disclosure. Further, the information available does not allow a quantitative discussion of processor dependency on crab in terms of diversity of all species processed in the region. As developed below, however, qualitative information suggests that the mix of species processed within the north region is less diverse than generally seen in other communities.

Given the limited options available and with the knowledge that St. Paul processing has historically comprised most of the processing activity in the north region, non-confidential quantitative information for the north region as a whole will be provided in this community discussion rather than numbers that pertain only to St. Paul specifically. This decision was made due to a judgement that this approach is of greater overall utility for the analysis of the impacts of the regionalization aspects of the rationalization alternatives (although it results in some loss in the ability to discuss impacts specific to St. Paul with precision). While these data appear in the St. Paul profile, it is also important to note that using the regionally aggregated data allows the discussion to be inclusive of St. George as well (and the profile of that community follows this one).

Table 2.7-7 displays the processing history for opilio crab for both the north region and in all regions combined in terms of value for 1991-2000. Comparative information for all nine relevant BSAI crab fisheries combined is also presented in the table. As shown, opilio crab is by far the most important of these species for the north region, accounting for 74 to 100 percent of the relevant BSAI crab processed in that region annually in the period 1991-2000. In terms of the opilio fishery as a whole, processing in the north region was most significant since 1993, and especially since 1994. For the period 1991-2000, north region processing accounted for about 31 percent of the total processing value of the fishery. For the period 1995-1999, the comparative percentage is about 43 percent. The sharp decline in the GHV from 1999 to 2000 was disproportionately felt in the north region, as it resulted not only in absolute decline in local harvesting and processing, but also in a sharp decline relative amount of total opilio processing in the north region as a whole. The percentage of the total opilio crab fishery processed in the north region declined from 49 percent in 1999 to just 18 percent in 2000. That is, the reduced stock size resulted in a different distribution of where crab was processed, not a proportional decline in all areas, with the south region (plus unassigned processing) increasing from around one-half to four-fifths share of opilio processing.

³² The UniSea barge, long a fixture in Dutch Harbor and later St. Paul, was sold for scrap in the Far East, leaving the fishery entirely.

Table 2.7-7 Value of Opilio and Other Relevant BSAI Crab Species Processing for the North Region and the Total of All Regions, 1991-2000

Year	North Region (Only)			All Regions (North and South Regions Combined)			North Region as a Percentage of All Regions	
	Opilio	All 9 PMA	Opilio as % of All PMA	Opilio	All 9 PMA	Opilio as % of All PMA	Opilio	All 9 PMA
1991	\$15,609,665	\$18,743,343	83.3%	\$164,468,126	\$305,695,929	53.8%	9.5%	6.1%
1992	*	\$20,352,531	*	\$160,094,620	\$289,853,730	55.2%	*	7.0%
1993	\$33,704,633	\$44,026,160	76.6%	\$173,026,231	\$304,538,220	56.8%	19.5%	14.5%
1994	\$87,386,307	\$103,447,046	84.5%	\$195,666,718	\$283,488,574	69.0%	44.7%	36.5%
1995	\$68,943,547	\$76,978,258	89.6%	\$172,167,486	\$221,109,681	77.9%	40.0%	34.8%
1996	\$39,783,850	\$47,132,139	84.4%	\$88,140,168	\$154,074,142	57.2%	45.1%	30.6%
1997	\$30,663,070	\$41,570,835	73.8%	\$92,337,590	\$147,820,510	62.5%	33.2%	28.1%
1998	\$57,357,499	\$63,680,397	90.1%	\$135,847,412	\$191,024,760	71.1%	42.2%	33.3%
1999	\$88,524,132	\$89,771,698	98.6%	\$179,572,974	\$264,003,323	68.0%	49.3%	34.0%
2000	\$10,125,943	\$10,125,943	100.0%	\$55,826,325	\$111,690,223	50.0%	18.1%	9.1%
1991-2000	*	\$515,828,351	*	\$1,417,147,650	\$2,273,299,091	62.3%	*	22.7%
1995-1999	\$285,272,097	\$319,133,327	89.4%	\$668,065,630	\$978,032,416	68.3%	42.7%	32.6%

Notes: Cells marked by "*" are confidential.

Numbers for individual relevant BSAI crab species other than opilio and groupings other "all 9 combined" are confidential.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Qualitative interview information suggests that the shift of processing away from St. Paul during dropping stock conditions in 1999-2000 may be related to the "slow" nature of the fishing, and a crab fishery that was less of a race for crab than in the past. Data from interviews with harvesters would suggest that shorter seasons (and/or lower harvest levels), among other factors, result in a higher proportion of crab being taken further from the grounds (away from St. Paul) for processing because "last loads" that often go elsewhere account for a higher proportion of the total harvest than would otherwise be the case. The distribution of marketable crab also seems to have affected delivery patterns. Finally, most (if not all) CDQ crab is processed in the north region, and this would appear to function as a foundation or "critical mass" to attract other (non-CDQ) crab landings to north region processors, which can counter some of the incentives for crab processing to occur elsewhere. With a lower "critical mass," this pull for other processing activity may not have been as strong as otherwise would have been the case.

The decline in opilio crab GHL and harvest in 2000 may be useful in anticipating some of the likely effects of a rationalized crab fishery without regionalization, in terms of a possible shift of processing out of the north region. The value of opilio crab processed in the north region declined by about 89 percent between 1999 and 2000, and most of this was due to the greatly reduced harvest. Still, if the same proportion of the total opilio fishery had been processed in the north region in 2000 as in 1999, the value of that processing would have been \$27,520,717 rather than the actual value of \$10,125,943 – a difference or inter-regional "shift" of about 63 percent of the "expected" value even under drastically reduced conditions. The actual regional shift of processing for opilio crab under a rationalized crab fishery would, of course, depend on a number of business decisions made by individual entities that cannot be fully anticipated, but the overall regional/community effects could be comparable to those experienced by St. Paul (and the other communities in the region) of the combined harvest reduction and processing shift for opilio crab from 1999 to 2000.

Most processors that operate in the Pribilofs also process crab in other locations (with shoreplants and/or floating facilities). Those processors that operate only floaters in the Pribilofs could operate those same

facilities anywhere that logic and economic incentives dictate, while the single north region shoreplant (in St. Paul) is fixed in location. Processors indicate that under the current open-access management system, with a race for crab, operating in the Pribilofs makes economic sense. Although the costs of operation in the Pribilofs are stated to be higher, and the logistics involved more complicated, than for Unalaska/Dutch Harbor, Kodiak, or a number of other ports, these factors are offset by proximity to the resource under race-for-fish. This proximity enables harvesters to catch more crab within a shorter period of time. If such time constraints are relaxed, the desirability of operating in the Pribilofs would be reevaluated. In other words, the current inefficiency or overcapitalization in the crab fishery makes the relatively expensive operations in St. Paul worthwhile. If the fishery were to become more efficient through some type of rationalization program, it could be anticipated that at least some processing operations would be consolidated, with a likely result, if operating costs in the Pribilofs are/remain higher than in other locations, of moving processing partially or entirely away from St. Paul. It should be noted that this result can be anticipated even if operating costs in St. Paul are not significantly higher than in other locations or could be reduced by local changes. As stated above, all current St. Paul crab processors also operate facilities in other locations and under a rationalized fishery would have excess processing capacity elsewhere with which St. Paul operations could be consolidated.

In addition, most floating processors are dependent upon being able to participate in a number of different fisheries – most commonly crab, salmon, and herring roe. In the past, halibut and sablefish have been important fisheries for such operations, but the IFQ system has reportedly redirected halibut and sablefish to other markets through other processors. A minimum constellation of fisheries is required for floating processors to operate, and several processor representatives noted that a number of floaters had been tied up rather than working in recent years. Once operating days and fishery profitability fall below a certain threshold, the total operation must shut down. Several operators noted that salmon and herring markets were quite depressed, and that crab is in danger due to low stocks and quotas. They expressed concerns that if crab operations are no longer profitable that they will need to retire floating processing capacity, at least temporarily, which would also affect the salmon and herring fisheries that these floaters service. This is also a potential concern for the consolidation of crab processing capacity in general – that other high volume/low profit fisheries that may depend on the non-crab season this "excess" crab processing capacity may be adversely affected by the expected contraction of processing capacity in a rationalized crab fishery.

One major concern of St. Paul entities is that if changes in the crab fishery through rationalization were to result in processing moving away from St. Paul, the underpinning of processing for the local halibut fishery would also be removed. In the current environment, the entities that process crab also process locally caught halibut, and the concern is that absent the crab fishery, the local halibut fishery is not large enough to support local processing activity. Thus potential economic effects are not confined to the loss of revenues derived from the opilio crab fishery, but also from the halibut fishery. Beyond its economic importance as one of the relatively few local opportunities to earn a cash income, the halibut fishery has also become an important component of local social organization and social relationships. The CBSFA continues to work towards the establishment of a multi-species processing facility in St. Paul (in addition to the existing Trident plant) through discussion with American Seafoods (a major CDQ partner for CBSFA) as well as other processing entities. Such a multi-species plant is a major goal of the CBSFA and has been included in their quarterly CDQ reports to the State of Alaska since at least the first quarter of 2001.

Support Services

Support services in St. Paul are in a state of continuing development. St. Paul harbor was officially opened August 3, 1990 (although it was used before the official opening). There is a breakwater, 700 feet of dock space, and a barge offloading area. The harbor provides facilities to offload and temporary moorage, but long-term moorage is lacking, although basic electricity, water, and fuel services are available.

Despite continuing harbor improvements, St. Paul is able to provide little in the way of direct support services, although up to nine offshore processors are serviced out of St. Paul. Services to work on larger vessels are not available (except those that may possibly be obtained at the Trident plant or a floating processor), and the CBSFA has had to bring in non-local specialists (engine repair, aluminum welding) even for work on the small local boat fleet when there was sufficient demand for such service (although part of the Community Development Plan is to provide local facilities for such work locally). Increased cold storage was recently completed, and recent Opilio Disaster Funds have been expended on a number of components of the St. Paul Small Harbor Plan while the small boat harbor itself is under development.

There is an Alaska Commercial store in St. Paul that does make significant sales to fishermen and processors, and the only liquor store and the only bar in town are tribally operated and also report a high volume of sales to fishermen. There is no hotel in St. Paul, although one or two are in development (and one operated in the recent past). The city operates a limited number of rental units that are made available to non-local visitors on an "as-available" basis. For the most part, Trident and whatever floaters are operating in the area are more rather than less self-sufficient, due primarily to the relative lack of local support services.

Regularly scheduled flights are provided to the community but are restricted to Visual Flight Rule conditions and have decreased drastically in frequency. Weather conditions often prevent the scheduled flights. Furthermore, the carrier servicing St. Paul has changed so that the planes are smaller in size than in the past. Most supplies and freight arrive by ship.

The Municipality and Revenues

Table 2.7-8 provides information on municipal revenues for St. Paul for 1999 and 2000 as posted on the DCED website. More detailed information on fish taxes on St. Paul is not presented due to confidentiality considerations triggered by the low number of processors in the community. St. Paul has a local 3 percent sales tax, but no property or special taxes (such as a raw fish tax).

Budget information has also been obtained for these years directly from the City of St. Paul, and selected information has been abstracted for this section. More specific information on fish tax revenues *per se* cannot be discussed due to confidentiality restrictions on the data. The years 1999-2000 are significant since 1999 was the last year for a large opilio crab quota, so that the change from 1999 to 2000 is a reasonable proxy, at least in part, for the economic effects of moving crab processing operations away from St. Paul. It should be noted, however, that 1999 was a peak year compared to preceding years. For example, local fish taxes in 1999 were about double what they were in 1998 and about triple what they were in 1997. Examination of a greater span of years show that there has been considerable variation up and down over the years, but just as 1999 was a peak, local fish tax revenues in 2000 were less than half of what they were in any of the preceding 5 years.

The most salient differences between 1999 and 2000 St. Paul revenues are:

- 14 percent decline in overall total revenues
- 29 percent decline in total operating revenues
- 116 percent increase in total outside revenues (that incorporates an 87 percent decrease in state fish tax sharing)
- 48 percent decline in total local operating revenues
- 75 percent decline in local tax revenues (predominately fish tax based on crab, but also a significant amount from sales tax)

Table 2.7-8 St. Paul Municipal Revenues, 1999 and 2000

	1999	2000
Local Operating Revenues		
Taxes	\$3,202,626	\$776,776
License/Permits	\$0	\$0
Service Charges	\$236,278	\$296,191
Enterprise	\$3,157,798	\$2,270,137
Other Local Revenue	\$411,091	\$299,824
Total Local Operating Revenues	\$7,007,793	\$3,642,928
Outside Operating Revenues		
Federal Operating	\$0	\$0
State Revenue Sharing	\$95,090	\$42,789
State Safe Communities	\$0	\$14,303
State Fish Tax Sharing	\$752,836	\$98,195
Other State Revenue	\$59,727	\$1,810,397
State/Federal Education Funds	\$0	\$0
Total Outside Revenues	\$907,653	\$1,964,684
Total Operating Revenues	\$7,915,446	\$5,607,612
Operating Revenue Per Capita	\$11,761	\$9,586
State/Federal Capital Project Revenues	\$165,470	\$1,338,810
TOTAL ALL REVENUES	\$8,080,916	\$6,946,422

Source: DCED Website, 2001, 2002

These differences all result from the loss of more locally derived revenues and their far less than full replacement with those from state or federal sources. Much of the decline in locally derived revenue sources can be traced to much lower crab landings in St. Paul in 2000 than in 1999.

Based on more specific budget information obtained from the City of St. Paul, the actual decline in local fish taxes from 1999 to 2000 was 84 percent. The City calculated that its sales tax receipts from five of the most significant local business sectors (shoreside processors, mobile processors, fuel distributors, harbor services, and the municipality) decreased in a range of 62 to 85 percent (Lestenkof, personal communication, 2002). Given this state of revenue decline, the City of St. Paul reduced its workforce by about half, from 80+ employees to 42 or so, and for the remaining workers instituted a reduced work week of 36 hours instead of 40 (P. Swetsof, personal communication, 2002). Similarly, for TDX the decline in revenue flow from 1999 to 2000 was approximately 59 percent, the workforce was reduced from about 34 to 9 full-time equivalents, with remaining employees receiving a 10 percent pay reduction. A good deal of this was directly attributed to the decrease in crab landings in St. Paul (Bourdukofsky and Philemonoff, personal communication, 2002). To the extent that any proposed fishery management alternative provides incentives to shift processing of opilio crab from the north region to other regions (or, alternatively, remove incentives that have resulted in local processing) these effects will continue, even after opilio stocks recover.

Summary of Recent Community Fishery IFQ/Co-op Rationalization Experience and Implications for Likely Crab Rationalization Impacts

Some St. Paul residents received halibut IFQs in the initial allocation process, but not a large number or a large amount of quota. Subsequently, targeted loan programs have enabled local residents to acquire more

IFQs and boats suitable to harvest them, so that local participation in this fishery has increased through time. This is probably not a good model, however, for local crab fisheries and what might reasonably be expected to happen under the rationalization alternatives. Local fishermen have only limited experience in these crab fisheries (as crew members), which require vessels larger than local fishermen use for halibut and potentially some other fisheries. The present harbor cannot accommodate this size vessel as part of the resident fleet, although St. Paul can adequately service and supply these vessels during the fishing season. There are plans for a small boat harbor that could support a local fleet with vessels up to 60 feet, but that is in the future (Mandregan, personal communication, 2002). The capital investment to enter crab fisheries would be much greater than for halibut. CBSFA has been allocated 90 percent of the local (area 4C) CDQ halibut, 100 percent of CDQ Pribilof red and blue king crab, and 19 percent of CDQ Bering Sea opilio and bairdi crab. These allocations (for those species with open fisheries) could be used as the basis for local entry into these fisheries (or continuing development, especially for halibut) but are perhaps more likely to be used as inducements to attract processors willing to process a wide range of other locally available species. The species that local fishermen believe is the most likely candidate for local entry is Pacific cod, as the CBSFA receives a Pacific cod CDQ allocation that could be fished in a manner similar to its halibut CDQ allocation.

In terms of the AFA-related pollock co-ops, St. Paul was not a direct participant in the co-op structure due to the lack of local pollock processing, nor is it home port to pollock catcher vessels. Unlike some of the other profiled communities, however, St. Paul has benefitted from investments in the fishing industry enabled through the CDQ program. Expansion of the CDQ concept into a multispecies program has increased these sorts of opportunities.

Given the truism that any sort of a crab rationalization program potentially makes the Pribilofs a less competitive location to process crab, rationalization is likely to negatively affect St. Paul, unless regionalization provisions are adequately designed to effectively lock in some level of processing in the community. Since there is no local crab fleet, the local impact of the various alternatives focus nearly exclusively on the potential for changing the processing context.

The regionalization provision was incorporated into what eventually became the three-pie alternative during the NPFMC preferred alternative formulation process due to the assumption that with no restrictions on the port of delivery and processing of crab, pure economic incentives may shift most if not all crab production away from St. Paul (and the Pribilofs in general). Under rationalization seasons would become longer. The race for crab in its present form would no longer exist, and much of the locational advantage of the Pribilof Islands for crab processing would vanish. Even if operating costs could be reduced to a competitive level, processing capacity consolidation (whether within companies or because of a reduction in the number of processing companies) may result in fewer or no crab processors in the Pribilofs. Floaters can move to operate in any location, and shore plants can be idled, if there is excess capacity in other facilities. In the absence of a requirement for the regionalization of deliveries and processing, it is thus probable that less than the historical average of crab would be processed in the Pribilofs. The degree and amount of this shift would depend upon the economic decisions of the processing entities involved, and the economic benefits to be derived from such shifts could only be evaluated through a detailed knowledge of their operating costs. The social costs of such shifts in St. Paul would be great and may make all past investment in the St. Paul harbor less relevant. Harvesting vessels would continue to use only limited services, and local fishermen would probably not have a stable local processor to buy their harvest. Fish tax revenues would decrease dramatically, with effects as great or greater than those evident in the decline from 1999 to 2000. St. Paul would essentially be in the same situation it faced from the early 1980s (when a primary component of the local economy, the commercial fur seal harvest, was discontinued) to the early 1990s (when local commercial fisheries/processing activity became a critical part of the local economic base). A difference in that era and a future loss of commercial fishing-related revenues, however, is that with the discontinuation of the seal harvest transition funds were made available to the community, and no such source of funding is apparent

were local commercial fisheries activities to essentially discontinue. St. Paul is among the communities most vulnerable to losing crab-related revenues under rationalization and it is also among the communities most dependent on BSAI crab in terms of both the relative importance of crab to other fisheries activities and the relative importance of crab to overall community revenues.

The regionalization feature of the "three-pie" and IFQ alternatives would, by design, ensure that a portion of the total fishery harvest would be delivered to "north region" ports. The Pribilofs are essentially the only viable ports in the north region, as evidenced by historical trends, and St. Paul has certain economic advantages over St. George. The costs that a regionalization provision would impose (on the processors, consumers, and the nation as a whole) could only be quantified if, as noted above, the detailed operating costs of the processors were known. The social and economic benefits to St. Paul, the state of Alaska, and ultimately the nation, could only be quantified if much more were known about the interactions of the CDQ program fisheries, the crab fisheries, and local fisheries for establishing the basis for viable and competitive processing operations in the Pribilofs. In the final analysis, however, both the economic costs imposed (at least in the short term) of any regionalization program, as well as the long-term social and economic benefits of any regionalization program, are not quantifiable with existing data. That is not to say that they will not occur. Regionalization will impose economic costs on processors, which will be passed on to consumers and the nation as a whole. In a sense, regionalization imposes, by design, the costs of a certain type of inefficiency on the fishery. St. Paul may not make economic sense as a crab processing location under an otherwise rationalized fishery, but the trade-off is ensuring economic continuity in the community or engagement in the fishery in ways that are both similar to and different from the aims and functioning of the CDQ program. Clearly there would also be economic and social costs not just to St. Paul, but to the state of Alaska and the nation as a whole if the crab fishery management approach were changed in such a way as to remove the underpinning of the St. Paul local economy.

Differential Impacts of the Three Rationalization Alternatives at the Community Level

As summarized above, for St. Paul the engagement in, and dependency on, the BSAI crab fishery is based primarily upon ties to local processing activity and secondarily on participation in the CDQ program. Beneficial or adverse impacts to the community of St. Paul deriving from the different rationalization alternatives result from the differential outcomes for these activities.

Each of the rationalization alternatives have identical provisions regarding increased allocations to the CDQ program (inclusion of additional species and an increase in the included species set-aside from 7.5 to 10 percent of the total allocation), creation of captain's harvest quota shares (3 percent of the TAC), and a community development allocation to Adak (10 percent of the WAI golden king crab allocation). Each of these provisions are directed toward fostering beneficial community or social impacts for at least some groups or areas. St. Paul, as the sole member of the CBSFA, would directly benefit from the CDQ program increases. Impacts of the creation of captains shares and the Adak community allocation would not be significant for the community of St. Paul.

Regionalization is a feature of the three-pie alternative and the IFQ alternative, but is not a part of the cooperative alternative. Regionalization is explicitly designed to create beneficial community or social impacts for at least some groups or areas. The north/south region designation was designed primarily to benefit St. Paul (and the Pribilofs in general), while the west region designation in the WAI golden king crab fishery was designed primarily to benefit Adak.

Impacts of the west region creation would be insignificant for St. Paul. Impacts of the creation of the north region under the three-pie and IFQ alternatives would be significant and beneficial for St. Paul. Under these alternatives St. Paul would either retain levels of processing activity seen during the qualifying period or, in

the case of the IFQ alternative, it might see an increase in levels of processing activity compared to qualifying period conditions if processing consolidated in St. Paul from elsewhere in the north region (i.e., by moving from St. George). The cooperative alternative would have significant adverse impacts for the community of St. Paul due to lack of a regionalization feature. Under this form of rationalization, processing activity in St. Paul would be expected to decline substantially from qualifying period conditions, if not vanish entirely. As detailed above, the negative impacts of this change would be profound for St. Paul.

Additional community protection features of a “cooling off” period and a right of first refusal on transfer of processing quota shares are a part of the three-pie alternative (and are not a part of any other alternative). Eligible communities (those that had 3 percent of processing activity for covered species) would be assured that during the 2-year “cooling off” period processing quota would not be moved out of the community. Subsequent transfers would be subject to a right of first refusal that would allow an eligible community (through its CDQ group or another community group, if a CDQ group were not present) to obtain ownership and control over processing quota to retain local processing activity. Based on qualifying period activity, St. Paul is deemed eligible for community protection provisions, and is one of only 2 of the total of 8 qualifying communities whose status can be disclosed, due to its having a sufficient number of processors present to allow data to be made known.

For St. Paul, both of these features would confer significant beneficial community and social impacts. The “cooling off” period would ensure that processing activity levels seen in the qualifying period would return to the community, and the right of first refusal would ensure that the local CDQ group, the CBSFA, would be able to obtain processing quota rather than have it leave the community in the future. Exercising the right of first refusal would result in a significant positive benefit to the CDQ group as well as the community as a whole (and St. Paul is in the unique position of having identical community and CDQ group boundaries -- in other communities, benefits to the CDQ group do not have a one-to-one relationship with benefits to a particular community). In practical terms, within the north region, the “cooling off” period and right-of-first refusal community protection provisions are likely to be less fundamentally important to St. Paul than to St. George. St. Paul has some inherent advantages over St. George in attracting processing activity, and if movement of processing activity within the north region is not impeded by specific community protection features, a consolidation of all north region processing into St. Paul may be predicted. Consolidation within the north region away from St. Paul is possible, but is not considered likely. As a result of these considerations (given that it still retains the regionalization feature) a lack of specific community protection provisions in the IFQ alternative may not result in significant adverse impacts for St. Paul. If the right of first refusal is triggered, however, clearly the ability to obtain local ownership processor quota share is a benefit over and above having local processing activity controlled by others, notwithstanding how important that activity is to the community in and of itself.

The rationalization alternatives also differ on the ability of communities to obtain harvest quota share. Under the three-pie and IFQ alternatives, CDQ groups, or other community groups if a CDQ group is not present, in eligible communities (again, those with 3 percent or more of processing activity for covered species during the qualification period) would be able to purchase harvest quota share due to a waiver of sea time requirements that would otherwise prevent such purchases. By design, the ability to obtain harvest quota share could result in beneficial community and social impacts through communities becoming more directly engaged in the fishery.

In the case of St. Paul, harvest quota shares, if purchased, would be obtained by the CBSFA. Given that St. Paul is the only CBSFA member, the benefits would accrue entirely to the community (and not be spread out among a number of communities across a wider region as would be the case for all other CDQ groups). If exercised, this ability could result in beneficial community and social impacts through the community becoming engaged in the fishery in a way that it is not under existing conditions.

Another potentially distinguishing feature of the rationalization alternatives from a community or social impact perspective is the ability of harvesters to form co-ops under the three-pie and cooperative alternatives (but not under the IFQ alternative). For St. Paul, this ability (or lack thereof) would not appear to result in significant beneficial or adverse impacts given its current nature of engagement with the fishery.

2.8 ST. GEORGE

St. George is located on the northeast shore of St. George Island, the southern most of five islands in the Pribilofs. It lies 47 miles south of St. Paul Island, 750 air miles west of Anchorage and 250 miles northwest of Unalaska. St. George, located in the Aleutians West Census Area, is not part of an organized borough. The city of St. George, incorporated as a Second Class City in 1983, encompasses 34.8 square miles of land and 147.6 square miles of water.

The climate of St. George is arctic maritime and results in cool weather year-round with a narrow range of mean temperatures varying from 24 to 52 °F. Average precipitation is 23 inches, with 57 inches of snowfall. Cloudy, foggy weather is common during summer months.

St. George was discovered in 1786 by Gavril Pribilof of the Russian Lebedov Lastochkin Company while looking for the famed northern fur seal breeding grounds. St. George, like St. Paul, was populated by indentured or enslaved Aleut hunters from Siberia, Unalaska, and Atka and relocated by the Russians to harvest fur seas. St. George's historical experiences with the U.S. federal government between 1870 through 1983 (the end of effective federal control over daily life) closely parallels the experiences described in the St. Paul community profile. In 1983-1984, the U.S. government withdrew from the Pribilofs following the cessation of federal involvement in commercial sealing, providing \$20 million to help develop and diversify the local economy, \$8 million of which went to St. George. (Actual commercial seal harvesting stopped on St. George in 1973, a decade earlier than on St. Paul, but significant federal employment opportunities continued on St. George in the period between the ending of the harvest until the effective agency withdrawal from the community.) Much of St. George's \$8 million was reportedly needed to bring former federal facilities up to state code requirements before use by the city, the Traditional Council, or the Tanaq Corporation, so the effect of the funding in starting a non-seal-reliant economy was considerably less than might otherwise have been the case, particularly in conjunction with the unrealized assumptions that accompanied the Fur Seal Act Amendment of 1983, as described in the St. Paul profile (e.g., the Senate failure to ratify the Fur Seal Treaty, foreclosing the potential local commercial benefits from sealing, and the lack of substantial state infrastructure development transition funds). Since the 1980s, the community has sought to develop commercial fisheries and tourism. Unlike neighboring St. Paul, there is no contemporary onshore processing activity, but the community has benefitted substantially in the recent past from local processing by mobile processors.

Community Demographics

As briefly outlined above, St. George shares with St. Paul an entirely different origin than the other communities profiled, as the contemporary Pribilof communities trace their roots directly to the forced migration and population of a commercial sealing outpost on previously uninhabited lands under Russian dominion. St. George has the largest proportion of Alaska Natives relative to total population of any of the communities profiled. As with these other communities, however, local residents perceive the fishing industry as the best private sector economic opportunity available to the community, especially given St. George's status as a CDQ community and the potential advantages for development that this status entails.

Total Population

Table 2.8-1 provides figures for St. George's total population by decade from 1880 through 2000. As shown, after a 30-year period from 1880 through 1910 of the decennial population counts varying between 90 and 93 persons, the population counts in the subsequent 90 years have varied by no more than 45 persons, between 138 (in 1920 and again 70 years later in 1990) and 183 (seen in 1940), with one exception, the 264 persons enumerated in 1960. The extended evacuation of civilian residents and effective depopulation of the village during World War II is not captured in these time series data. St. George has also had other experiences not shared by most other Alaska communities due to federal control over everyday life on the island for most of the last century. For example, in 1959 the Bureau of Commercial Fisheries (a forerunner of NMFS) announced that sealing would become a seasonal activity and recommended that the Pribilovians be relocated and given job training. While local opposition thwarted this initiative, the USDOJ encouraged a voluntary relocation of St. George residents to St. Paul and, with the government control of housing, no new homes were built on St. George and vacant homes were destroyed.

Table 2.8-1 St. George Population by Decade, 1880-2000

Year	Population
1880	92
1890	93
1900	92
1910	90
1920	138
1930	153
1940	183
1950	na*
1960	264
1970	163
1980	158
1990	138
2000	152

* DCED data show a zero count in 1950, but this is known to be incorrect. With the exception of the evacuations during World War II, there has always been a civilian population present in the community over the time span shown in the table. Source: Historic data from Alaska Department of Community and Economic Development, 2000 data from U.S. Bureau of the Census

Ethnicity

Table 2.8-2 presents information on ethnicity of the St. George population for 1990 and 2000. As shown, the community is much less ethnically diverse than the other communities profiled, consisting of only Alaska Natives and Whites in both 1990 and 2000. In both 1990 and 2000, Alaska Natives accounted for well over 90 percent of the total population. The diverse non-Alaska Native minority groups characteristically associated with the fish processing workforce in Western Alaska are absent in St. George.

Table 2.8-2 Ethnic Composition of Population St. George: 1990 and 2000

Race/Ethnicity	1990		2000	
	N	%	N	%
White	7	5.1%	12	7.9%
African American	0	0.0%	0	0.0%
Native American/Alaskan	131	94.9%	140	92.1%
Asian/Pacific Islands*	0	0.0%	0	0.0%
Other**	0	0.0%	0	0.0%
Total	138	100.0%	152	100.0%
Hispanic***	0	0.0%	0	0.0%

Source: U.S. Bureau of Census.

* In the 2000 census, this was split into Native Hawaii and Other Pacific Islander (pop 0) and Asian (pop 0)

** In the 2000 census, this category was Some Other Race (pop 0) and Two or more races (pop 0).

***' Hispanic' is an ethnic category and may include individuals of any race (and therefore is not included in the total as this would result in double counting).

Table 2.8-3 displays the population of St. George by housing type. As shown, none of the residents of St. George lived in group quarters in 1990 or 2000. Unlike the other Alaska communities profiled, St. George has seen virtually no commercial fisheries development onshore, and the lack of residents in group housing is consistent with no commercial seafood processing taking place onshore in the community during this period. Table 2.8-4 provides information on ethnicity and housing type for 1990 but again St. George is unique among the communities profiled with its lack of a group housing population segment.

Table 2.8-3 Group Quarters Housing Information, St. George, 1990 and 2000

Year	Total Population	Group Quarters Population		Non-Group Quarters Population	
		Number	Percent of Total Population	Number	Percent of Total Population
1990	138	0	0.0%	138	100.0%
2000	152	0	0.0%	152	100.0%

Source: U.S. Bureau of the Census 1990 STF2, Census 2000 Summary File 1

Table 2.8-4 Ethnicity and Group Quarters Housing Information, St. George, 1990

Race/Ethnicity	Total Population		Group Quarters Population		Non-Group Quarters Population	
	Number	Percent	Number	Percent	Number	Percent
White	7	5.1%	0	0.0%	7	5.1%
Black	0	0.0%	0	0.0%	0	0.0%
American Indian, Eskimo, Aleut	131	94.9%	0	0.0%	131	94.9%
Asian or Pacific Islander	0	0.0%	0	0.0%	0	0.0%
Other race	0	0.0%	0	0.0%	0	0.0%
Total Population	138	100.0%	0	0.0%	138	100.0%
Hispanic origin, any race	0	0.0%	0	0.0%	0	0.0%
Total Minority Pop	131	94.9%	0	0.0%	131	94.9%
Total Non-Minority Pop (White Non-Hispanic)	7	5.1%	0	0.0%	7	5.1%

Source: U.S. Bureau of the Census 1990 STF2

Age and Sex

Table 2.8-5 shows the population composition by sex in 1990 and 2000. As shown, the male-to-female ratio is much closer to an even distribution reflective of a typical residential population than is seen in any of the other communities profiled. Unlike the pattern seen in the 'more industrial' crab communities, females outnumber males in St. George alone among the Alaska communities profiled.

Table 2.8-5 Population Composition by Age and Sex, St. George: 1990 and 2000

	1990		2000	
	N	%	N	%
Male	64	46.4%	73	48.0%
Female	74	53.6%	79	52.0%
Total	138	100.0%	152	100.0%
Median Age	NA		33.0 years	

Source: U.S. Bureau of the Census

The St. George school, a part of the Pribilof School District, provides kindergarten through twelfth grade classes. School enrollment figures for the 1993-2002 period are displayed in Table 2.8-6. As shown, student counts during this span peaked in 1996, and the current (2002) enrollment is only about 41 percent of that 1996 figure. Unlike some of the other communities profiled, no children associated with families of processing workers attend school in St. George (due to the nature of floating processing seen in the community in the past as well as the current lack of any processing).

Table 2.8-6 St. George School Enrollment, 1993-2002

Year	Student Count
1993	43
1994	42
1995	50
1996	58
1997	47
1998	34
1999	39
2000	31
2001	27
2002	24

Source: Data supplied by school district staff, October 2002.

Local Economy and Links to the Crab Fishery

As was the case on St. Paul, the federally controlled fur seal industry dominated the economy of St. George through most of the 20th century, although commercial sealing ceased on St. George several years earlier than

on St. Paul. The presence of large seal populations still contributes to the local economy, as the rookeries and the more than 210 species of nesting sea birds found on St. George's cliffs do support a modest amount of tourism, but local government and fisheries dominate contemporary local employment. The recently restored seal processing facility in the community may be developed as a interpretative and cultural center in conjunction with the USFWS, which manages Alaska Maritime NWR lands and other federally managed resources near the community. There is reportedly no local tourism related to sportfishing at present, although reindeer hunting does draw at least a few hunters from outside of the community, and some individuals temporarily in the community for work projects do at least occasionally take advantage of the opportunity to hunt while in St. George (which requires a \$100 permit from the Tanaq Corporation to use corporation lands).

St. George has a workforce estimated at 82 residents, and there are approximately 45 full-time equivalent jobs in the community (APICDA 2002), with the largest block of jobs associated with the municipal government. Eleven residents hold commercial fishing permits for halibut. In the not too distant past, the St. George Aquaculture Association explored salmon and shellfish programs but is reportedly inactive at present (2002). Puffin Seafoods opened a small halibut freezing facility in the summer of 1998, and floating crab processors have operated seasonally in the harbor area since the local arrival of the Galaxy (operated by Dutch Harbor Seafoods, an affiliate of UniSea) in the 1980s, but both local halibut and crab processing have not taken place in the past 2 years.

Subsistence still plays a significant role in the household economies within the community. St. George residents may harvest up to 300 fur seals each year for subsistence use, but according to local USFWS personnel, in the last few years annual takes have been variable, with a high year being about 250 animals and a low year being about half that amount. Halibut, reindeer, marine invertebrates, plants, and berries are also subsistence resources that contribute to the local diet. According to local fishermen, subsistence halibut fishing has become more difficult in recent years than in the past, with some of it taking place 10 miles or more at sea, distances unheard of only a few years ago. There is speculation that the trawling that is permitted close to the community (unlike the situation at St. Paul) may be having a detrimental impact on the local subsistence fishery. Locals also report concern over an apparent decline in local fur seal and sea lion abundance.

Harvesting

According to APICDA estimates, there are approximately 28 local fishermen and about 12 local vessels in St. George, with the vessels ranging from 16 to 30 feet in length (APICDA 2002). Initially after the cessation of the commercial fur seal harvest, the Tanaq Corporation purchased 10 twenty-foot skiffs to help start a local fishery in the community by making it easier for residents to acquire vessels and in 1983 started a small fish processing plant in one of the former seal processing buildings. This facility also had a significant freezer capacity. Designed to be a small start-up operation that would eventually transition to a larger, more permanent facility across the island at the site of the present harbor, the cost of shipping product proved prohibitive. While the skiffs were the genesis of the local commercial fleet (and some remain in commercial and subsistence use), the processing portion of the enterprise folded before transition to a larger facility could take place. The local fleet has grown in recent years with the addition of larger vessels. APICDA has assisted in the capitalization of the community fleet, having made approximately \$200,000 worth of gear and/or vessel loans to about 24 individuals, according to staff. Vessels were acquired on a revolving loan basis, with an APICDA/St. George Fishermen's Association joint venture guaranteeing the loans. To date, approximately 5 vessels in the 25- to 28-foot class have been added to the fleet in this manner. According to St. George Fishermen's Association representatives, there are approximately 10 vessels total in the local commercial fleet, with the balance of local vessels participating in subsistence fisheries. While this still represents a small number of relatively small vessels relative to many other communities, it is considered relatively efficient for

harvesting the comparatively modest local halibut quota. The community receives a separate allocation of Area 4C halibut, with St. George in the past having gotten 10 percent and St. Paul 90 percent of the total. An increase in the St. George allocation of 15 percent has been proposed, but action has not been taken on the proposal at the time of this writing. Another recent development has been the move of a dedicated 35-foot APICDA-owned vessel from Atka to St. George to tender halibut from St. George to St. Paul.

The primary fishery pursued from local vessels has been halibut utilizing longline gear, although use of jig gear was more common earlier in the development of the local fishery, and jig gear is still in use but more typically on the smaller vessels in the fleet. There is no local commercial cod fishery as tendering cod is not economically viable, and with the exit of crab processing from the community, the potential for the development of a local market of cod for hanging bait has disappeared. The local window for halibut fishing is reported to be 2 months at most, with difficult weather conditions further reducing opportunities.

There are no local crab vessels owned by residents of St. George, although APICDA, of which St. George is a part, does own interests in crab catcher vessels. As there is no local crab processor, there is also no regular delivery fleet. In the relatively recent past, floaters such as Blue Wave and SnoPac have processed crab seasonally while moored in St. George harbor (see below), and these entities had their own associated delivery fleet from outside of the community.

There is an active St. George Fishermen's Association in the community, and this organization has ties to APICDA to the extent that the APICDA board member representing the community is elected by the fishermen's association, and the association receives approximately \$20,000 per year in funding from APICDA to help offset operating expenses. According to local fishermen, the focus of APICDA in recent years has been on infrastructure for crab processing and fostering a local multispecies processing plant in the community rather than on building a larger harvest fleet in the absence of local processing.

Processing

Due to the few number of entities involved, confidentiality restrictions constrain a quantitative discussion of crab processing in St. George. However, a summary discussion of processing in the north region as a whole, effectively comprised of St. Paul and St. George, appears in the St. Paul profile (above) and will not be recapitulated here. As noted in that discussion, opilio is, by far, the most economically important species to local processing, and therefore the most important in terms of generating local revenues. Opilio accounted for 100 percent of the local processing of relevant BSAI crab species in 2000, and 86.3 percent of total BSAI crab processing over the period 1991-2000.

When crab stocks (and quota) were large, smaller floaters processed in St. George harbor (larger floaters were precluded by the size of the harbor), but with depressed crab stocks such operations have reportedly not been economically viable. For the period 1991-2000, typically one such floater operated in St. George (with two present in 1995). Additional floaters may have operated near St. George but do not have a processing location specified in the available database. Further, according to local sources, St. George does not have anchorage locations for processing outside of the local harbor (unlike St. Paul, with its relatively protected bays), so that floating processing in the vicinity of St. George either occurs in the harbor or not at all. Those companies that operated most recently in St. George in this time period (1991-2000) have indicated that their processing platforms have not operated in St. George since 1999 in one case, or since 2000 in the other, so in the most recent years, St. George has seen no local crab processing. According to local sources, in 2000 Blue Wave/Peter Pan did not feel they could economically operate locally in the face of very low crab GHLS, and SnoPac felt that local operations were potentially viable only after APICDA assumed responsibility for 50 percent of the risk in return for 50 percent of potential profits for local operations. APICDA was willing to assume this risk given that without such a move, the community would be entirely cut off from revenues

associated with the crab fishery. In 2001 and 2002 (to date), no processors have operated locally. According to local sources, Blue Wave is for sale and will not be returning to the community, and SnoPac has indicated that they will not be returning to the community until GHGs are higher.

The withdrawal of the floating processors from the harbor at St. George has had significant consequences for the community as a whole, with marked impacts to support businesses in the community as well as the municipality itself. These are detailed in the support services discussion below.

Few local residents (estimated by one source as approximately five individuals over the years) are reported to have derived employment from processing work on factory trawlers or factory longliners that APICDA has made investments in. This is reportedly because employment outside the community is less appealing to local residents than attempting to find employment within the community.

One of the primary goals of local fishing interests and APICDA is the construction of a seafood processing facility on St. George. Puffin Seafoods LLC was organized in 1998 as a partnership between APICDA Joint Ventures (their for-profit division) and the St. George Fishermen's Association. Puffin Seafoods essentially acts as a buyer/facilitator for the fleet harvesting St. George CDQ halibut. In the first year of operations, emphasis was placed on the fresh fish market, but transportation problems related to cost and consistent access to St. George created significant difficulties. In more recent seasons, halibut has been tendered from St. George to St. Paul to be processed at the Trident plant on St. Paul. This has reduced the potential positive effects of shoreside employment in St. George associated with halibut processing (APICDA 2002). Given that tendering rather than processing has been taking place, this has also reduced the economic viability of other local fisheries. For example, it is not presently considered economic to tender cod to St. Paul, effectively meaning the lack of local processing has curtailed local pursuit of this fishery. In the recent past, fish handling and processing took place in a recently renovated harbor building. This renovation included APICDA investment, with the ground floor dedicated to fishery activities, and the second floor to the harbor master's office and additional office space. With the recent switch from local halibut processing to tendering from St. George to St. Paul, however, halibut no longer comes ashore, and processing equipment was removed from this facility. Halibut from St. George is currently custom processed at the Trident facility in St. Paul, and then marketed through APICDA.

APICDA is actively exploring the potential for other fisheries that could be pursued by local fishermen and that would help form the underpinning for local processing. A local urchin fishery is reportedly a possibility, and APICDA has been working with ADF&G on survey assessments of the potential for this fishery. A small urchin fishery was scheduled to open in September 2002 with the harvest flown live to Japan. Based on results, it is hoped that this fishery could help local harvests reach 'critical mass' to support local processing. Other fisheries mentioned as potentially viable with local multispecies processing capability were crab, cod, and sea cucumbers, among others. The potential for crab boats turning to pot cod for local processing following the closure of crab season has also specifically been mentioned. A business plan for a local processing plant is in development (and may include the different entities that processed locally in different years), but in general it is hoped that construction of a plant could begin in 2003 with an opening date in 2004. According to community leaders and APICDA staff, however, this plan could be significantly set back by state reductions in CDQ crab allocations to the group, and a state conclusion that a local multispecies processing plant is not feasible for St. George. It is the strong opinion of St. George community leaders that if St. George is forced to join forces with St. Paul for a common multispecies processing plant, the benefits of that operation would redound to St. Paul and do little for St. George (other than make it all the more difficult to accomplish a sustainable local fisheries sector of the community economy).

Support Services

The support services sector in St. George has changed dramatically in the last few years with the disappearance of crab processing in the community. St. George, like neighboring St. Paul (and the other rural Alaska communities profiled), is accessible only by air and sea. A newly constructed State-owned airport with a 5,000-foot gravel runway is near the recently completed harbor, several miles outside of the community proper and serviced by a recently widened and improved road from the community. Scheduled flights are provided to St. Paul and the mainland. At present (2002), there are three scheduled flights weekly to Anchorage, a significant drop in service from levels seen during the era when local crab processing took place.

Zapadni Bay Harbor, 5 miles from the city, was completed in 1993. Previous facilities, off of the former seal processing facilities in the community itself, are exposed to the open sea and required lightering. Lightering was often accomplished using traditional baidars, skin, and later canvas-covered wooden framed vessels that could handle surprisingly heavy loads, including trucks. The exposed dock facilities and the surrounding area were deemed not practical for redevelopment as a more full-service facility, although historical plans in the community show harbor improvement drawings with massive breakwaters dating from the early 1900s.

An inner harbor and dock were recently completed in Zapadni Bay by Kayux Development LLC, a joint venture formed in 1996 between APICDA Joint Ventures and the St. George Tanaq Corporation. The inner harbor development consists of 4 acres of improved uplands and a 1.25-acre mooring basin, and available services include dockside power, water, and fuel delivery; moorage; uplands storage; and outfall and breasting dolphins for a shoreside or floating processing facility. According to APICDA, the CDQ organization has made substantial investments in community fisheries-related infrastructure projects, including approximately \$1.3 million in matching funds for the dredging of the inner harbor in 1993 (with a benefit to APICDA deriving from a lease arrangement for waterfront space), and an approximate \$1.8 million investment in 1998 for dock facilities (with the Tanaq Corporation providing the land). In its present configuration, the city owns two dock facilities in the harbor where most recently SnoPac and Blue Wave floating processors worked (one of these facilities includes two concrete dock platforms, while the other does not have analogous features), and the Tanaq Corporation/APICDA joint venture owns two other major improved docking facilities, one with a single concrete dock platform, and one without. Recently, the St. George Fishermen's Association installed a wooden floating dock in the harbor for the local small boat fleet. There is a 500,000-gallon water storage recently constructed near the harbor available to supply fishing and processing entities, but this has been virtually inactive as of late.

There are local concerns that maintenance of the harbor will be more costly than anticipated (reportedly, one of the arms of the harbor is breaking up and in need of repair, and the dredging needs improvement), and that costly work will be difficult to undertake in the absence of substantial commercial activity at the facility. A conundrum of local harbor development is that local processing appears to make more economic sense for at least some companies in a derby rather than a rationalized fishery, but harbor size and geometry combined with occasionally rough sea conditions has meant that St. George has at times experienced periods of closure during the relatively short seasons. A 2-day closure during, for example, a 7-day derby fishery, is understandably problematic. In other words, the intense time pressures of a derby fishery made the harbor very attractive to at least some medium-sized processors, but the time pressures of these same fisheries also made even short closures all the more adverse to the economic success of these locally operating entities.

A local fuel facility adjacent to the harbor, operated as a joint venture between the Tanaq Corporation and Delta Western, includes a 1-million-gallon tank farm and supplies diesel fuel to fishing vessels. Constructed in 1993, the facility first delivered fuel to vessels in 1994. (The tank farm also includes a 50,000-gallon gasoline tank and a 50,000-gallon Jet A fuel tank for local vehicle and aircraft consumption, respectively.)

A pipe system is in place to allow delivery direct to vessels at four fuel stations on docks in the harbor. Designed to allow for race-for-fish conditions, the vessel fueling system has a 600-gallon-per-minute delivery capacity (if the receiving vessel is properly equipped). During busy crab periods, operations could extend to 24 hours per day, and peak demands were reached in-season when facilities at St. Paul would occasionally close due to ice conditions. Under these circumstances, demand reportedly could easily reach 150,000 to 200,000 gallons per day, with the facility manager reporting that the 24 hour record for sales was over double that figure. With the decline in crab quota and the move of processing out of the community, fuel demand has dropped sharply. Built primarily to supply the crab fishery, the facility has reportedly seen a drop from approximately \$1 million in revenues to a situation where it is currently "barely surviving," and employment has been cut from 8 to 3 individuals over this same time. This has had ripple effects in other aspects of community life as commercial fisheries fuel sales effectively acted as a fuel cost subsidy for the rest of the community. Without commercial marine sales, fuel costs have risen, and this has reportedly resulted in increased utility costs in the community, meaning that at the same time the community is experiencing a loss of revenue and employment, the cost of living is increasing. Incidental sales to vessels fueling at the facility, such as oil, filters, and batteries, have also dropped to near zero. While not the main thrust of the business, it is estimated that at the peak of the season the facility would move between 25 and 50 drums of oil per day, which was a good revenue producer, if a small one, compared to overall fuel sales. The local facility manager reports that these incidental sales, such as specialty oil filters, also served to boost fuel sales. As for the Tanaq Corporation as a whole, temporary local environmental clean up work has served to offset at least a portion of the losses experienced at the fuel facility, as the soil remediation technique being used consumes a significant quantity of fuel. These sales allowed the facility to turn at least a small profit until 2001 (after cutbacks).

In addition to being an investor in fuel services, the Tanaq Corporation also has a crab pot storage area to help service that fleet. However, without local processors present, and with the drop in GHL, the use of these crab support services have reportedly dropped off dramatically as well. The pot storage area is comprised of leveled uplands that were also used as staging areas during harbor dredging operations. With storage capacity of over 10,000 pots, only about 2,000 to 3,000 were being stored on-site at the time of fieldwork (2002), and a majority of these were deemed to be inactive. In the past year, only 3 boats are reported to have retrieved gear, in contrast to 20 to 30 vessels actively moving gear in previous years. In the past, peak demand conditions were driven by ice movements, with vessels racing to retrieve gear from the grounds in front of advancing ice to the north of the island. Revenue losses from the absence of the fleet is locally estimated to be in the \$30,000 to \$60,000 per month range for storage and associated support, with an estimated 50 to 60 boats out of a 240-boat fleet calling on the community at least occasionally. The Tanaq Corporation also has a 40-man camp/bunkhouse facility near the harbor that was brought to the community primarily to support processing crews, although it was also used as temporary housing for harbor dredging workers. Brought to the community from the Lower-48, it required additional (and unanticipated) investment to bring it up to more stringent fire code standards. Formerly leased out to Seven Seas and Blue Wave, this facility has been idle since the decline of local crab processing 2 years ago. With an estimated loss of \$60,000 per month for a typical 3 months per year of operation, this has not been an insubstantial impact to the corporation. Demand for camp housing dropped when GHL declined to the point where one rather than two shifts were all that were needed to process product, and then disappeared altogether when GHL declined below the threshold needed to efficiently process locally. The Tanaq Corporation has a storage building near the harbor, formerly used for fiber/boxing materials for processing, that is now idle as well.

One of the entities that processed locally up until 2 years ago, SnoPac, leased land from the Tanaq Corporation and maintained their own generation plant, sewer system, and bunkhouse with an adjacent kitchen/mess hall for processing crew. The bunkhouse facility was relocated to St. George from St. Paul, and had a capacity of approximately 200 to 250 persons. With the suspension of local crab activity, this facility was also idled, although lease payments were eventually made to the Tanaq Corporation through the use of

crab disaster funds. The future of the lease arrangements is not clear, however, absent future local processing. The Tanaq Corporation also derived income from leasing land to Northland Services for freight operations to move crab from the community (dockside space as well as upland storage areas for containers), but this source of revenue has gone away with the processing. The Aikow Inn, the 10-room Tanaq Corporation-owned hotel in the community proper, has also reportedly seen a substantial loss of business with the decline of crab-related trade, although it remains busy in the summer with tourism and other seasonal business, including construction-related work. In all, the Tanaq Corporation estimates that approximately one-half of its budgeted revenue sources were related to crab support operations. The corporation has reportedly made up enough of this shortfall through ongoing environmental cleanup work to not have to cut its workforce (estimated at 6 regular employees, with an additional 12 or so active for specific projects), but given the limited duration of the cleanup work, it would appear that substantial impacts associated with crab losses have been delayed rather than avoided. Recent cleanup work has included remediation of former government structures, underground and above ground storage tanks at former government buildings, and contaminated soils. In the face of the economic declines in the community, the Tanaq Corporation is actively looking for opportunities outside of the community to bring revenue to its shareholders, with the trade-off being that such opportunities do not afford the same potential for local employment.

In general, only limited support services exist in St. George compared to a number of other crab fishery-associated communities, although harbor development continues and the community in conjunction with APICDA is working toward establishing a local processor that could, in turn, support local (community) fishermen. At present, the support facilities that do exist are more oriented toward supporting the big boats associated with commercial crabbing rather than the smaller-scale local fleet. In 2002, however, a new floating dock system designed for local boats and funded at approximately \$200,000 through crab disaster monies was added to the harbor.

Most freight and supplies are delivered by ship from Anchorage, while cargo from Seattle arrives five or six times a year. Whereas, there used to be barge service several times per month to the community during the years of local crab processing, at present (2002) the community is serviced by (Alliance Marine) freighter only once per month. This drop in service has resulted in a number of impacts, such as increasing cost and decreasing availability for a number of items, including foodstuffs. Air service has also declined, both in passenger flight opportunities and for cargo flights. During crab processing times, Northern Air Cargo would service the community several times per week with commercial shipping and bypass mail, but at present only supplies cargo service on a monthly basis.

The St. George Canteen, the community store operated by the Traditional Council, has also seen a decline in business as a result of the community's loss of crab-related activity. Store management reports that vessel orders have ceased entirely, along with special orders from the SnoPac processor, for an estimated loss of between \$100,000 and \$125,000, a not insignificant sum for a small community enterprise. The store manager reported that in the past year there were perhaps two incidental sales to vessels, and these were not significant compared to past sales and, as a result, it is "a stretch" to try and maintain a viable store.

Another indirect support service impact seen in recent years with the drop-off of local crab deliveries and processing has been support services at the local clinic. Run by the St. George Traditional Council, the clinic derived benefit from the increased level of activity during the previous seasons that brought vessel crew and processing workers to the community, and industrial-type versus residential-type of service demand. Quantitative data to the change in service demand over recent years were not available (at least in part due to staffing cutbacks caused by drop in the service demand itself), but without crab-related business the Traditional Council staff reports that the clinic has been experiencing a loss of approximately \$45,000 per year in third-party billings. During the period of local crab processing, the clinic was staffed with a physician's assistant, two community health aides, and a clerk, and now staffing is down to one position, filled

with itinerant persons rotating through the community on a short-term basis. This has resulted in a decrease in services available to the community as a whole, and it has compounded the problems of collecting revenue from third-party billings (as it is difficult to follow through on administrative detail without a permanent staff) and attracting a permanent staff (as an understaffed/undersupported facility is less attractive to potential employees than other opportunities).

Another recent change in the support businesses in the community can be seen in the decline of what could be characterized as very small or entrepreneurial businesses. Within the last 2 years, residents report that a video store, a restaurant run by the Traditional Council, a hat and jacket embroidery business, and a rug cleaning business have closed, and that other businesses are struggling, such as the local taxi business, due to the loss of the volume of economic activity provided by crab processing workers and operations (or the depression of the local economy in general as a result of the loss of crab). The Traditional Council has also had to cut hours for their community janitorial services staff, and has had to shelve plans for provision of cable services to processing facilities, and their canteen and beer hall has seen a reduction in business and staff. The absence of crab-related activity also has meant a loss of opportunity for the sale of local arts and crafts (commonly done through the community store), as well as a loss in electronics sales, in particular at the store.

Community support services provided by the Traditional Council have also felt the impact of the local decline of crab processing. The local programs manager reports that applications for food stamps, energy assistance, and other public assistance types of social services programs doubled or tripled in the past 3 years, depending on the specific program. Foodbank of Alaska, a new service in the community, has recently begun to provide food to families in need.

Another factor reported as having an impact on the community is a loss of population due to the lack of local economic opportunities. According to community leaders, it is difficult to tell young people there is a good future for them in St. George when the overall community economic picture is not bright. Loss of population is not new to the island as, for example, local officials noted that during the 1960s the federal government encouraged St. George residents to move to St. Paul. In recent years, some local residents went to Adak for redevelopment-associated employment, although none are apparently there at present. Most recent migration from the community has reportedly been to Anchorage. While it cannot be discussed in quantitative terms, one village leader observed that the depressed local economy and the apparent lack of economic potential for the future "takes the pride out of the community."

Also not easy to quantify is the reported loss of direct social benefits of having processing entities and their workers in the community. According to those responsible for social services in the community, the presence of the processing entities provided a lot of social activity for the community and brought different people to the community, which was in and of itself a positive attribute for a small, relatively isolated village. The processors also were instrumental to the success of such things as volleyball and other sports tournaments and were active in fundraisers for the community. While not in the community the entire year, they were reportedly involved in community Halloween, Christmas, and Easter events in one way or another, including the donation of funds and raffle prizes. Other recognized contributions to the community included donations of food to those in need as well as for the local summer camp. At times processors would invite the community to social events at the processing facilities, with examples of a movie night and a talent show given. In the words of one community leader, having the processors was "good for morale in community" and there were "no problems in the community" because of the processors, and they were "welcomed into village." The loss of local processing has also made a difference in these intangibles of community life.

The Municipality and Revenues

Table 2.8-7 presents information on St. George municipal revenues for 1999 and 2000 as obtained from the DCED website, consistent with the information presented for the other communities profiled. (The data in this table are not consistent with those obtained directly from the City, as detailed below.) St. George does not have local sales or property taxes, but it does have a 3 percent fish and marine products tax and a 3-cents-per-gallon fuel transfer tax.

The figures presented in Table 2.8-7 differ substantially from more detailed, specifically fishery-related revenue figures provided by the City of St. George, but detailed figures cannot be directly incorporated into this profile due to processor confidentiality considerations (as there were less than four operations present in the community). In general, the City derives revenue from fisheries-related activities in a number of different ways. The most obvious of these is the local fish tax. Local fish taxes (historically derived from crab processing by floating processors) declined over fivefold from 1999 to 2000, and no revenue from fish taxes was expected in either 2001 or 2002. The state-shared fish tax tells a somewhat different story with respect to the timing of local revenue declines, but this is a function of the year lag between the sales associated with tax origination with actual receipt of revenue from the state, with the latter determining when revenue appears in city records. The fuel transfer tax also shows a sharp decline between 1999 and 2000, and this is also attributed to the pull-out of local processing. Also, the City lost substantial revenues between 1999 and 2000 in enterprise funds closely associated with local processing. Two enterprise funds show a different pattern from the others: preferential berthing and wharfage. Preferential berthage is essentially monies paid to the city to guarantee access to particular dock and harbor facilities. These are long-term agreements, and in 2000, the City allowed a one-time suspension of payment under the terms of the agreement. Otherwise, the City may receive this revenue whether or not the companies actually use the site (at least as long as the company is able to pay their bills). Revenue from catcher vessels using the facilities (they are charged by length and by overall time at the dock) have dropped off entirely. Wharfage did not decline in the same manner as other indicators because in addition to fishing-related activities it captures activity related to the delivery of groceries, machinery, etc. In 2001, there was also a relatively large wharfage volume related to a project that involved transportation of rock to St. Paul.

The decline in local revenues associated with the loss of local crab processing over the last few years has had a number of negative impacts on the community. Income has dropped in the community, with perhaps the single hardest hit institution being the City of St. George government. According to senior City staff, the approximately 20 persons working for the City have been reduced from 80 to 64 hours per 2-week pay period. For some, this has the prospect of not only having a negative impact on current income, but also on retirement funds. City-provided services have also been effected. With about a 60 percent drop in water supplied by the city system, and substantial drops in sewer and refuse service, the ratio of industrial to residential demand has dropped sharply along with the level of overall demand. Fuel costs, no longer essentially underwritten by industrial demand, have also risen, and this has had the effect of driving up the cost of producing electricity locally. As a result of these changes, the City has felt compelled to raise the cost of utilities and services. The population of the community, then, is faced with declining income, declining revenues, and increased cost of living. Additionally, there are costs associated with maintaining the recently completed fishery-related infrastructure improvements. At the same time, residents report that there has been some out-migration from the community as some individuals and families have sought better economic opportunities elsewhere, meaning that a smaller population base is bearing the increased costs on St. George.

Table 2.8-7 St. George Municipal Revenues, 1999 and 2000

Revenue Source	1999	2000
Local Operating Revenues		
Taxes	\$0	\$0
License/Permits	\$0	\$0
Service Charges	\$930,052	\$59,448
Enterprise	\$1,587,368	\$389,565
Other Local Revenue	\$0	\$933,699
Total Local Operating Revenues	\$2,517,420	\$1,382,712
Outside Operating Revenues		
Federal Operating	\$0	\$7,591
State Revenue Sharing	\$35,305	\$27,818
State Safe Communities	\$5,279	\$3,266
State Fish Tax Sharing	\$10,389	\$909
Other State Revenue	\$0	\$0
State/Federal Education Funds	\$0	\$0
Total Outside Revenues	\$50,973	\$39,584
Total Operating Revenues	\$2,568,393	\$1,422,296
Operating Revenue Per Capita	\$14,846	\$8,673
State/Federal Capital Project Revenues	\$47,512	\$355,208
TOTAL ALL REVENUES	\$2,615,905	\$1,777,504

Source: DCED Website, 2001, 2002

The municipal revenue shortfall that has accompanied the exit of local crab processing has also meant that the City of St. George has had difficulty meeting the obligations incurred with the harbor development. Reportedly, all of the entities in St. George, including the Tanaq Corporation and the Traditional Council have assisted the city in one way or another in helping to see the harbor development come to fruition, as it is the common view of the various entities that the economic future of St. George rests with commercial fisheries in one form or another. This support has included short-term financial support, but the City still has incurred the obligations in the long term, and the loss of revenues has been sorely felt. As noted above, the loss of revenue has been accompanied by a loss of services to the community, an increase in costs for some basic needs (such as fuel and utilities), a decrease in employment, and a loss of population, meaning that costs and losses are borne by a smaller base.

Summary of Recent Community Fishery IFQ/Co-op Rationalization Experience and Implications for Likely Crab Rationalization Impacts

As was seen in St. Paul, some St. George residents received halibut IFQs in the initial allocation process, but not a large number or a large amount of quota. Subsequently, programs with the goal of enabling local residents to acquire more IFQs and boats suitable to harvest them have been formulated through the St. George Fishermen's Association. The program on St. George is not as developed as on St. Paul, in part due to the lack of processing on St. George. This is probably not a good model, however, for local crab fisheries and what might reasonably be expected to happen under the rationalization alternatives. Local fishermen have only limited experience in these crab fisheries (as crew members), which require vessels larger than local fishermen use for halibut and potentially could use for some other fisheries. The present harbor cannot accommodate this size of vessel as part of the resident fleet, and existing facilities St. George cannot

adequately service and supply these vessels on an ongoing basis. The capital investment to enter crab fisheries would be much greater than for halibut.

In terms of the AFA-related pollock co-ops, St. George was not a direct participant in the co-op structure due to the lack of local pollock processing, nor is it home port to pollock catcher vessels. Like St. Paul, however, St. George has benefitted from investments in the fishing industry enabled through the CDQ program. Expansion of the CDQ program into multispecies fisheries has increased this kind of opportunity.

Given the truism that any sort of a crab rationalization program potentially makes the Pribilofs a less competitive location to process crab, rationalization is likely to negatively affect St. George, unless a regionalization provision is adequately designed to effectively foster and/or lock in some level of processing in the community. St. George faces the additional challenge of still having to compete with St. Paul even within the regionalization framework unless community specific protections are adopted, as movement within the region can be accomplished without restrictions, and St. Paul at present has better harbor facilities than St. George. Since there is no local crab fleet, the local impact of the various alternatives focus nearly exclusively on the potential for changing the processing context. An additional local concern relates to the fact that, given AFA restrictions and the provisions of the crab rationalization alternatives, there will not be many truly independent catcher vessels in the same sense that there are today. This has the potential to limit St. George's competitive position with respect to obtaining local crab deliveries from an external fleet.

As noted in the St. Paul community profile, the regionalization provision in the "three-pie" alternative was included in the NPFMC preferred alternative formulation process in recognition of the fact that with no restrictions on the port of delivery and processing of crab, pure economic incentives may shift most if not all crab production away from the Pribilofs. While St. Paul in particular was the primary focus of the debate before the NPFMC regarding the costs and benefits of regional community protection, regionalization could serve to benefit St. George as well. The degree and amount of a shift of processing away from the Pribilofs within a rationalized fishery absent regionalization, or the degree of shift between St. George and St. Paul in a rationalized fishery with regionalization, would depend upon the economic decisions of the processing entities involved, and the economic benefits to be derived from such shifts could only be evaluated through a detailed knowledge of their operating costs.

Without community-specific protection, the impact of the rationalization alternatives on St. George are likely to result in conditions similar to those experienced over the past 2 years that St. George has been without local processing. More accurately perhaps, absent community specific protection, rationalization could be expected to continue the conditions seen since processing left the community, as there would be little incentive to return to St. George even if GH/TAC were to once again climb to levels much higher than seen in the past 2 years due to likely consolidation of processing under rationalization conditions. This would, of course, depend on both the restrictions on consolidation and/or community protection features in combination with individual entity economic decision making, something that is difficult to anticipate.

Differential Impacts of the Three Rationalization Alternatives at the Community Level

As summarized above, for St. George the engagement in, and dependency on, the BSAI crab fishery is based primarily upon ties to local processing activity and secondarily on participation in the CDQ program. Beneficial or adverse impacts to the community of St. George deriving from the different rationalization alternatives result from the differential outcomes for these activities.

Each of the rationalization alternatives have identical provisions regarding increased allocations to the CDQ program (inclusion of additional species and an increase in the included species set-aside from 7.5 to 10 percent of the total allocation), creation of captain's harvest quota shares (3 percent of the TAC), and a

community development allocation to Adak (10 percent of the WAI golden king crab allocation). Each of these provisions are directed toward fostering beneficial community or social impacts for at least some groups or areas. St. George, as a member of the APICDA, would directly benefit from the CDQ program increases. Impacts of the creation of captains shares and the Adak community allocation would not be significant for the community of St. George.

Regionalization is a feature of the three-pie alternative and the IFQ alternative, but is not a part of the cooperative alternative. Regionalization is explicitly designed to create beneficial community or social impacts for at least some groups or areas. The north/south region designation was designed primarily to benefit the Pribilofs (although St. Paul was featured more prominently in the alternative and options formulation process), while the west region designation in the WAI golden king crab fishery was designed primarily to benefit Adak.

Impacts of the west region creation would be insignificant for St. George. Impacts of the creation of the north region under the three-pie alternative would be significant and beneficial for St. George, while regionalization impacts for the community under the IFQ alternatives are more difficult to predict. Under the three-pie alternative St. George (if deemed an eligible community) would retain levels of processing activity seen during the qualifying period (due to a combination of regionalization and community protection features, as described below). In the case of the IFQ alternative, however, St. George could see a substantial drop in (or a complete discontinuation of) local processing activity if north region processing activity consolidated in St. Paul. If this consolidation occurred the regionalization feature under the IFQ alternative would have effectively provided no benefit for St. George, and the impacts would be significant and adverse for the community. The cooperative alternative would have significant adverse impacts for the community of St. George due to lack of a regionalization feature. Under this form of rationalization, processing activity in St. George would be expected to decline substantially from qualifying period conditions, if not vanish entirely. As detailed above, the negative impacts of this change would be profound for the community.

Additional community protection features of a “cooling off” period and a right of first refusal on transfer of processing quota shares are a part of the three-pie alternative (and are not a part of any other alternative). Eligible communities (those that had 3 percent of processing activity for covered species) would be assured that during the 2-year “cooling off” period processing quota would not be moved out of the community. Subsequent transfers would be subject to a right of first refusal that would allow an eligible community (through its CDQ group or another community group, if a CDQ group were not present) to obtain ownership and control over processing quota to retain local processing activity. (Due to confidentiality restrictions, it cannot be disclosed whether or not St. George is deemed eligible for community protection provisions.)

For St. George, if eligible, both of these features would confer significant beneficial community and social impacts. The “cooling off” period would ensure that processing activity levels seen in the qualifying period would return to the community. Processing has not taken place in St. George for the past few seasons, but under the “cooling off” provisions processors would need to return and process locally for at least 2 years if they wish to utilize their processing quota shares. This infusion of activity alone would have significant beneficial impacts for the community. The right of first refusal would ensure that the local CDQ group, APICDA, would be able to obtain processing quota if it were at risk for leaving the community in the future. Exercising the right of first refusal would result in a significant positive benefit to the CDQ group, and would most likely benefit the community to nearly the same degree. It is assumed that APICDA would manage any quota obtained for St. George’s benefit, but APICDA represents a constituency across a number of communities and it is possible that at least some of the benefits derived from ownership of processor quota share obtained through exercising a right of first refusal on quota share originally generated by activity in St. George would be realized outside of St. George. In practical terms, within the north region, the “cooling off” period and right-of-first refusal community protection provisions are fundamentally more important to St.

George than they are to St. Paul. St. Paul has some inherent advantages over St. George in attracting processing activity, and if movement of processing activity within the north region is not impeded by specific community protection features, a consolidation of all north region processing into St. Paul may be predicted. Consolidation within the north region into St. George is possible, but is not considered likely. As a result of these considerations a lack of specific community protection provisions in the IFQ alternative (despite its having a regionalization feature) may result in significant adverse impacts for St. George.

The rationalization alternatives also differ on the ability of communities to obtain harvest quota share. Under the three-pie and IFQ alternatives, CDQ groups, or other community groups if a CDQ group is not present, in eligible communities (again, those with 3 percent or more of processing activity for covered species during the qualification period) would be able to purchase harvest quota share due to a waiver of sea time requirements that would otherwise prevent such purchases. By design, the ability to obtain harvest quota share could result in beneficial community and social impacts through communities becoming more directly engaged in the fishery.

In the case of St. George, harvest quota shares, if purchased, would be obtained by APICDA. Given that St. George is one of several community members of APICDA, benefits of harvest quota share ownership would be spread across a base of multiple communities. While still clearly beneficial to St. George, this geographic dispersion of benefits would lessen the overall impact of this feature on the community itself. Nevertheless, if exercised, this ability could result in beneficial community and social impacts through the community becoming engaged in the fishery in a way that it is not under existing conditions.

Another potentially distinguishing feature of the rationalization alternatives from a community or social impact perspective is the ability of harvesters to form co-ops under the three-pie and cooperative alternatives (but not under the IFQ alternative). For St. George, this ability (or lack thereof) would not appear to result in significant beneficial or adverse impacts given its current nature of engagement with the fishery.

2.9 KODIAK

The community of Kodiak is located near the eastern end of Kodiak Island in the Gulf of Alaska, the largest island in Alaska and second in size within the United States only to the island of Hawaii. It is 252 air miles southwest of Anchorage, a 45-minute flight. The City of Kodiak, incorporated as a Home Rule City in 1940 and encompassing 3.5 square miles of land and 1.4 square miles of water, is part of the Kodiak Island Borough (KIB). Kodiak NWR encompasses nearly 1.9 million acres on Kodiak and Afognak Islands.

The climate of Kodiak Island has a strong marine influence with moderate precipitation, occasional high winds, and frequent cloud cover and fog. Severe storms are common from December through February. Annual rainfall is 67 inches, and snowfall averages 78 inches. January temperatures range from 14 to 46°F, with July temperatures varying from 39 to 76°F.

This community profile will draw upon previous community and sector profiles developed for the NPFMC (IAI 1991, 1994) and other federal agencies (Northern Economics 1994) as well as more current information from the Groundfish SEIS (NMFS 2001c) and field interviews conducted for the AFA Report to Congress (NPFMC 2002) and Steller Sea Lion Protection Measures SEIS (NMFS 2001a) analysis. These secondary materials have been supplemented with additional fieldwork and quantitative data analysis specific to this project.

Kodiak's identity is that of a fishing community. Through time, both its fishermen and processors have developed an engagement in and dependency upon crab fisheries (summarized below), but a singular characteristic of both sectors is the participation in many different fisheries. That is, many participants

display a wide diversification in their fishery operations. This section will focus on their participation in the crab fishery, and on linkages between the community and the crab fishery.

Commercial fish processing in the Kodiak region began on the Karluk spit in 1882. Not long after that, canneries³³ were established in the community of Kodiak. While the quantity and form of shore processing plants in Kodiak have changed, this sector remains an influential component of the fishing industry that is, in turn, fundamental to the community and its economy.

Shore processing facilities or canneries in the Kodiak region concentrated primarily on salmon and herring prior to 1950, although there was a cold storage facility at Port Williams where halibut was frequently landed. As their common name suggests, the product produced was most often canned fish. Cannery operations expanded in the 1950s to accommodate king crab processing. Thirty-two processors processed 90 million pounds of crab in 1966. In the following years, there was some growth within the sector; for example, one new shore plant was built in Kodiak in 1968. Declining harvest levels, however, prompted several shore plants to move their operations during the late 1960s and early 1970s to Unalaska/Dutch Harbor in the Aleutian Islands, closer to the larger supply of Bering Sea-Aleutian Island king crab. This move also diverted some of the crab that had previously been taken to Kodiak for processing, and the number of shore plants in Kodiak declined by more than half. A temporary resurgence in the Kodiak red king crab stocks in the mid-to-late 1970s instigated expansion of existing plants once again and fostered the building of two new plants in Kodiak. Larger freezing capacity was a notable addition to most of the shore plants. This allowed flexibility in storing larger volumes and processing more species into more diversified products. Larger docks also became important to the processors so that they could unload more boats in a given amount of time. With a larger overall capacity to process fish, competition by the plants for the fish resource increased, and the rate of return for individual shore plants declined. Diminishing crab stocks as the fishery entered the 1980s compounded this problem. After a record catch in 1980, the Kodiak king crab stocks crashed. Several factors, including overharvesting and natural conditions, have been cited by fishermen and scientific sources as contributors to this collapse. There has not been a red king crab opening in the Gulf of Alaska since 1982. Waters around Kodiak still produce tanner and Dungeness crab fisheries, and Kodiak shore plants process these species in addition to deliveries of crab they receive from boats returning from the Bering Sea fishery.

When king crab stocks started to crash in the late 1960s, some of the Kodiak plants sought to diversify. At least one plant added facilities to separate the previously dominant crab line and the main plant was then converted into a shrimp plant. Other plants report they "evolved into shrimp" to augment their crab production. Kodiak shrimp landings peaked in 1971, and stocks crashed in the late 1970s. The reason, while not definitive, may have been related to predation by large stocks of cod and pollock. Between 1978 and 1981, several Kodiak processing plants stopped shrimp production.

Efforts to fish Dungeness crab along the Kodiak coastline were slower to intensify, and landings peaked in 1981. At about the time when the Kodiak shore plants started processing shrimp, the bairdi tanner crab fishery "started to become a reality," but the tanner crab seasons, like the seasons of other crab species, soon became shorter and less productive. Many of the plants maintained halibut production lines while they were processing crab, shrimp, and salmon. At that time, halibut processing was not the intense activity it was to become under the derby type open access system. The season was open most of the year and there were relatively few boats fishing it. As the crab and shrimp faded as viable resources to maintain shore-plant production, salmon became much more important to the processing companies in Kodiak, as they continued looking for products to fill the gaps in their production.

³³ The term "cannery" is still commonly used in Kodiak to refer to any shorebased seafood processor, regardless of product form actually produced. This term appears to be less commonly used in some of the other communities profiled.

The provisions of the Magnuson Act of 1976 gradually expelled the foreign fleets capitalizing on the groundfish fishery within the Gulf of Alaska EEZ, while American boats and processors entered the fishery. By the late 1970s a few Kodiak shore plants, according to one plant manager, started experimenting with groundfish resources "because there wasn't much crab to do." However, the majority of the groundfish caught prior to 1988 was processed aboard foreign vessels, first by wholly foreign operations, and then by joint ventures where American boats delivered to floating foreign processors. One interviewee described the late 1970s and 1980s as years of "forced" diversification:

In that same time period [late 70s-early 80s] we started playing around with halibut and black cod, and very early playing around with other groundfish, and then in the mid-80s we got a lot more serious, and then in 1988 we built the new factory for surimi. It's pretty easy to see that we were kind of just forced into it. I mean, if you wanted to stay in the fish business you got into groundfish because that is all there was. And of course during that whole period, we continued to process salmon and herring and other products that were available to us.

Plant and dock expansions fostered their ability to further utilize groundfish resources. The first surimi production in Alaska took place in Kodiak in 1985 with the aid of an Alaska Fisheries Development Foundation Saltonstall-Kennedy grant. Also in the mid-1980s, "the State of Alaska came out with their tax credit program for getting into the groundfish, and so we fully utilized that," according to one plant operator, and his was not the only plant to do so. In 1987, a single plant processed about one-third of all the pollock that was taken out of the Gulf, but tax credits and other incentives contributed to additional effort and capitalization in the processing sector. This had limiting effects on large volumes being received by any one plant. The growth of the shore-based groundfish fishery in the Gulf of Alaska provided most Kodiak processors with products needed to keep their plants running nearly year-round. Large capital investments made the capacity to process groundfish resources greater than the total amount delivered, but a number of factors have converged to change operations significantly. Changing seasons have forestalled the opportunity to run plant operations year-round or at maximum capacity for extended periods of time, and competition for the "race for fish" stimulated overcapitalization in both the harvesting and processing sectors. Inshore/Offshore-1 management measures provided protection to Gulf of Alaska onshore processors and the harvesters who deliver to them from preemption by the offshore sector, but even with license limitation the Gulf of Alaska fishery is still characterized by overcapitalization. The derby-style fishing tactics and, in particular, the large volumes of pollock that can be caught in a short amount of time with contemporary equipment and technology can effectively "plug" the shore plants. If plants increase their capacity to handle these peak demands, they are essentially "capitalizing for inefficiency" as much of this capacity will be idle for most of the year. After the implementation of the AFA in the Bering Sea, some Kodiak processors also cite the "race for history" in Gulf of Alaska fisheries (and especially pollock) as an additional pressure towards inefficiency in local groundfish fisheries, in anticipation of eventual groundfish rationalization in some form in the Gulf of Alaska.

According to the City of Kodiak, Kodiak is home port to 770 commercial fishing vessels, making it the state's "largest fishing port" (NMFS 2002). The development or evolution of the Kodiak harvesting fleet has essentially paralleled that of the processors to which they deliver (along with the development of a fleet component that in part or in whole participates in BSAI fisheries). The details and dynamics are somewhat complex but have resulted in a fleet of multi-species, multi-gear boats (although trawlers may be somewhat more specialized, they can also switch gear or work as tenders). This versatility is especially important to harvesters as seasons have become more compressed and competition to harvest the resources has increased, although management restrictions such as license limitations or IFQs have increased the cost and perhaps reduced the possibility for such versatility. Kodiak fishermen greatly value having options and making their own decisions. Thus, both the potential benefits (generally increased stability of access and amount harvested

for those who can fish) and the potential costs (increased cost for entry into fisheries and reduced flexibility) of any proposed management alternatives are generally quite clear to them.

Kodiak's economy has become increasingly diversified. The local Coast Guard installation is the largest in the United States, and although it is relatively self-sufficient in some respects, it also contributes a great deal to the local economy in many ways. Housing has been relatively scarce since the 1980s and new house construction has been constant since that time, both to meet this demand as well as in response to increased population and more Coast Guard personnel living off-base. The housing market is currently softer than it has been in the collective memory of most Kodiak residents, due to the problems of the fishing industry. The service sector, and especially the retail sector, has continued to grow and has become increasingly important. Fishing support services have been affected by the downturn in the fishing industry. The local timber industry is at a relative low point currently but has been significant in the past. Education is an important economic and social component of the community, represented by the facilities of Kodiak College and The Fishery Industrial Technology Center. The aerospace industry has the potential, through a local rocket launch facility, to contribute to the economy both directly as well as more indirectly through support services and facilities provided to outside specialists who work at the launches.

Community Demographics

Kodiak, especially when the population of the greater Kodiak area is taken into account, is by far the largest of the Alaskan communities profiled. The overall community demographics are less directly influenced by persons engaged in the fishing economy than Unalaska, King Cove, or St. Paul, as the economy is much more diversified than in those communities.

Total Population

Table 2.9-1 provides information on Kodiak's total population by decade since 1880. The city of Kodiak did not attain the status of the largest community on the island until about 1920 or so and has grown steadily since then. The KIB was formed much later, and numbers for the borough are not available until 1960 when 7,174 people were enumerated. Named places within the KIB only totaled 3,320 people, however, and most were in the city of Kodiak. Based on present conditions, it can be assumed that most of the difference (whatever its "true" value) represented people living in the area of, but outside of the city limits of, Kodiak (Linda Freed, personal communication 2001³⁴). This would account for a good deal of the sudden increase between 1950 and 1960 of the population of the "Greater City of Kodiak" (Table 2.9-1).

The 2000 "unincorporated population" is 4,037 and is generally believed to approximate the population that could be considered part of the "greater city of Kodiak" area but not within its incorporated city limits. This "unincorporated" population is thus equal to about 64 percent of the city's 2000 incorporated population of 6,334. This is a dramatic relative increase, from only 50 percent in 1999, and reflects a slight increase in the "unincorporated" population and a decrease in the city of Kodiak population. An additional 1,840 people live on the Coast Guard base, which most people also consider as part of the "greater city of Kodiak" area. Together these three populations include 12,211 of the KIB's total 2000 population of 13,913, or about 86 percent. Note that this does not include Chiniak or Women's Bay (about 5 percent of the KIB's population) as part of the "greater city of Kodiak," although it could be argued that they should be. This calculated percentage has varied from 84 to 90 percent since the formation of the KIB. Prior to that time (1880-1950), the city of Kodiak had been increasing in size relative to the other named places on Kodiak Island (Table 2.9-1).

³⁴Freed, Linda, Director of Community Development, Kodiak Island Borough, AK 6/00

Table 2.9-1 Kodiak City and Area Population 1880-2000

Year	City of Kodiak	Greater City of Kodiak ¹	Total Hinterland ²	Kodiak Island Borough
1880	0	0	694	NA
1890	495	495	1,334	NA
1900	341	341	623	NA
1910	438	438	655	NA
1920	374	374	343	NA
1930	442	442	444	NA
1940	864	864	589	NA
1950	1,710	1,710	567	NA
1960	2,628	6,482	692	7,174
1970	3,798	5,358	999	6,357
1980	4,756	8,842	1,097	9,939
1990	6,365	11,610	1,699	13,309
1999	6,893	12,185	1,804	13,989
2000	6,334	12,211	1,702	13,913

¹ "Greater City of Kodiak" encompasses the city of Kodiak, Kodiak Station, and the derived unincorporated population – see text

² "Total Hinterland" is the total population of all named places on Kodiak Island, other than the city of Kodiak and Kodiak Station

Source: DCED for named places; "Greater City of Kodiak" and "Total Hinterland" are derived values - see text.

A common dynamic in fish processing towns is that the population increases seasonally during peak harvest and processing periods. In Kodiak, this has historically occurred in summer (July and August). With the development of groundfish processing, Kodiak processors have increasingly tried to operate year-round with an increasingly resident labor force. The strong national economy has also decreased the number of people willing to come to Kodiak to work seasonally, and the cost of transporting and training such temporary employees has also increased. While such transient workers are still part of Kodiak, they had not been as significant as in the past, due to the development of a more resident processing workforce. Recent trends may be for the increased employment of more transient workers. These dynamics are discussed below in terms of the processing and harvesting labor force.

Ethnicity

Kodiak is a complex community in terms of the ethnic composition of its population. Sugpiaqs (Koniags) were the original inhabitants of Kodiak Island. In the late 1700s Russian contacts and their sea otter operations had devastating effects on the Native population and culture. Alutiiq is the present-day Native language. Alaska (and Kodiak) became a U.S. Territory in 1867, and a cannery opened on Karluk spit 15 years later. This marked the start of the development of commercial fishing on Kodiak Island, and Karluk remained the largest community on the island until about 1920. Commercial fishing and the military buildup associated with World War II brought many non-Natives to Kodiak, primarily Caucasians, but the population influx also included a substantial number persons of other minorities, most of whom were at least initially associated with fish processing employment.

Table 2.9-2 presents time series information on ethnicity for the city of Kodiak and Table 2.9-3 presents comparative information for the KIB. While the information is not all directly comparable due to changing definitions and different sources, certain conclusions are fairly clear. The population of the city of Kodiak is quite different from that of the borough as a whole, and a good portion of this difference is related to the economic development in the city in general and fisheries development in particular. For example, most Filipinos or Asian and Pacific Islanders live in or near the city of Kodiak. With initial in-migration of these groups associated with fish processing employment, they are the segment of the KIB population that is most rapidly increasing, from an unknown population in 1970 (but no more than 3 percent) to 6 percent in 1980 to 11 percent in 1990 to 17 percent in 2000. This is consistent with the common community perception, and plant manager reports, that fish processing workers are more of a resident workforce with intact family units than in the past. The Alaskan Native population has stayed at approximately the same percentage through time but is clearly a smaller percentage of the city of Kodiak population than it is of the KIB as a whole. The white or Euroamerican population has declined in terms of percentage over time. Overall, there has thus been a gradual, long-term shift in ethnic composition, with Asian and Pacific Islanders increasing in percentage and Euroamericans declining in percentage. Native Americans and African Americans have shown relatively little change. Census data also show that the "Hispanic Origin" portion of the population has also grown over time, and this is consistent with plant managers' observations about the changing composition of processing workforces, along with anecdotal information that the Hispanic population is increasing, and located primarily in the city of Kodiak (KIB website). This is the same pattern and dynamic described in the NPFMC community profiles developed for the Inshore/Offshore-1 amendment (IAI 1991).

Group housing in the community is largely associated with the processing workforce. As shown in Table 2.9-4, only 6 percent of the population lived in group housing in 1990, and this figure dropped to 2 percent in 2000. This is in sharp contrast to the percentages seen in the other large seafood processing communities of Unalaska and King Cove that were previously detailed. While comparable data for 2000 are not yet available, Table 2.9-5 provides information on group housing and ethnicity for Kodiak for 1990. As shown, the group quarters population did differ from the community population, with group quarters population having a higher minority population percentage (51 percent) than the population of the community as a whole (37 percent).

Table 2.9-2 Ethnic Composition of Population Kodiak City: 1970, 1980, 1990, and 2000

Race/Ethnicity	1970		1980		1990		2000	
	N	%	N	%	N	%	N	%
White	3,094	81.7%	3,337	71.2%	4,028	63.3%	2,939	46.4%
African American	44	1.2%	26	0.5%	47	0.7%	44	0.7%
Native Amer/Alaskan	479	12.6%	573	12.2%	629	9.9%	663	10.5%
Asian/Pacific Islands*	NA	-	554	11.8%	1,282	20.1%	2,069	32.6%
Other**	116	3.1%	-	-	379	5.9%	619	9.8%
Total	3,798	100%	4,686	100%	6,365	100%	6,334	100%
Hispanic***	NA	-	196	4.2%	403	6.3%	541	8.5%

Source: U.S. Bureau of Census.

* In the 2000 census, this was split into Native Hawaii and Other Pacific Islander (pop 59) and Asian (pop 2,010)

** In the 2000 census, this category was Some Other Race (pop 276) and Two or more races (pop 343).

*** 'Hispanic' is an ethnic category and may include individuals of any race (and therefore is not included in the total as this would result in double counting).

Table 2.9-3 Ethnic Composition of Population Kodiak Island Borough: 1980, 1990, and 2000

Race/Ethnicity	1980		1990		2000	
	N	%	N	%	N	%
White	7,046	70.9%	9,289	69.8%	8,304	59.7%
African American	72	0.7%	135	1.0%	134	1%
Native American/Alaskan	1,710	17.2%	1,723	12.9%	2,028	14.6%
Asian/Pacific Islands*	624	6.3%	1,492	11.2%	2,342	16.8%
Other**	283	2.8%	670	5.0%	1,105	8%
Total	9,939	100%	13,309	100%	13,913	100%
Hispanic***	204	2.0%	669	5.0%	848	6.1%

Source: U.S. Bureau of Census.

* In the 2000 census, this was split into Native Hawaii and Other Pacific Islander (pop 110) and Asian (pop 2,232).

** In the 2000 census, this category was Some Other Race (pop 387) and Two or more races (pop 718).

*** 'Hispanic' is an ethnic category and may include individuals of any race (and therefore is not included in the total as this would result in double counting).

Table 2.9-4 Group Quarters Housing Information, Kodiak, 1990 and 2000

Year	Total Population	Group Quarters Population		Non-Group Quarters Population	
		Number	Percent of Total Population	Number	Percent of Total Population
1990	6,365	356	5.59%	6,009	94.41%
2000	6,334	146	2.30%	6,188	97.97%

Source: U.S. Bureau of the Census 1990 STF2, Census 2000 Summary File 1

Table 2.9-5 Ethnicity and Group Quarters Housing Information, Kodiak, 1990

Race/Ethnicity	Total Population		Group Quarters Population		Non-Group Quarters Population	
	Number	Percent	Number	Percent	Number	Percent
White	4,028	63.28%	192	53.93%	3,836	63.84%
Black	29	0.46%	3	0.84%	26	0.43%
American Indian, Eskimo, Aleut	811	12.74%	21	5.90%	790	13.15%
Asian or Pacific Islander	1,282	20.14%	118	33.15%	1,164	19.37%
Other race	197	3.10%	22	6.18%	175	2.91%
Total Population	6,365	100.00%	356	100.00%	6,009	100.00%
Hispanic origin, any race	407	6.39%	42	11.80%	365	6.07%
Total Minority Population	2,429	38.16%	181	50.84%	2,248	37.41%
Total Non-Minority Population (White Non-Hispanic)	3,936	61.84%	175	49.16%	3,761	62.59%

Source: U.S. Bureau of the Census 1990 STF2

Age and Sex

The city of Kodiak shows a greater proportion of males than females in its population and has been relatively stable in this regard for the period 1970-2000 (Table 2.9-6). The KIB as a whole shows an analogous imbalance over the 1980-2000 period (Table 2.9-7). This is characteristic of communities where at least one major economic sector disproportionately employs single members of one sex. The fishing industry has historically employed many single males, both as harvesters and processors. Although this population has apparently become more resident (rather than transient) than was the case in the past, evidently this has not greatly affected the overall population's male-to-female ratio. Single males still disproportionately migrate to Kodiak for at least some period of time, and females may tend to migrate out more than do males. The NPFMC community profile developed in the early 1990s (IAI 1991) indicates that the male/female ratio for the Native population was approximately equal, as would be expected from a resident population. The male-to-female ratio for Euroamericans was somewhat skewed (54/46), and for Filipinos was even more skewed. This was interpreted as evidence for a relatively resident Native population, with a predominately resident Euroamerican population somewhat more prone to movement in and out, and a much more mobile "other minority" population, which contained a smaller percentage of family units with children. This interpretation seems to continue to apply.

Table 2.9-6 Population by Age and Sex, Kodiak City: 1970, 1980, 1990, and 2000

	1970		1980		1990		2000	
	N	%	N	%	N	%	N	%
Male	2,055	54%	2,498	53%	3,496	55%	3379	53%
Female	1,743	46%	2,188	47%	2,869	45%	2955	47%
Total	3,798	100%	4,686	100%	6,363	100%	6334	100%
Median Age	NA		NA		NA		33.5 years	

Source: U.S. Bureau of the Census

Table 2.9-7 Population by Age and Sex, Kodiak Island Borough: 1990 and 2000

	1990		2000	
	N	%	N	%
Male	7,395	56%	7,362	53%
Female	5,914	44%	6,551	47%
Total	13,309	100%	13,913	100%
Median Age	NA		31.6 years	

Source: U.S. Bureau of the Census

Housing Types and Population Segments

Household type in Kodiak varies by population segment, although information is far from systematic in this regard. In the 1980s housing was in very short supply, and it was not unusual for complete strangers to be more than willing to share space in a marginal housing unit. Sales of houses and the rental of apartments were almost totally through word of mouth and almost instantaneous. This has changed to the point where houses are now on the market for a period of time more typical of other larger Alaskan communities before

selling, although apartment vacancy rates are still lower than are private housing vacancies. Average rent for apartments is higher or equal to rent in typical Alaskan urban communities, although the vacancy rate for units is higher than in places such as Anchorage, Juneau, and the Matanuska-Susitna Borough (AHFC 2001). Construction of new housing to meet the local demand has continued through the present, although it may have slowed somewhat in the recent past, and contractors are building few or no new houses on speculation. There are incentives that have encouraged the building of new housing outside of Kodiak city limits, however, such as the fact that the state will subsidize the mortgage rate one full percentage point for housing outside of the city of Kodiak. Further, undeveloped land within the current city limits is somewhat scarce.

Information from interviews would suggest that fish processors tend to live in smaller structures and/or with more household members, than do people with other employment. There are sections of town or developments where particular ethnic groups or persons with overall income levels associated with the seafood processing employment are concentrated, but there are also members of these same groups scattered throughout Kodiak.

One housing dynamic that had been operating until the recent past, noted earlier, has been that of the development of a more resident processing force. Kodiak processors had been able to close down bunkhouses as those attracted to Kodiak by fairly steady processing work preferred private housing in the community to company-owned group housing. With the more recent contraction of fishing seasons and a decrease in processor operating days, the processing labor force has once again become somewhat transient. Processors report that they can maintain only a smaller "core" group of employees than has been the case in the past, and several have reopened or even constructed bunkhouses of sufficient size to handle their transient peak labor needs. There are still local people who work in the processing plants on a less than full-time basis, but the pay scale associated with most processing work requires a relatively large number of hours to support a local resident than a number of other types of employment. Other than for peak processing periods, most labor is still local and has some sort of local housing arrangement. Systematic information is lacking, but anecdotally the same mechanism by which people are recruited to Kodiak to work in fish processing also allows them to find a place to live. Many such workers come because they have a relative or friend who is already working in Kodiak. This person then becomes a resource to locate housing. This is also one reason that household size and household structure tend to be different for different ethnic groups in Kodiak and are especially fluid for fish processor workers.

The Coast Guard base also affects the local housing supply in that it is "home" to close to 2,000 people. The base is reported to have been built in the 1930s as a temporary facility and so had a large supply of substandard housing. Much of this has since been dismantled, with a substantial but not equivalent amount of new and better housing being erected on-base. Most Coast Guard personnel have the option of living off-base if they prefer, so this has increased the local demand for housing.

Local Economy and Links to the Crab Fishery

Despite the relative diversification of Kodiak's economy, fishery-related employment is still a very large component of total local employment. Excluding the Coast Guard, 4 of the 5 top employers in Kodiak in 2000 were fish processors, and 3 more were listed in the top 20 employers (Table 2.9-8). It must also be noted, however, that Kodiak's economy is far more diversified than that of the other fishing communities profiled in this document, other than the greater Seattle area. The military (Coast Guard), education, service and retail, and government sectors are all very important for Kodiak. In this regard, interviews with some support providers who in the past have been primarily fisheries-oriented indicate that more recently Coast Guard, government, and education customers have become as significant (or more significant) in terms of the sale of outboard motors, boats, and similar marine-oriented items as fishermen themselves. As one such provider remarked, one-third of the Coast Guard base turns over every year, which equates to a constant

stream of new customers for him. Realtors have also noted that large homes are less likely to be purchased by fishermen than by "Coasties" or other Kodiak residents than in the past.

Table 2.9-8 Top 20 Kodiak Employers, 2000

Rank	Employer	Employment
1	Kodiak Island Borough School District	402
2	Ocean Beauty Seafoods	338
3	Trident Seafood Group	240
4	Polar Equipment (Cook Inlet Processing)	227
5	North Pacific Processors (APS)	198
6	Providence Kodiak Island Medical Center	177
7	City of Kodiak	173
8	Wal-Mart Associates	147
9	International Seafoods of Alaska	146
10	Safeway, Inc.	142
11	Global Seafoods	136
12	Western Alaska Fisheries	108
13	Kodiak Area Native Association	108
14	Space Mark International	108
15	U.S. Department of Transportation	99
16	Alaska Department of Fish and Game	77
17	Ki Enterprises (McDonald's)	66
18	University of Alaska	54
19	Kodiak Island Housing Authority	51
20	Kodiak Electric Association	51

Source: Kodiak Chamber of Commerce, October, 2001 (excludes military).

Table 2.9-9 displays the total volume of fish landed at Kodiak for 1984 through 2000. Kodiak has consistently ranked in the top three U.S. ports in terms of value of fish landings and in the top seven in terms of volume of landings. As shown, there is considerable variability in absolute figures from year to year as, for example, the value of landings in Kodiak declined by approximately one-fourth between 1999 and 2001. Additional information in the form of a detailed overview of the fishing industry in Kodiak is available in a recent analysis of the economic impacts from fishing restrictions on the KIB economy, prepared by the McDowell Group (2002). The McDowell report lists a number of reasons behind the recent overall decline in the value of Kodiak's fisheries, including quota not harvested from areas traditionally fished by Kodiak vessels, due to Steller sea lion protection closure areas, as well as a decline in salmon prices, among others. The report also notes steep processing declines of pollock since 1998 and cod since 1999, as well as a drop in halibut landings due to increases in landings in Home and Seward. These changes have been accompanied by declines in harvester income, processing employment and payments to labor, processor closures, and a shift toward more marked seasonal fluctuations in processing.

Table 2.9-9 Volume and Value of Fish Landed at Kodiak, 1984-2001

Year	Volume (millions of lbs)	U.S. Ranking for Volume	Value (millions of \$)	U.S. Ranking for Value
1984	69.9	7	113.6	2
1985	65.8	6	96.1	3
1986	141.2	7	89.8	3
1987	204.1	3	132.1	2
1988	304.6	3	166.3	1
1989	213.2	6	100.2	3
1990	272.5	3	101.7	3
1991	287.3	4	96.9	3
1992	274.0	3	90.0	3
1993	374.2	2	81.5	3
1994	307.7	2	107.6	2
1995	362.4	2	105.4	2
1996	202.7	5	82.3	3
1997	267.5	6	88.6	3
1998	357.6	5	78.7	3
1999	331.6	6	100.8	3
2000	289.6	6	94.7	3
2001	285.5	6	74.4	3

Source: Personal communication from the National Marine Fisheries Service, Fisheries Statistics and Economics Division, Silver Spring, MD (accessed through NMFS Website).

Table 2.9-10 lists detailed information on total volume and value of fish landings for Kodiak for 2000 by species or species group. As shown, crab plays a relatively minor role in local landings. Bristol Bay red king crab and Bering Sea snow crab combined represent less than 1 percent of total volume processed and slightly more than 3 percent of total value. Dungeness crab accounts for another one-tenth of 1 percent of total volume and about four-tenths of 1 percent of total value. Clearly, the value of landings in Kodiak are dominated by Pacific cod, halibut, and salmon, which together account for 72.5 percent of the total value of all species landed. These three species account for between 23 and 25 percent of total value each, while no other species accounts for more than about 9 percent of the total. Pollock and sablefish, the next two most important species after Pacific cod, halibut, and salmon, account for 9 percent and 7 percent of the overall total, respectively. No other species accounts for more than about 2 percent of the total. Pollock, by far, accounts for the greatest volume of fish landed, with Pacific cod and salmon being quite close to each other as the second and third highest volume species (or species complex), respectively. As shown, several other groundfish species are relatively high-volume species locally, but account for a relatively small proportion of the total value landed, due to relatively low values per pound.

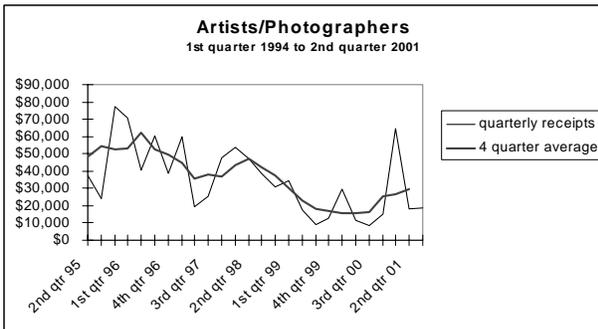
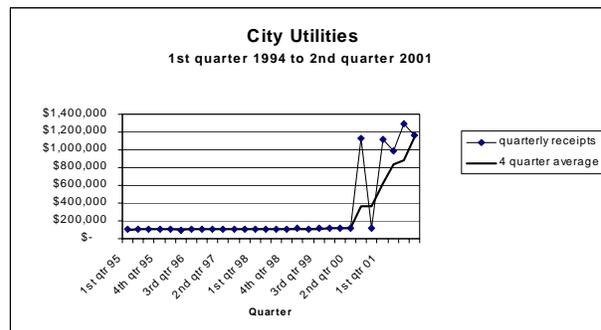
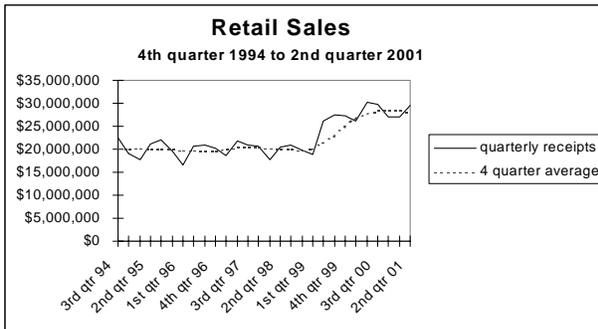
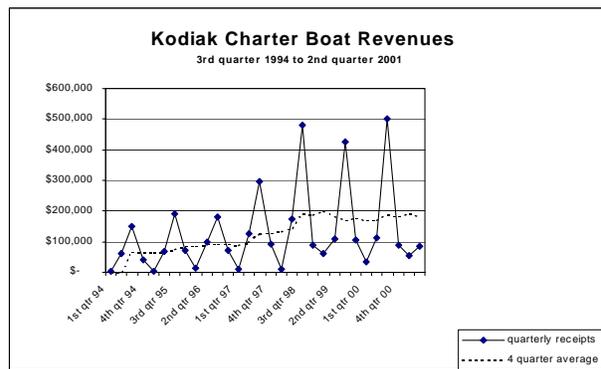
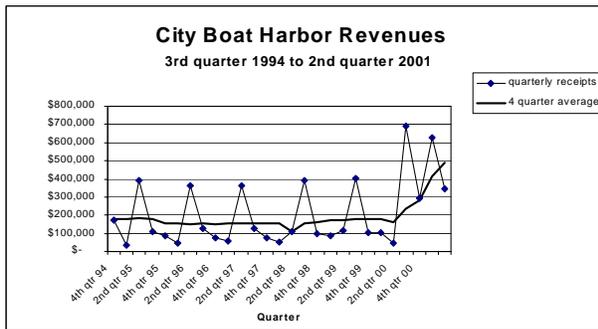
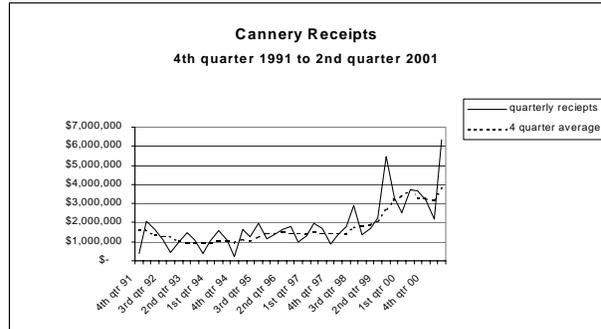
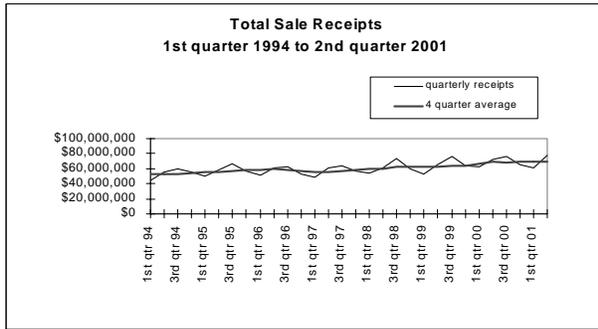
Table 2.9-10 Volume and Value of Fish Landed at the Port of Kodiak, by Species, 2000

Species	Volume Landed (Pounds)	% of Total Volume	Ex-vessel Value (dollars)	% of Total Value
Pacific Cod	64,936,708	22.4%	\$24,030,302	25.37%
Halibut	9,258,799	3.2%	\$23,146,998	24.44%
Salmon	61,800,000	21.3%	\$21,500,000	22.70%
Pollock	102,229,713	35.3%	\$8,720,096	9.21%
Sablefish	3,377,355	1.2%	\$6,957,351	7.35%
Rock Sole	10,191,805	3.5%	\$2,061,818	2.18%
Bristol Bay Red King Crab	900,536	0.3%	\$1,707,901	1.80%
Weathervane Scallops	280,568	0.1%	\$1,662,575	1.76%
Bering Sea Snow Crab	1,451,842	0.5%	\$1,277,621	1.35%
Pacific Ocean Perch	9,008,682	3.1%	\$729,051	0.77%
Herring	2,740,000	0.9%	\$685,400	0.72%
Rockfish	9,229,389	3.2%	\$611,210	0.64%
Dungeness Crab	236,921	0.1%	\$390,920	0.41%
Flatfish	1,847,248	0.7%	\$252,530	0.27%
Flathead Sole	1,676,648	0.6%	\$234,642	0.25%
Sea Cucumbers	116,152	0.0%	\$174,228	0.18%
Rex and Dover Sole	1,167,310	0.4%	\$132,387	0.14%
Black Rockfish	251,520	0.1%	\$108,373	0.11%
Octopus	181,993	0.1%	\$90,997	0.10%
Miscellaneous/other/unspecified (inc. shrimp and sea urchins)*	8,716,811*	3.6%*	\$225,600*	2.01%
Total	289,600,000	100%	\$94,700,000	100%

*Note: Figures in this row provided to make totals for known and unspecified species sum to reported port totals and are adjusted to account for rounding errors and species that are not reported individually due to confidentiality restrictions. Values should be taken as approximations and should not be used for comparative purposes.
 Source: Adapted from Kodiak Chamber of Commerce, October, 2001.

Like the other communities profiled, the portion of Kodiak's economy tied to the fisheries shows distinct variation by season. The more-or-less regular or cyclical annual variation endemic to the Kodiak's fishing economy also spills over into other local economic sectors. The Kodiak Chamber of Commerce has provided city sales tax receipt information in spreadsheet format for the first quarter of 1994 through the second quarter of 2001 (Figure 2.9-1). Graphs of tax receipts over this period, by quarter, are presented for total sales receipts and selected economic sectors. The comparison of these graphs is the basis for the following brief discussion.

Figure 2.9-1. Kodiak Seasonal Economic Fluctuations



Total sales tax receipts vary in a cyclic pattern, typically within a relatively well-defined range (the high point is generally no more than 1.5 times the low point, although that range seems to be increasing through time). Cannery receipts can be seen to vary in the same way as do total sales receipts, but the fluctuation between high and low points is much more extreme (the high point is over 2 times the low point). City boat harbor revenues are even more extreme, but this is an artificial variation, as most long-term moorage fees and such are billed and paid on an annual basis. On the other hand, charter boat revenues are perhaps the most extreme case of true seasonal variation in economic activity, from zero in the winter to a peak in the summer. As this industry also depends on fish (primarily salmon and halibut), it has some of the same seasonal variation pattern as does the commercial processing sector, but it also is influenced by tourism cycles. Retail sales, on the other hand, while showing some seasonal variation in response to the variation in many of primary economic sectors, exhibits a much narrower range of variation than does total sale receipts. This makes sense intuitively, as a certain level of sales has to be maintained year-round to support the resident population. Sales would increase during peaks of economic activity, in proportion to the size of the peak in relation to the "base" level of sales. The city utilities graph is especially telling in this regard. The variation is less cyclical but does exhibit some seasonality confounded by an overall trend towards increased revenues (increased use of utilities). This is an indicator that Kodiak has been experiencing consistent growth, in population, housing supply, and general infrastructure. The last graph can be no more than suggestive, but the decline in revenues for artists and photographers may suggest that there is less discretionary income in the community, or that such expenditures for luxury or specialty items are increasingly being spent outside of the region.

The following discussion of the fishing industry is divided into the harvesting and processing sectors, as each is extremely important for the Kodiak economy and community. A third section provides some general contextual information on fishery industry support services.

Harvesting

While most of the Kodiak catcher vessel fleet is Gulf of Alaska oriented, Kodiak is, by far, the largest BSAI crab vessel home port in Alaska. At a minimum, the Kodiak crab fleet can be divided into those who deliver to Kodiak shore processors, and those who deliver to Bering Sea processors (shoreplants and floaters). Some "Bering Sea boats" do deliver some crab to Kodiak processors, generally on the last trip of a season or for one-trip fisheries. Bering Sea boats are generally larger than those that fish only the Gulf of Alaska. Currently, relatively little Bering Sea crab harvested by Kodiak boats is delivered to, and processed at, Kodiak shoreplants. It should be noted that there was a significant increase in such deliveries in 2000, compared to the previous 6 years, both in absolute and percentage terms. This is discussed briefly below in the "Processing" section, in qualitative terms.

As shown in Table 2.9-11, over the past decade, Kodiak has been home to 38.6 vessels on an annual average basis that participated in at least one of the nine BSAI crab fisheries covered by the proposed management alternatives. As discussed in Section 3.4.4 of the main body of this document, the Alaska community with the next highest number of vessels has an annual average of 8.3. Also as discussed in that section, vessels owned by Seattle-Tacoma area residents dominate the harvest in the BSAI crab fisheries as a whole, but Kodiak dominates all other Alaska communities. Table 2.9-11 also shows the diversity within the local BSAI crab fleet, in terms of dependence on BSAI crab versus other fisheries in which these vessels are engaged, as well as between the various individual crab species. In terms of harvest levels, Kodiak vessels over the past 10 years accounted for approximately 53.5 percent of the Bristol Bay red king crab harvest taken by all Alaska-owned vessels, 51.0 percent of the opilio harvest taken by all Alaska-owned vessels, and 54.6 percent of the tanner harvest taken by all Alaska-owned vessels.

For the Kodiak Bering Sea crab fleet, opilio crab has clearly been the most significant single BSAI crab species being proposed for rationalization during this time period, accounting for 47 percent of the value of their harvest, on average. Other relevant BSAI crab species are quite significant, however, as all species together account for 80 percent of the value of the total harvest of Kodiak vessels that harvested any BSAI crab proposed for rationalization in this period. Thus, Kodiak Bering Sea vessels that engage in the BSAI crab fisheries are primarily dependent on crab in general, and the species proposed for rationalization in particular, in relation to all of the fisheries in which they may participate.

Table 2.9-11 Annual Average Number of Crab Vessels Owned by Kodiak Residents Participating in Relevant BSAI Crab Species Fisheries and Associated Harvest, 1991-2000.

Fishery Category	Annual Average Number of Vessels	Value	
		Annual Average Value of Harvest	Percent of Kodiak Crab Fleet Total
Bristol Bay Red King Crab	44.3	\$5,240,622	12.2%
Bering Sea Opilio Crab	37.8	\$20,081,371	46.7%
Bering Sea Tanner Crab	43.7	\$3,593,507	8.4%
BBR/BSO/BST group	45.8	\$28,915,500	67.2%
Other 6 PMA Crab group	25.9	\$5,390,614	12.5%
All 9 PMA Crab group	48.1	\$34,306,113	79.7%
"Overlap" Vessels, all 9 PMA Crab	1.8	*	0
All Fisheries other than PMA Crab	34.4	\$8,711,223	20.3%
Total	N/A	\$43,017,337	100%

Notes: BSAI crab fishery and group vessel counts are not additive, as some vessels fish several fisheries. Vessels fishing multiple fisheries have been counted only once in combined categories. Average vessel counts for individual fisheries are computed using years open during 1991-2000. Average vessel counts for grouped fishery categories used all 10 years (unweighted). "Overlap" vessels have both qualified and non-qualified BSAI crab landings. * value suppressed due to confidentiality restrictions

Table 2.9-12 provides information on all Kodiak-owned vessels (not just BSAI crab vessels as was the case in Table 2.9-11). This table provides information on the relative dependency of the community fleet as a whole on BSAI crab. As shown, over this decade span, the BSAI crab fisheries being considered for rationalization accounted for 35.5 percent of the value of the total local fleet harvest on an average annual basis. The relative productivity of these vessels may be seen in the fact that these vessels account for only 11.5 percent of the average annual vessel count of the total local fleet.

Table 2.9-12 Annual Average Number of Vessels Owned by Kodiak Residents Participating in All Fisheries and Associated Value and Volume of Harvest, 1991-2000.

Fishery	Annual Average Number of Vessels	Average Annual Value of Harvest		Average Annual Volume of Harvest	
		Dollars	Percent of Community Fleet Total	Pounds	Percent of Community Fleet Total
PMA Crab	48.1	\$34,306,113	35.5%	30,146,663	13.1%
non-PMA Crab	55.8	\$1,879,682	1.9%	1,097,065	0.5%
Pollock	53.0	\$6,005,876	6.2%	68,321,595	29.6%
Pacific Cod	161.9	\$10,308,203	10.7%	45,586,871	19.8%
Other Groundfish	134.8	\$7,144,549	7.4%	19,240,712	8.3%
Other Fisheries	263.9	\$17,398,694	18.0%	19,511,615	8.5%
Salmon	209.5	\$15,815,247	16.4%	40,266,848	17.5%
"Non-Vessel" Fisheries	NA	\$3,779,779	3.9%	6,536,465	2.8%
Total Community Count, Value, or Volume	417.3	\$96,638,141	100%	230,707,832	100.0%

Notes: Offshore harvest (and value) not included, which affects mainly groundfish.

Database as provided combines all relevant BSAI crab fisheries.

"Non-Vessel" fisheries represent those harvest data that do not have an associate vessel number. These data primarily represent salmon harvests (e.g., beach set net fisheries).

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

For the harvest of Gulf of Alaska fishery resources, the enumeration and geographic distribution of the Kodiak catcher vessel sector is detailed in previous documents and abstracted for this document. The most important point in regard to the Kodiak component of this fleet is that most are multi-gear and multi-species boats. The majority of boats harvesting groundfish and crab for deliveries to Kodiak shore processors are Kodiak-based boats harvesting Gulf of Alaska resources. Non-local boats from Newport or Seattle augment the trawl and longline fleets. One recent development, with the shift of Gulf of Alaska pollock quota from areas 610 and 620 to the Shelikof Area, has been the at least temporary transfer of some boats from the Trident plant in Sand Point to the Trident plant in Kodiak.

Vessels in this fleet usually have a handshake agreement with a shore processor for the delivery of fish. The vessel is said to "work for" the shore plant and sometimes the plant operators refer to "their boats" meaning those with which working relationships exist. These vessels deliver to that plant on a regular basis. The size and composition of processor fleets vary, depending on the plant's capacity and product mix. Most of the boats that deliver to Kodiak processors are multi-purpose vessels that can change fisheries to meet the current market and fishing circumstances. For example, some vessels will switch between crab, halibut, and cod or crab, halibut, and pollock. One vessel reported that he fished for in excess of 20 species with three different types of gear. The size of a processor's fleet depends on what season it is and what they are targeting at the time. It is not uncommon, however, for a plant to have a fleet of 8 to 16 boats fishing groundfish and crab. Among plants that run pollock, there is a bimodal distribution of trawl fishing power. The larger plants typically have 8 to 10 trawlers working with them, whereas the smaller plants typically have 4 or fewer trawlers in their pollock fleet. Most plants also have 6 to 10 fixed gear vessels in their fleet. Most of the fixed gear boats are pot boats fishing for Pacific cod and/or tanner crab. There is a small fleet that fishes for dungeness crab as well.

Fleet sizes are smaller now than they were when local shellfish was a larger part of production. Interview data suggest that prior to the implementation of the AFA in the Bering Sea, the Gulf of Alaska pollock (and flatfish) fleet tended to cooperate in an effort to balance deliveries to maintain high levels of production. This was a somewhat unique relationship to develop in an open access fishery, but it was a form of industry-developed "rationalization" to counter some of the inherent inefficiencies of a high volume/low value fishery with excess capacity. Ideally, the plants want just the right amount of boats to keep production lines busy all of the time, but with a trawl fleet's capacity to catch groundfish, its harvest can easily exceed its processor's capacity. After the implementation of the AFA in the Bering Sea, Kodiak processors have reported that this arrangement is, in essence, no longer in effect. With the anticipation of eventual pollock (and other groundfish) rationalization in the Gulf of Alaska, a "race for history" in the Gulf has resulted, with at least one new processing entrant and a host of wasteful and inefficient practices (see processing discussion below).

A strategy of flexibility and adaptability in the fishing industry has caused boats to become very good at converting from one gear type to another, if they have the gear available. In the mid-1980s this did not happen frequently, but it is easier and more common now (subject to license limitation and other management measures). While boats may switch from one gear type to another, operators usually deliver to the same processor. If a new operator comes aboard, the vessel may or may not change delivery sites, depending on the established relationships of the vessel owner/operator to processor.

Conversions also take place within the trawl fleet. For example, there is a switch in nets for midwater or pelagic trawling to bottom trawling when going from pollock to cod, and according to field interviews, almost all local trawlers have both types of nets. Medium-sized and small trawlers (usually those less than 70 feet in length) will make a conversion as soon as tanner season is closed, but the bigger Kodiak trawlers, those in the 80- to 120-foot range, will usually leave their trawl gear on and not make any conversions, unless they are going tendering for salmon or herring. There have been a number of recent changes in conversion patterns, however, and this has resulted in changes in flexibility as the nature of some of the fisheries has changed. For example, in the not-too-distant past, vessels could trawl the better part of the year, so a number of them sold their pots and abandoned the fixed gear fishery. Also, according to local sources, the Kodiak area tanner quota has been so small in recent years that the bigger boats "can't justify going out," effectively limiting their flexibility.

The delivery of BSAI crab by Kodiak (or other) boats to Kodiak processors is discussed in the next section, but Kodiak harvesters did comment on other aspects of the proposed rationalization alternatives that could affect their operations. Foremost in their thoughts was the potential loss of bargaining power harvesters could face in view of a "closed-class" of processors. Harvesters claim that under the AFA crab sideboards imposed on processors, harvesters have faced limited markets and been forced to be price-takers and thus received less value for their crab than they would otherwise have expected. The belief is that processors may acquire even more leverage in the price-bargaining relationship under the three-pie rationalization alternative. In short, many harvesters believe that they have already been adversely affected in this way by the crab sideboards imposed on AFA-qualified processors by the AFA. Once the capped processors reach their limits, there are very few alternative markets to which a harvester can sell. To some degree, there is a split between those harvesters who own (and generally operate) a single vessel and those who own two or more. Some in the former position characterize themselves and others like them as simply trying to earn a living, and keeping the option for others to do the same open, while multi-vessel owners are more interested in asset appreciation and an economically viable exit strategy from the fishery (i.e., "selling out"). The perception of fishing as a way of life and lifestyle is one component of this process. "Owner-on-board" provisions have been championed by some as a way to retain "fishing community values" but would clearly disadvantage the owners of multiple vessels. At the same time, most fisheries participants would agree that entry into the fisheries (and the corollary, orderly exit from the fisheries, as well) is problematic – although there is little

agreement on whether the rationalization alternatives would help alleviate the entry problem. It is generally agreed that rationalization in general would facilitate the ability of those who want to retire from the fishery to do so while obtaining an advantageous price for their fishery assets.

Processing

Table 2.9-13 summarizes information on the processing of relevant BSAI crab species in Kodiak for 1991-2000. Tanner crab may not be the single most important species of BSAI crab for Kodiak vessels but is the only one for which individual species information can be displayed due to confidentiality restrictions. For all nine BSAI crab species combined, Kodiak processed 1.2 to 1.7 percent of the total harvest for 1991-1996. This declined to significantly lower levels in 1997 and 1998, returned to the previous level in 1999, and greatly increased in 2000. The decline in 1997 coincided with the closure of the Bering Sea tanner crab season (which remains closed) and with a change in the rules on pot storage after the end of a fishing season. After 1996, all pots had to be removed from the fishing grounds within 7 days of the end of the season. Many Kodiak Bering Sea crab boats report that they are not large enough to carry both a load of crab and all their pots, so that this change in regulation severely limited their ability to deliver crab to Kodiak, especially during high GHY years. Such boats were limited even on the last (or only) delivery trip of the season. For their last trip, such boats were essentially forced to deliver to a Bering Sea processor, return to the grounds and pick up their pots, and then go to Kodiak. Some harvesters also reported that processors required them to deliver all crab to them, by linking such deliveries to markets for other fish. Still, by 1999 the Kodiak processors and fleet had evidently adapted to the extent that Kodiak deliveries and processing were at the same levels as the early 1990s. The sharp increase in 2000 may be due to a number of factors. One would be the great decline in the GHY and harvest, so that many vessels had only one delivery trip, often of a partial load, that allowed them to carry their empty pots as well. Kodiak processors may also have offered price incentives, for various reasons. In any event, Kodiak processors and harvesters both note that there has been a historical pattern for Kodiak boats to deliver Bering sea crab back to Kodiak, and cite the qualifying years of 1995-1999 as "the worst possible set of years" for Kodiak in this regard.

Tables 2.9-14 through 2.9-17 present information on the volume and value of the species processed in Kodiak by year for the period 1991-2000. The percentage tables display the percentage that each fishery processing category represented for the annual processing total for Kodiak (a form of community processing dependency). The percentage each such category represented of the total annual processing for that fishery as a whole (community share of the total fishery processing activity) can be derived from tables presented in the supporting data tables attachment (SIA Attachment 3). Community processing "share" information cannot be discussed for communities other than Kodiak, due to the nature of the data. For Kodiak, with the exception of salmon, which is processed at several different locations within the KIB, nearly all of this activity takes place within the city of Kodiak at shore-based facilities. As shown in Tables 2.9-14 and 2.9-15, there is a considerable amount of variation in the absolute and relative volume of individual species processed over this time period. Most Gulf of Alaska crab fisheries remain closed, which accounts for the declining trend in crab species other than those proposed for rationalization. The pattern for BSAI crab is more complex, as described in the previous paragraph.

Tables 2.9-16 and 2.9-17 present the same type of information as in the previous two tables, but in terms of value by species for these same years rather than by volume. The patterns are similar to those of the volume tables but highlight the differences between high volume/low price and low volume/high price species. This is especially evident for crab. In the early 1990s, even though total deliveries and pounds processed were relatively small, BSAI crab species and other crab species each accounted for 5 or more percent of the value of all community processing. For non-BSAI FMP (mainly Gulf of Alaska) crab, this percentage has steadily declined due to declining Gulf of Alaska crab fisheries (most of which are now closed). For the relevant

BSAI crab species, the percentage declined through 1998 but, as discussed above, increased in 1999, and increased more sharply still in 2000. Table 2.9-17 indicates that the relevant BSAI crab species represented 9 percent of the total value of seafood processing in Kodiak in 2000. This is a known overestimate, as the 2000 data do not include halibut, which accounted for about 18 percent of the total Kodiak processed value in 1999. Thus, a more reasonable value for the relevant BSAI crab species in relation to the total Kodiak processing value in 2000 would be about 7.4 percent (.09 times .82). While the tables portray a relatively diversified fishery, in most years the dominance of salmon and groundfish is apparent, as is the relative importance of halibut in comparison to crab.

Table 2.9-13 Value of BSAI Tanner Crab and Total Relevant BSAI Crab Species Processing for Kodiak and the Total of All Regions, 1991-2000

Year	Kodiak			All Regions			Kodiak as a % of All	
	Tanner	All 9 PMA	Tanner as % of All PMA	Tanner	All 9 PMA	Tanner as % of All PMA	Tanner	All 9 PMA
1991	\$1,780,978	\$4,588,766	38.8%	\$56,192,838	\$305,695,929	18.4%	3.2%	1.5%
1992	\$2,479,565	\$4,408,095	56.3%	\$59,162,105	\$289,853,730	20.4%	4.2%	1.5%
1993	\$2,671,346	\$4,677,209	57.1%	\$41,988,229	\$304,538,220	13.8%	6.4%	1.5%
1994	\$2,481,138	\$3,422,245	72.5%	\$35,366,058	\$283,488,574	12.5%	7.0%	1.2%
1995	\$1,652,665	\$3,153,968	52.4%	\$11,923,660	\$221,109,681	5.4%	13.9%	1.4%
1996	\$640,894	\$2,586,529	24.8%	\$4,595,405	\$154,074,142	3.0%	13.9%	1.7%
1997	\$0	\$1,389,062	0.0%	\$0	\$147,820,510	0.0%	0.0%	0.9%
1998	\$0	\$1,036,384	0.0%	\$0	\$191,024,760	0.0%	0.0%	0.5%
1999	\$0	\$3,553,491	0.0%	\$0	\$264,003,323	0.0%	0.0%	1.3%
2000	\$0	\$6,604,638	0.0%	\$0	\$111,690,223	0.0%	0.0%	5.9%
1991-2000	\$11,706,585	\$35,420,388	33.1%	\$209,228,294	\$2,273,299,091	9.2%	5.6%	1.6%
1995-1999	\$2,293,559	\$11,719,435	19.6%	\$16,519,064	\$978,032,416	1.7%	13.9%	1.2%

Notes: Only "Tanner" and "All 9 PMA" numbers are non-confidential for Kodiak processors.

Tanner is not necessarily the "most important" BSAI crab species for Kodiak processors.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.9-14 Volume of Fish Processed by Kodiak Processors, by Fishery Category and Year, 1991-2000

Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
PMA Crab	3,423,933	2,235,315	2,382,257	835,923	1,216,637	884,002	507,625	688,129	738,704	2,250,267	15,162,792
Non-PMA Crab	3,337,429	4,005,579	2,729,550	2,027,264	616,125	791,084	657,078	459,963	549,296	254,400	15,427,768
Salmon	65,513,180	37,442,748	105,954,109	42,512,087	150,212,021	38,480,944	47,096,755	85,197,066	63,135,227	60,137,591	695,681,728
Halibut	11,175,975	12,407,385	9,886,361	8,959,621	7,345,008	7,396,190	10,673,472	8,429,823	8,293,055	see note	84,610,079
Sablefish	7,823,907	6,770,493	6,869,437	6,157,425	3,664,241	4,739,317	3,798,064	3,572,350	3,085,327	3,251,821	49,732,382
Pollock	95,709,636	128,392,182	155,353,624	163,440,241	65,393,556	45,996,042	83,777,225	164,935,760	129,788,161	106,386,467	1,139,172,894
Pacific Cod	62,211,905	51,844,171	48,156,199	37,220,362	69,992,708	51,710,124	72,633,509	71,460,162	83,670,937	64,051,179	612,951,256
Other Groundfish	16,426,409	20,983,205	20,878,900	13,955,709	18,685,450	34,459,702	36,860,158	30,833,747	26,063,592	47,225,737	266,372,609
Other Fisheries	8,229,555	7,592,926	9,046,307	6,235,468	5,203,241	6,146,351	5,763,016	2,946,939	2,473,634	2,303,039	55,940,476
Non-Commercial	846,854	1,910,625	92,767	7,300,946	631,058	2,629,333	926,659	601,108	3,197,287	7,031,956	25,168,593
Total	274,698,783	273,584,629	361,349,511	288,645,046	322,960,045	193,233,089	262,693,561	369,125,047	320,995,220	292,935,646	2,960,220,577

Notes: Halibut numbers are not available for 2000.
 Most numbers are likely to be underestimates, and should be used as indicators rather than exact measures. See text.
 Table includes ALL processors in the named community, whether they processed relevant BSAI crab species or not.
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.9-15 Percentage of Total Volume of Fish Processed by Kodiak Processors, by Fishery Category and Year, 1991-2000

Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
PMA Crab	1.2%	0.8%	0.7%	0.3%	0.4%	0.5%	0.2%	0.2%	0.2%	0.8%	0.5%
Non-PMA Crab	1.2%	1.5%	0.8%	0.7%	0.2%	0.4%	0.3%	0.1%	0.2%	0.1%	0.5%
Salmon	23.8%	13.7%	29.3%	14.7%	46.5%	19.9%	17.9%	23.1%	19.7%	20.5%	23.5%
Halibut	4.1%	4.5%	2.7%	3.1%	2.3%	3.8%	4.1%	2.3%	2.6%	see note	2.9%
Sablefish	2.8%	2.5%	1.9%	2.1%	1.1%	2.5%	1.4%	1.0%	1.0%	1.1%	1.7%
Pollock	34.8%	46.9%	43.0%	56.6%	20.2%	23.8%	31.9%	44.7%	40.4%	36.3%	38.5%
Pacific Cod	22.6%	18.9%	13.3%	12.9%	21.7%	26.8%	27.6%	19.4%	26.1%	21.9%	20.7%
Other Groundfish	6.0%	7.7%	5.8%	4.8%	5.8%	17.8%	14.0%	8.4%	8.1%	16.1%	9.0%
Other Fisheries	3.0%	2.8%	2.5%	2.2%	1.6%	3.2%	2.2%	0.8%	0.8%	0.8%	1.9%
Non-Commercial	0.3%	0.7%	0.0%	2.5%	0.2%	1.4%	0.4%	0.2%	1.0%	2.4%	0.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Halibut numbers are not available for 2000.
 Most numbers are likely to be underestimates, and should be used as indicators rather than exact measures. See text.
 Table includes ALL processors in the named community, whether they processed relevant BSAI crab species or not.
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.9-16 Value of Fish Processed by Kodiak Processors, by Fishery Category and Year, 1991-2000

Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
PMA Crab	\$4,588,767	\$4,408,095	\$4,677,212	\$3,422,244	\$3,153,972	\$2,586,526	\$1,389,062	\$1,036,385	\$3,553,489	\$6,604,643	\$35,420,395
Non-PMA Crab	\$5,154,820	\$6,892,022	\$4,163,021	\$3,727,014	\$970,593	\$876,894	\$1,386,903	\$668,133	\$860,535	\$421,403	\$25,121,338
Salmon	\$28,490,759	\$33,891,223	\$30,919,937	\$19,837,476	\$41,353,791	\$21,319,667	\$16,552,661	\$26,327,348	\$28,587,045	\$18,477,815	\$265,757,722
Halibut	\$22,182,856	\$11,319,145	\$11,705,472	\$16,874,425	\$14,228,126	\$16,144,982	\$22,115,588	\$10,254,626	\$17,374,280	see note	\$142,200,425
Sablefish	\$7,421,681	\$7,828,995	\$6,781,326	\$8,679,003	\$7,233,079	\$9,316,328	\$8,305,717	\$5,282,670	\$5,521,587	\$6,550,433	\$72,920,819
Pollock	\$8,327,265	\$14,772,329	\$11,501,119	\$12,570,228	\$6,574,980	\$4,369,377	\$8,625,740	\$11,190,433	\$12,311,467	\$11,798,065	\$102,041,003
Pacific Cod	\$15,597,588	\$11,423,941	\$8,626,740	\$6,328,672	\$14,786,604	\$10,450,046	\$15,838,914	\$13,186,623	\$24,651,247	\$22,687,612	\$143,577,987
Other Groundfish	\$2,095,784	\$3,094,779	\$3,013,060	\$1,971,551	\$2,855,387	\$4,942,174	\$4,716,379	\$3,193,349	\$2,383,764	\$4,603,873	\$32,870,100
Other Fisheries	\$3,309,612	\$2,072,771	\$2,703,123	\$2,034,232	\$2,972,409	\$4,880,542	\$1,262,864	\$829,988	\$827,202	\$788,980	\$21,681,723
Non-Commercial	\$210,141	\$427,741	\$158,208	\$1,484,242	\$399,986	\$544,197	\$182,897	\$697,593	\$876,674	\$1,360,770	\$6,342,449
Total	\$97,379,273	\$96,131,041	\$84,249,218	\$76,929,087	\$94,528,927	\$75,430,733	\$80,376,725	\$72,667,148	\$96,947,290	\$73,294,519	\$847,933,961

Notes: Halibut numbers are not available for 2000.
 Most numbers are likely to be underestimates, and should be used as indicators rather than exact measures. See text.
 Table includes ALL processors in the named community, whether they processed relevant BSAI crab species or not.
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 2.9-17 Percentage of Total Value of Fish Processed by Kodiak Processors, by Fishery Category and Year, 1991-2000

Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
PMA Crab	4.7%	4.6%	5.6%	4.4%	3.3%	3.4%	1.7%	1.4%	3.7%	9.0%	4.2%
Non-PMA Crab	5.3%	7.2%	4.9%	4.8%	1.0%	1.2%	1.7%	0.9%	0.9%	0.6%	3.0%
Salmon	29.3%	35.3%	36.7%	25.8%	43.7%	28.3%	20.6%	36.2%	29.5%	25.2%	31.3%
Halibut	22.8%	11.8%	13.9%	21.9%	15.1%	21.4%	27.5%	14.1%	17.9%	see note	16.8%
Sablefish	7.6%	8.1%	8.0%	11.3%	7.7%	12.4%	10.3%	7.3%	5.7%	8.9%	8.6%
Pollock	8.6%	15.4%	13.7%	16.3%	7.0%	5.8%	10.7%	15.4%	12.7%	16.1%	12.0%
Pacific Cod	16.0%	11.9%	10.2%	8.2%	15.6%	13.9%	19.7%	18.1%	25.4%	31.0%	16.9%
Other Groundfish	2.2%	3.2%	3.6%	2.6%	3.0%	6.6%	5.9%	4.4%	2.5%	6.3%	3.9%
Other Fisheries	3.4%	2.2%	3.2%	2.6%	3.1%	6.5%	1.6%	1.1%	0.9%	1.1%	2.6%
Non-Commercial	0.2%	0.4%	0.2%	1.9%	0.4%	0.7%	0.2%	1.0%	0.9%	1.9%	0.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Halibut numbers are not available for 2000.
 Most numbers are likely to be underestimates, and should be used as indicators rather than exact measures. See text.
 Table includes ALL processors in the named community, whether they processed relevant BSAI crab species or not.
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

While local plants are capable of continuously processing large volumes, actual production, of course, varies during the year. Plants will add a shift, hire additional employees, and maximize processing and freezing capabilities during various seasons and season overlaps. These adaptations are required since various species need separate processing lines, machinery, and crews. At other times, especially during the later months of the year, the plants have little, if anything, to process, and lay off employees and attempt to minimize their overhead costs. Table 2.9-18 provides average annual employment figures for Kodiak plants for the period 1999-2002.

Table 2.9-18 Annual Average Employment by Kodiak Shore-based Processors, 1999 to 2002

Processor	1999	2000	2001	2002
Ocean Beauty Seafoods	337	338	342	206
Trident Seafoods Corporation	100	184	184	188
Cook Inlet Processing (Polar Equipment)	206	228	191	1
North Pacific Processors	218	198	222	182
True World Foods (formerly International Seafoods)	208	147	126	157
Global Seafoods Kodiak LLC	7	137	74	1
Western Alaska Fisheries	137	110	126	133
Alaska Fresh Seafood	36	41	38	40
Kodiak Salmon Packers	21	29	28	1
Kodiak Fishmeal Company	17	16	17	17
Wards Cove Packing Company	3	14	20	9
Island Seafoods	6	9	13	44
Kodiak Seafood Processing	15	4	3	1
Kodiak Smoking & Processing	3	3	6	6
Total	1,314	1,458	1,390	986

Source: McDowell Group, 2002; Department of Labor and McDowell Group Estimates

In the words of one long-time Kodiak fisherman, "Our key is to be able to diversify, but it is still tough to make it." This ability to diversify has become paramount to both the fishermen and the processors of Kodiak. Shore-based plants have added crews, space, freezers, and equipment and have searched for new markets as fishermen have been seeking, entering, and participating in pulse fisheries that feature wildly variable deliveries. Occasionally when open fisheries are exploited by new entrants, new products emerge. While this includes previously unexploited resources, such as sea cucumbers or snails, it also includes variations of existing resources. Pacific cod harvested in pot gear is such an example.

Processors differ in the degree to which they actually do diversify their operations. Groundfish is the highest volume component and provides an essential base of employment for work crews at a number of plants. Without groundfish these plants could not provide enough work to support their crews as Kodiak residents. Several plant managers made the same point about the other species they processed as well, although groundfish was perhaps considered more of a foundation of operations (up to 80 percent of most operations). Similarly, most processors consider their plant as only one component of an integrated system that requires a healthy harvesting sector, a stable and reliable processing labor force and an efficient plant, and capable management and adequate financial backing.

The general sector description contained in the NPFMC sector profiles developed for the crab and groundfish license limitation and IFQ analysis in the mid-1990s (IAI 1994) is still generally valid, with a few caveats. On average, less halibut is delivered and processed in Kodiak than in previous years, as one result of the IFQ system has been to reduce the processors' margin on halibut to very little, but there is variation from year-to-

year, and the level of change is not drastic. Harvesters can receive a higher price in Homer or Seward than in Kodiak, and both of those ports receive more halibut than does Kodiak. Most processors are also very uncertain as to how they will meet their future labor requirements. At present most retain a "core" crew of Kodiak residents, which they supplement as necessary with additional resident labor, and transient labor housed in a bunkhouse for peak demand periods. Processors seldom wish to bring labor in for any period shorter than the summer, due to the need to train and house such labor, but at least one plant was forced to do so the last couple of years. They constructed a 40-person bunkhouse to accommodate them. Other plants that are part of companies with several processing facilities will transfer labor from one to another as labor needs change in the various locations. Labor costs are reported to have increased, due to the strong national economy that lasted into 2001, as well as the increase in locally available entry-level jobs in the retail and service sectors. Plant managers also report that many fewer college students approach them (either remotely or by simply appearing in Kodiak) than in years past.

Specifically in regard to the BSAI crab species included in the proposed alternatives, harvesters and processors both stated that the opportunity to deliver to, and process in, Kodiak was important to their operations in particular and the viability of their sector and community in general. Potential limitations on these opportunities are related primarily to the regionalization components of the alternatives. The points stressed by harvesters were that delivering BSAI crab to Kodiak reinforced their social relationships and interactions in the community, provided a significant economic support to Kodiak processors (and the city of Kodiak and KIB, and provided them with another market that generally resulted in better prices. Processors similarly noted that even though BSAI has been a relatively low volume species for them in the recent past, its high value gives it disproportionate significance for their operations. Kodiak processors believe that they could compete and increase their market share for BSAI crab, especially in a rationalized fishery, which would reduce the incentives for quick (Bering Sea port) delivery. They cite the 2000 crab season as support for this contention, as they greatly increased their market share over that of the recent past. Thus, any alternative that limits the ability of Kodiak processors to compete for BSAI crab could have potential adverse effects on both Kodiak processors and crab vessels. It would be an addition to the competitive advantage that Bering Sea processors reportedly achieve over Gulf of Alaska processors from rationalized fisheries in the Bering Sea in relation to the open access fisheries of the Gulf of Alaska.

Support Services

The full spectrum of services for the fishing industry is present in Kodiak, as described in detail in the NPFMC community profile developed for the Inshore/Offshore-1 amendment (IAI 1991). Support services include a wide range of companies, including such diverse services as accounting and bookkeeping, banking, construction and engineering, diesel sales and service, electrical and electronics services, freight forwarding, hydraulic services, logistical support, marine pilots/tugs, maritime agencies, ship repair facilities (recently enlarged), stevedoring and shipping, and vehicle rentals, among others. There is no other community in the area with this type of development and capacity to support the Gulf of Alaska fisheries, and the community also serves as a support hub for some of the BSAI fisheries as well, although clearly Unalaska/Dutch Harbor is far and away the primary support base for that region.

The Port of Kodiak has more than 650 boat slips and three commercial piers that can handle vessels up to 1,000 feet long. Kodiak is also a vital link in the regional transportation network. As the hub of the Gulf of Alaska container logistics system, Kodiak serves Southwestern Alaska communities with consumer goods and provides outbound access to world fish markets. LASH³⁵ Marine Terminal, in Women's Bay, provides service to several freight carriers, freight forwarders and consolidators, construction contractors, and Kodiak's fishing fleet. Regularly scheduled container ships operate between Kodiak and the Pacific Northwest, and

³⁵ LASH is an acronym for Lighter Aboard SHip vessels that carry multiple (approximately 90) standard size LASH barges that can be independently loaded/offloaded and towed to and from the oceangoing ship to smaller ocean or inland waterways ports.

between Kodiak and the Far East. Kodiak also serves as a key water transportation system link for other Alaskan coastal communities.

No systematic information exists on how support services have been affected by changes in the local economy in general. However, as for other communities, a number of qualitative indicators are available. The loss of population in the city of Kodiak relative to outlying regions may reflect a weakening economy. Interviews with such primary fisheries support services such as the boat yard and the hydraulics shops indicated that fishermen were deferring more regular maintenance, and even canceling upgrades that had been scheduled in the past but which now, in the light of adverse fishing conditions, do not appear to be prudent investments. Several such jobs were said to have been canceled the day after the Steller sea lion RPAs were announced. These operations also note that the number of their uncollected bills has increased. There is no indication, however, that any particular the crab rationalization alternative would have a significant impact on Kodiak support service businesses, unless it took the form of essentially eliminating Kodiak participation in the fishery altogether. Bering Sea crab rationalization is certainly seen as important for Kodiak, but it is also perceived as only one component of a constellation of ongoing management initiatives that include the more salient (for Kodiak) Steller sea lion protection measures and planning for Gulf of Alaska rationalization of groundfish.

The Municipality and Revenues

Fish tax revenues are an important source of revenue for both the city of Kodiak and the KIB. However, Bering Sea crab has been a relatively small part of this (as shown previously in Table 2.9-10). Municipal revenue information for 1999 and 2000 parallel to that presented for the other Alaska communities profiled is presented in Table 2.9-19. Local sources of revenue include a 6 percent (to a maximum of \$30 per transaction) sales tax, property taxes of 2.0 mills (City) and 9.25 mills (KIB), and a 5 percent city/borough accommodations tax. The KIB also has a 0.925 percent severance tax.

Table 2.9-19 Kodiak Municipal Revenues, 1999 and 2000

	1999	2000
Local Operating Revenues		
Taxes	\$7,377,771	\$7,998,729
License/Permits	\$65,969	\$44,028
Service Charges	\$2,522,717	\$1,400,947
Enterprise	\$5,559,886	\$6,315,214
Other Local Revenue	\$1,941,751	\$2,105,864
Total Local Operating Revenues	\$717,508,094	\$17,864,782
Outside Operating Revenues		
Federal Operating	\$0	\$0
State Revenue Sharing	\$118,049	\$82,265
State Safe Communities	\$332,799	\$222,926
State Fish Tax Sharing	\$615,603	\$618,504
Other State Revenue	\$105,844	\$92,950
State/Federal Education Funds	\$0	\$0
Total Outside Revenues	\$1,172,295	\$1,016,645
Total Operating Revenues	\$18,680,389	\$18,881,427
Operating Revenue Per Capita	\$2,710	\$2,762
State/Federal Capital Project Revenues	\$7,500	\$491,851
TOTAL ALL REVENUES	\$18,687,889	\$19,373,278

Source: DCED Website, 2001, 2002

As for other communities, more detailed budget information was obtained from the city of Kodiak and the KIB. This information indicates that raw fish tax has declined since 1997. However, this is primarily related to reduced processing of Gulf of Alaska fisheries. Landings of the BSAI crab species in Kodiak have increased since 1998, as has the value of the associated processing, so that the effect of this crab on raw fish tax receipts was positive in 1999 and 2000. Furthermore, even with the general problems experienced by the fishing industry, these budgets have not shown much change in total revenues since 1998. This is in sharp contrast to other fishing communities with less diverse economies. Table 2.9-20 provides a summary of shared fisheries specific taxes received by the KIB, which is largely driven by activity in the City of Kodiak, for fiscal years 1999-2002. As shown, there has been considerable variation in annual totals over the past few years.

Table 2.9-20 Shared Fisheries Tax Received by the Kodiak Island Borough, FY 1999-2002

Fiscal Year Received by Borough	Fishing Year in which Taxes were Collected	Value of Seafood Landed in Kodiak (millions of dollars)	Landing Tax	Fisheries Business Tax	Total
1999	1997	\$82.9	\$13,946	\$841,131	\$855,077
2000	1998	\$79.3	\$10,247	\$718,310	\$728,557
2001	1999	\$103.9	\$24,592	\$923,772	\$948,364
2002	2000	\$94.5	\$5,219	\$1,282,125	\$1,287,344
2003	2001	\$80.5	\$37,162	\$759,211	\$796,393

Source: McDowell Group, 2002; Department of Revenue annual reports on shared taxes.

Summary of Recent Community Fishery IFQ/Co-op Rationalization Experience and Implications for Likely Crab Rationalization Impacts

Kodiak harvesters and processors have experienced previous fisheries rationalization programs – IFQ programs for halibut and sablefish, and the AFA actions for pollock in the Bering Sea. Those experiences, and their potential applicability to potential crab rationalization approaches are summarized in this section.

In terms of IFQ experience, although many Kodiak harvesters were opposed to an IFQ system for halibut and sablefish when it was first proposed, many Kodiak fishermen have derived a great deal of benefit from the program. The fishery can be prosecuted in a more rational way, coordinated with other fisheries, and in a manner that has appeared to have increased safety. While entry into the fishery is now more expensive than when it was an open access fishery, IFQs are readily bought and sold and are as easily capitalized as other assets required for the fishery, and perhaps more so.

IFQ experience in processing has been somewhat different in terms of the perception of local benefits. Kodiak processors are almost unanimous in stating that the IFQ program has resulted in less halibut being processed at their plant in Kodiak than during the derby system, and at much lower profit margins for the processor. Overall landing figures for the community do not seem consistent with an assertion that overall landings are down for all years post-IFQ implementation (for example, as shown in Table 2.9-14 substantially more halibut was landed in Kodiak in post-IFQ 1997 than in the pre-IFQ years 1993 and 1994), but individual plant cost and return data are not available to examine the magnitude of changes in profit margins. Reported loss of profit margins are attributed to the allocation of quota to harvesters, and the harvesters' subsequent ability to extract relatively high prices from markets not accessible to Kodiak processors. According to the

Kodiak Chamber of Commerce, in the year 2000 halibut accounted for only 2.3 percent of the fish landed in Kodiak by weight, but for fully 24.4 percent of the ex-vessel value of the fish landed at Kodiak. Thus, it is a very important fishery for the local Kodiak fleet, but it has apparently become economically more of a niche fishery for Kodiak processors in terms of its overall role in operations. Applicability of this experience to conditions associated with the crab rationalization alternatives is somewhat limited, as BSAI crab accounts for a very small portion of local processing volume and value in the pre-rationalization context.

Kodiak's experience with co-op style rationalization under AFA conditions has been quite different from its IFQ experiences. One outcome of the AFA has been a situation where Gulf of Alaska open access processors have been put in a position of competing with BSAI co-op (rationalized) processors. This uneven rationalization has meant that open access entities are competing with the same products in the same markets with the rationalized entities without the structural benefits of the co-op system. That is, the cost of doing business for Gulf of Alaska processors is higher than for BSAI processors, which places them at a competitive disadvantage. This situation could be replicated with a BSAI crab rationalization taking place ahead of a Gulf of Alaska crab rationalization if that alternative were to be adopted, but again the role of crab for Kodiak processors is quite small in comparison to the situation in the groundfish fishery.

Another processing impact under AFA conditions is seen in the "race for history" behaviors that have been observed among both processors and harvesters in the Gulf of Alaska in anticipation of an AFA-like rationalization in the Gulf of Alaska. This has led to strategic decisions that may not be economic in the short run and may not be in the best interest of all local sectors or relationships between sectors, as different sectors (and different entities within individual sectors) strategize differently. Different entities have widely differing abilities to adapt to this "irrational" strategic environment. These circumstances have had impacts on both new and long established processors.

In terms of the experience of impacts to catcher vessels under AFA co-op rationalization, "fishing for history" behaviors are also taking place in the Kodiak-based fleet. As among processors, this can include pursuing strategies that are uneconomic in the short term. There was also speculation among catcher vessels that BSAI vessels would use rationalization-gained economic and temporal flexibility advantages to capitalize expansion into the Gulf of Alaska fisheries. Sideboards were put in place specifically to address these types of concerns and appear to be working at least in the short term. Whether these circumstances would apply to the BSAI crab rationalization effort would depend on the relative timing of Gulf of Alaska rationalization as well as the specific structure of the rationalization program.

In terms of general community level impacts from previous rationalization efforts, while housing, tax revenues, and other community indices have changed over this period, there is no indication that these changes are directly related to fishery rationalization programs, or that there are other community level impacts in Kodiak attributable to either IFQ or AFA co-op conditions. It is apparent from interview data, however, that impacts have been felt at the individual operational level. Impacts to processors under the IFQ system for halibut and sablefish cannot be quantified with available data, as earlier noted, and the impacts resulting from AFA conditions involve, among other factors, differential advantages (or disadvantages) in an uneven rationalization process where open access fishery components compete against rationalized components. These same dynamics could be experienced in Kodiak under crab rationalization.

In terms of other impacts related to BSAI crab rationalization, Kodiak participation in the Bering Sea crab fisheries is primarily through the harvesting sector, with Kodiak catcher vessels delivering to Bering Sea processors. A few Kodiak catcher processors operate in Bering Sea crab fisheries, and some Kodiak (and other) crab vessels deliver a limited amount of Bering Sea crab to Kodiak processors. For shore-based processors, current participation of Kodiak entities is relatively low compared to the locally based harvest

sector – but increased greatly in 2000 relative to the 1990s. In terms of the components of the crab rationalization alternatives, the following general points can be made:

- Kodiak Bering Sea crab harvesters should benefit from (or not lose ground as a result of) harvester allocations of crab quota under the "three-pie" alternative, with or without co-ops, and with or without regionalization. The AFA experience of processor-rights protection, through co-ops, has shown that both harvesters and processors can gain additional value from the resource. The differential effects of direct allocations versus cooperatives cannot be readily distinguished, as much would depend on how co-ops were implemented and how closely harvesters would be tied to processors. The likely effects of a "three-pie" system allocation on Kodiak harvesters are thus unknown at this point, although Kodiak harvesters intensely debate the potential effects at great length. Regionalization is a very high level of community/processor protection and should minimally affect most Kodiak harvesters, depending on the percentage of crab that is allowed to be delivered to any processor in either region.
- Kodiak catcher processors are already vertically integrated in terms of harvesting and processing, so that none of the alternatives are likely to result in any real differential effects upon them. As they are mobile platforms, regionalization should not have any significant effects. "Excessive share" caps could affect these operations, but confidentiality concerns preclude discussion of these issues.
- Kodiak processors at present do not have a substantial established history in the Bering Sea crab fisheries for the qualifying periods being considered. While important to BSAI crab processing in the more distant past, local processors have minimal contemporary involvement, being in some cases effectively restricted to short season's "last load" deliveries of locally based vessels. In a rationalized Bering Sea crab fishery, Kodiak processors generally feel that they could compete for more than their historical percentage of the Bering Sea crab processed in Kodiak. That is, the thought is that in a system free from a race for crab but unconstrained (at least to a degree) as to where crab can be delivered, Kodiak processors could compete by offering higher prices to compensate for their relatively greater distance from the resource.
- The situation in Kodiak regarding the potential impacts of crab rationalization is in some ways the inverse or opposite of the situation in the Pribilofs. In the Pribilofs, local BSAI crab processing is taking place due in large part to present inefficiencies in the fishery that, in turn, make the higher costs of local processing worthwhile in an unrationalized system. This means that adverse impacts local to St. Paul would take place with a type of rationalization where operations or effort could relocate elsewhere from present sites. For Kodiak, local BSAI crab processing is not taking place because of inefficiencies in the fishery that, in turn, make the lower costs of local processing not worthwhile in an unrationalized system. This means that beneficial impacts local to Kodiak would take place with types of rationalization where operations or efforts could relocate elsewhere from present sites. St. Paul would benefit from locking in location of effort through regionalization and lose under a free movement of effort scenario; Kodiak would likely experience just the opposite.
- A major difference between Kodiak processors and those that have operated in the Pribilofs, however, is that Kodiak processors are quite diversified and are not dependent on Bering Sea crab. Processors operating in the Pribilofs are quite dependent on Bering Sea crab, and the future economies of St. Paul and St. George are very dependent on Bering Sea crab. Thus, while in some respects the regionalization provision has opposite effects in the Pribilof and Kodiak communities, the adverse effect in the Pribilofs would likely be much more intense and broad-based than the positive effect in Kodiak. In other words, on a community level of analysis and in relative terms, St. Paul stands to lose much more than Kodiak would gain with a net effective flow of processing

effort away from St. Paul and toward Kodiak. These types of concerns could be mitigated to the degree to which allocation of processing history is made on a geographic basis, but these protections would, in turn, potentially entail their own economic (efficiency) costs resulting from their attempts to take into account these public policy concerns.

- The balance between Kodiak-owned harvester and Kodiak-located processor engagement in the fishery is, in some ways, the inverse situation seen in Unalaska/Dutch Harbor. Unalaska/Dutch Harbor dominates BSAI crab processing, while there is relatively very little Unalaska/Dutch Harbor resident-owned vessel harvest in these same fisheries. Kodiak (at least in comparison to the rest of Alaska) dominates the BSAI crab harvest in terms of the proportion of catch taken by the resident-owned fleet, but locally based processors handle relatively little BSAI crab. This disjunction or asymmetry makes the assessment of community level impacts for Kodiak less than straightforward. While the local fleet would appear to fare well under the different rationalization alternatives, the local processors face challenging conditions under these same approaches.

These factors, taken together, would suggest that Kodiak-based operations may experience a number of impacts related to the BSAI crab rationalization. However, it is also clear that given the current level of engagement with and dependence upon the fishery that community level or community-related social impacts from crab rationalization are unlikely. That is, while there would be impacts to some individual operations, most impacts would be more in the form of preclusion rather than adverse impacts related to current dependency.

Differential Impacts of the Three Rationalization Alternatives at the Community Level

As summarized above, for Kodiak the engagement in the BSAI crab fishery is based primarily upon ties to harvest fleet activity and secondarily on participation in processing (with some locally owned catcher processor activity as well). Beneficial or adverse impacts to the community of Kodiak deriving from the different rationalization alternatives result from the differential outcomes for these activities.

Each of the rationalization alternatives have identical provisions regarding increased allocations to the CDQ program (inclusion of additional species and an increase in the included species set-aside from 7.5 to 10 percent of the total allocation), creation of captain's harvest quota shares (3 percent of the TAC), and a community development allocation to Adak (10 percent of the WAI golden king crab allocation). Each of these provisions are directed toward fostering beneficial community or social impacts for at least some groups or areas. Kodiak, as a non-CDQ community, would not benefit from the CDQ program increases. Creation of captains shares would benefit a number of individuals from Kodiak, but are unlikely to be significant at the community level. The Adak community allocation would have significant beneficial or adverse impacts for the community of Kodiak.

Regionalization is a feature of the three-pie alternative and the IFQ alternative, but is not a part of the cooperative alternative. Regionalization is explicitly designed to create beneficial community or social impacts for at least some groups or areas. The north/south region designation was designed primarily to benefit the Pribilofs, while the west region designation in the WAI golden king crab fishery was designed primarily to benefit Adak.

Impacts of the west region creation would likely be insignificant for Kodiak. Impacts of the creation of the north/south regional split in and of itself under the three-pie alternative are not likely to be significant for the community of Kodiak, absent the accompanying community protection provisions discussed below. Regionalization under the IFQ alternative, which has no specific community protection provisions (save for a waiver of sea time requirements for eligible community purchase of harvest quota share, as discussed below), would not hinder the type of processor consolidation that could have negative impacts on the

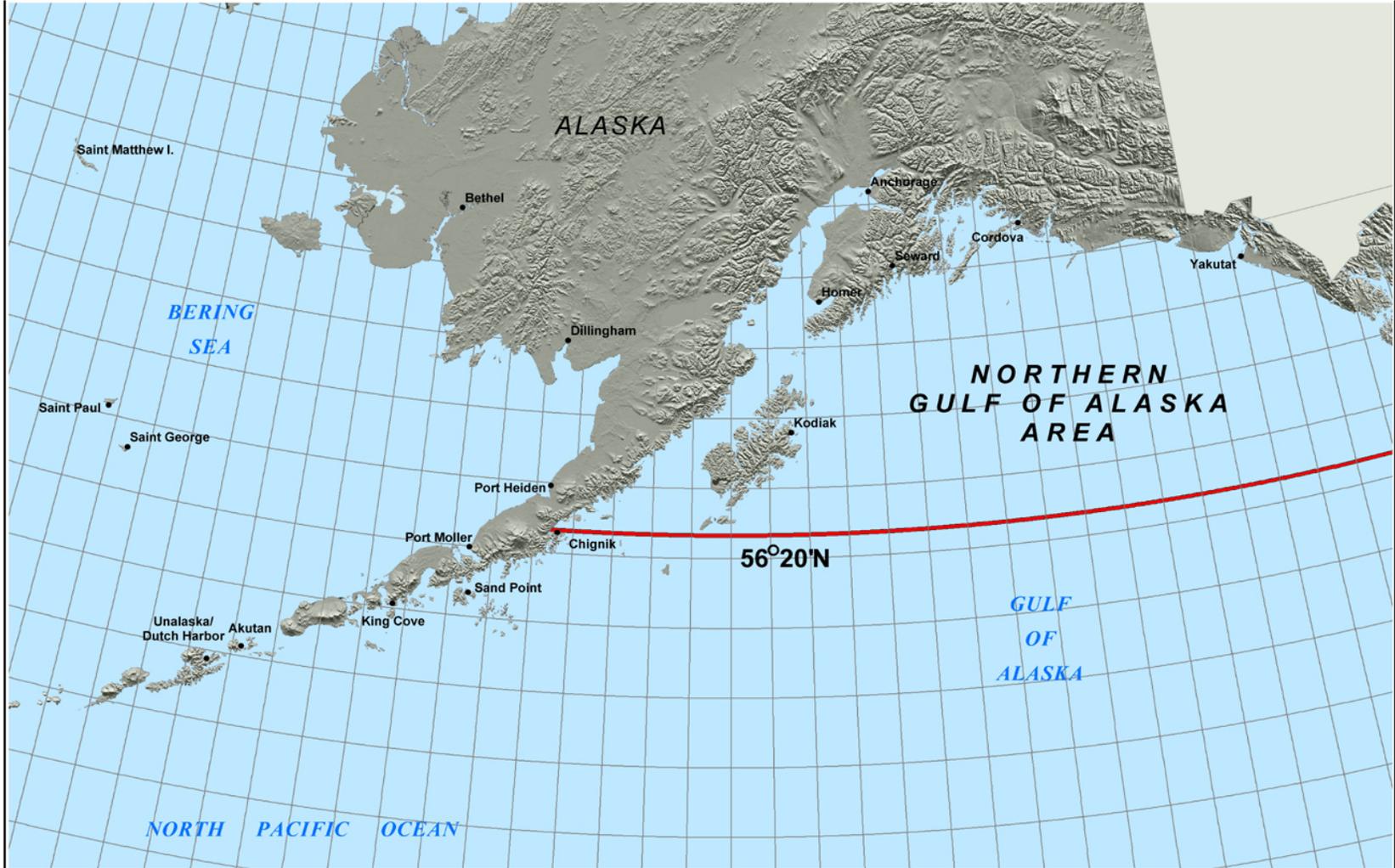
community of Kodiak, were local BSAI crab processing to exit the community. Under the three-pie alternative Kodiak (if deemed an eligible community) would retain levels of processing activity seen during the qualifying period (due to a combination of regionalization and community protection features, as described below). For Kodiak, as a community in the south region, potential consolidation impacts would not be likely to vary under the IFQ alternative, which has regionalization but no community protection, and the cooperative alternative, which has no regionalization. Under the IFQ alternative, consolidation involving Kodiak could occur within the south region alone, under the cooperative alternative, it could occur anywhere. However, it is unlikely that processing that is presently occurring in Kodiak would move to a north region community (St. Paul or St. George). It is much more likely that consolidation would occur in the other direction, although how much processing would be likely to move to Kodiak is unknown.

Additional community protection features of a “cooling off” period and a right of first refusal on transfer of processing quota shares are a part of the three-pie alternative (and are not a part of any other alternative). Eligible communities (those that had 3 percent of processing activity for covered species) would be assured that during the 2-year “cooling off” period processing quota would not be moved out of the community. Subsequent transfers would be subject to a right of first refusal that would allow an eligible community (through its CDQ group or another community group, if a CDQ group were not present) to obtain ownership and control over processing quota to retain local processing activity. (Due to confidentiality restrictions, it cannot be disclosed whether or not Kodiak is deemed eligible for community protection provisions.)

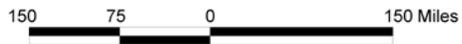
For Kodiak, if eligible, both of these features would have the potential to confer beneficial community and social impacts. The “cooling off” period would ensure that processing activity levels seen in the qualifying period would continue in the community, and the right of first refusal would ensure that a local community group (comprised of city and borough representatives, as Kodiak is a non-CDQ community within a borough) would be able to obtain processing quota if it were at risk for leaving the community in the future. Exercising the right of first refusal would result in positive benefit to the group and the community, particularly if the quota share would have otherwise left the community.

Additionally, Kodiak is a potential beneficiary (if deemed an eligible community) of a right of first refusal provision unique to the Northern Gulf of Alaska area (defined as that portion of the Gulf of Alaska north of 56 degrees 20 minutes north latitude; see Figure 2.9-1 “Northern Gulf of Alaska Processor Share ‘Right of First Refusal’ Area”). In all other areas, a qualifying community has the right of first refusal on processor quota share potentially leaving that specific community (except for quota moving between plants owned by the same firm in different locations within the same region). In the Northern Gulf of Alaska area within the larger south region, qualifying communities have the additional right of first refusal for processing quota being sold in all other communities within the Northern Gulf of Alaska area in addition to their own. In other words, the right of first refusal in all other areas is designed to allow a community to maintain quota share, whereas in the Northern Gulf of Alaska subregion the right of first refusal is designed to allow eligible communities to increase quota share (by aggregating or “sweeping up” quota from communities with less than 3 percent share of qualified fisheries).

Whether or not these community protection features provide neutral or positive benefits to the community depend on what individual operation’s decision making processes would have been regarding consolidation absent these provisions, which is unknowable. For example, without knowing confidential business information, it is not clear whether in the absence of community protection measures consolidation within the processing sector as a result of rationalization would increase or decrease activities in Kodiak. Following the “cooling off” period, however, Kodiak could lose local processor activity if the owner of a Kodiak plant decides to shift the use of processing quota to one or more plants owned by the same entity outside of Kodiak but within the south region. Whether or not this is a realistic scenario is unknown, but it is noted as a possibility.



Source: Alaska Dept. of Natural Resources



Scale: 1:9,504,000; 1 inch = 150 miles

**Northern Gulf of Alaska
Processor Share "Right of First Refusal" Area**

The rationalization alternatives also differ on the ability of communities to obtain harvest quota share. Under the three-pie and IFQ alternatives, CDQ groups, or other community groups if a CDQ group is not present, in eligible communities (again, those with 3 percent or more of processing activity for covered species during the qualification period) would be able to purchase harvest quota share due to a waiver of sea time requirements that would otherwise prevent such purchases. By design, the ability to obtain harvest quota share could result in beneficial community and social impacts through communities becoming more directly engaged in the fishery.

In the case of Kodiak, harvest quota shares, if purchased, would be obtained by the local community group. If exercised, this ability could result in beneficial community and social impacts through the community becoming engaged in the fishery in a way that it is not under existing conditions.

Another potentially distinguishing feature of the rationalization alternatives from a community or social impact perspective is the ability of harvesters to form co-ops under the three-pie and cooperative alternatives (but not under the IFQ alternative). For Kodiak, the impacts of this ability (or lack thereof) on the local fleet, and how those would translate into community or social impacts are unclear.

3.0 PACIFIC NORTHWEST COMMUNITIES

There are a number of communities in the Pacific Northwest region that have important links to the BSAI crab fisheries, and these are found throughout a large portion of the Washington inland waters area as well as along the Oregon coast. However, none of these communities have the breadth and depth of ties found in the greater Seattle metropolitan area. Many towns serve as the home port for at least some catcher vessels participating in the fishery, but Seattle alone serves as a center of harvesting, processing, and support service sector activity and ownership. Figure 3.0.1 shows the location of Seattle and many of the communities of the Washington inland waters area with ties to North Pacific commercial fisheries.

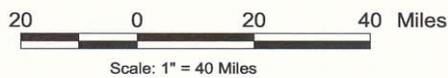
3.1 SEATTLE

The term "Seattle" as used in this section refers to the greater Seattle metropolitan area and is not confined to the port or municipality of Seattle, except where specifically noted. Seattle, in one way or another, is engaged in all aspects of the BSAI crab fishery. While Seattle itself is quite distant geographically from the harvest areas of the fishery, it is the organizational center of much of the industrial activity that comprises the human components of this fishery. More accurately, specific industry sectors based in and/or linked to Seattle (or, in some cases, specific geographic subareas within Seattle), are "substantially engaged in" or "substantially dependent upon" the BSAI crab fishery.

Similar to a pattern that has been described in recent NPFMC and NMFS groundfish fishery-related documents (e.g., NPFMC 2002; NMFS 2001a, NMFS 2001c), what makes Seattle an analytic challenge, in terms of a socioeconomic assessment directly related to the Alaska crab fishery, is its scale and diversity. Like its relationship to the North Pacific groundfish fishery, Seattle's relationship to the BSAI crab fishery is a paradox. When examined from a number of different perspectives, Seattle is arguably more involved in the Alaska crab fishery in general, and the BSAI crab fishery in particular, than any other community. One example is the large absolute number of "Seattle" jobs within the BSAI fishery compared to all other communities, whether counted in terms of current residence, community of origin, or community of original hire - setting aside, for the moment, where the jobs are actually located. On the other hand, when examined from a comparative and relativistic perspective, it could be argued that the fishery is less important or vital for Seattle than for the other communities considered. Using the same example, the total number of BSAI crab fishery-related jobs in greater Seattle compared to the overall number of jobs in Seattle is quite small, in contrast with the same type of comparison for the much smaller Alaska coastal communities. The sheer



Source: ESRI, ProximityOne



Washington Inland Waters Area Communities

NPFMC Crab Rationalization
 1k207/GIS/aprs/watw.apr 1/17/02 (ch)

size of the Seattle area (over 2.5 million residents in 1990 and over 3.5 million residents in 2000) dilutes the overall impact of the BSAI crab fishery jobs, whereas in Alaskan communities such jobs represent a much greater proportion of the total employment in the community setting aside, for the moment, the consideration of whether those jobs are filled by "residents." In National Standard 8 terms, Seattle is clearly "substantially engaged" in the BSAI crab fisheries, but as a community it cannot be termed as "substantially dependent" upon the fishery in the same sense as some of the smaller-scale communities profiled.

While the greater Seattle area is the center for much of economic activity related to the BSAI crab fishery, the geographic footprint of those activities is difficult to define, and it cannot be attributed to specific communities or neighborhoods in the same manner as Alaska communities may be linked to the fishery, as developed in discussions below. For comparative purposes, however, Table 3.1-1 provides total population and ethnicity data for the Seattle-Tacoma Consolidated Metropolitan Statistical Area (CMSA) as defined by the U.S. Bureau of the Census.³⁶ As shown, while one might expect a major metropolitan area to be more diverse than small coastal Alaskan communities, in Seattle, unlike the Alaska crab communities, the white component of the population comprises a large majority of the overall population (i.e., minorities are actually a distinct mathematical minority, unlike the relevant Alaska communities). Only a part of this difference may be accounted for by the predominance of Alaska Natives in some of the relevant crab communities. Shore plants in Alaska tend to recruit their workforces from locations outside of Alaska, and many recruits tend to be members of non-Native minority groups. This seafood-associated workforce is proportionately large enough to influence overall community demographics in these smaller communities.

Table 3.1-1 Ethnic Composition of Population, Seattle-Tacoma CMSA, 1990 and 2000

Race/Ethnicity	1990		2000	
	N	%	N	%
White	2,214,579	86.5%	2,819,296	79.3%
African American	121,702	4.8%	165,938	4.7%
Native Amer/Alaskan	32,980	1.3%	41,731	1.2%
Asian/Pacific Islands*	164,386	6.4%	300,533	8.5%
Other**	25,517	1.0%	227,263	6.4%
Total	2,559,164	100%	3,554,760	100%
Hispanic***	71,069	2.8%	184,297	5.2%

* In the 2000 census, this was split into Native Hawaiian and Other Pacific Islander (pop 19,837 (0.6%)) and Asian (pop 280,696 (7.9%))

** In the 2000 census, this category was Some Other Race (pop 79,353 (2.2%)) and Two or More Races (pop 147,910 (4.2%)).

*** "Hispanic" is an ethnic category and may include individuals of any race (and therefore is not included in the total as this would result in double counting).

Source: U.S. Bureau of Census

Information on household structure for the Seattle-Tacoma CMSA comparable to that provided for the relevant BSAI crab communities is not presented here. These types of data at the CMSA level are not meaningful for this analysis.

³⁶ A Metropolitan Statistical Area (MSA) can be defined as a city of over 50,000 inhabitants together with the county in which it is located and contiguous counties that are economically and socially integrated with the central city. It may also consist of an urbanized area of 50,000 with a total metropolitan area population of at least 100,000. A Consolidated Metropolitan Statistical Area (CMSA) consists of two or more contiguous MSAs. The Seattle-Tacoma WA CMSA consists of Seattle WA PMSA (1) King and Snohomish Counties, and (2) Tacoma (Pierce County).

As is also clear from earlier compiled sector descriptions, while all sectors are tied to Seattle in one way or another, the magnitude and nature of these ties vary considerably between sectors. It is through these ties, and how they are manifested in Seattle, that the role of the community in the BSAI crab fishery can be seen. While it was possible, and desirable for analytic purposes, to include some community level description for a few of the Alaska coastal communities in this document to show the relative "engagement" or "dependence" on the fishery, for Seattle this type of comparison tends to understate the importance of the BSAI crab fishery for particular sectors or subareas, losing the importance of the fishery in the "noise" of the greater Seattle area.

The precise nature of the relationship between a given sector and the Seattle area varies from sector to sector, in terms of employment patterns, expenditure patterns, and concentration or localization in the Seattle area. While local experts and industry participants are well aware of these patterns, systematic quantitative information to describe these patterns was not available at the time of this study. This section is based on the limited information available and is supplemented with information garnered from field interviews to provide a community context characterization.

There are (at least) two approaches to discussing the localization of fishing activity in general, and BSAI crab fishery activity in particular, within the Seattle area. The focus could be on port activity and economic organization, or on a more general historical/geographical (neighborhood or community) focus centered around fishermen, fishing activities, and marine support businesses. The first approach has the advantage of being well defined but is totally industry focused, and fishing-related activities comprise only a small portion of total activity and are not an easily "isolatable" component using existing information. The second approach, generally corresponding to the common identification of Ballard and its environs with Seattle's fishing community, would incorporate much more of the overall social organization of fishing activity but is very difficult to define and characterize within an overall economic and social context as large as Seattle's. Either approach would be a huge task for which available information is limited. A compromise has been reached in this document by briefly discussing the Port of Seattle in regard to the BSAI crab fishery and providing a cursory history and characterization of Ballard within the context of greater Seattle. This section first overviews the fishery from the community context and then focuses on fishery-related industrial areas. The conclusion includes a discussion of the issue from the perspective of the "community side" of the links.

The Seattle "Geography" of the BSAI Crab Fishery

In this section, locational issues are discussed with respect to the Seattle area and the BSAI crab fishery. Here, the discussion is divided into three components: the institution of the Port of Seattle, the "traditional" community of Ballard, and the planning area construct of the Ballard Interbay Northend Manufacturing Industrial Center (BINMIC). Each component provides a different and useful perspective on the Seattle social/socioeconomic ties to the fishery. The Port of Seattle is one of the more obvious ways to discuss the localization of the fishing economy in Seattle and the concentration of potential socioeconomic impacts of fishery management upon Seattle but is relatively "one dimensional" as a governmental entity rather than a community with a residential base. Ballard is another locally recognized area with a fishing identity but differs in being a more complex community. Ballard is also more "fuzzy" as a bounded unit than the officially defined port, as there is no official demarcation of what is now essentially a neighborhood area of Seattle. BINMIC is a planning area that does not have a salient identity with the general population, but it does represent another geographic footprint that contains a number of fishery-related enterprises, and that makes it at least potentially useful for this analysis. Unfortunately for the purposes of this analysis, one of the attributes the port, Ballard, and BINMIC have in common is a practical limitation on the availability of data that are specifically attributable to the BSAI crab fishery.

The Port of Seattle

Martin Associates (2000) provides an overall assessment of the economic impact of fishing activity based at Port of Seattle facilities. They conclude that such activity generates \$400 million in wages (direct, indirect, and induced), \$315 million in business revenues, \$42 million in local purchases, and \$48 million in state and local taxes. There is no way to desegregate the Alaskan distant water fleet from this overall impact, so the utility of the information for the present purposes is limited. They do provide estimates for the annual expenditures in Seattle of the various fishing vessels homeported there, and as might be expected, those for the larger vessels, such as participate in the Alaskan groundfish fisheries, are the highest in terms of expenditures per vessel – \$250,000 for catcher trawlers, \$900,000 for factory trawlers, and \$1.7 million for motherships. Crabbers are in the \$180,000 range. Most of the vessels in these classes homeported in Seattle probably participate in the Alaskan groundfish fisheries but also participate in other fisheries. There are also many vessels in the Seattle distant water fleet that do not participate in the Alaskan groundfish fisheries. The Port itself does not have information on moorage fees received, either in total or for segments of the fleet.

The Port of Seattle is separate from the Municipality of Seattle and is an economically self-supporting entity. Besides its direct revenues, it receives 1 percent of the property tax collected in King County, but with a cap on funding not to exceed \$33 million a year. In turn, all port revenues are charged a 12.4 percent tax, which is split between the City of Seattle and the State of Washington (in lieu of property tax). The Port's charge is the development of infrastructure that will support local and regional economic activities, especially in cases where the rate of return on investment in that infrastructure may be too low (although still positive) for the private investor. Such development contributes to the overall economy of the region through synergistic and multiplier effects.

The Port of Seattle includes not only marine facilities but the airport as well. The port publishes various reports on their activities, but most are either too general or far too specific for the purposes of this study. The Marine Division of the port tracks economic activity by general service area - container terminal, cargo piers and industrial properties, central waterfront piers and property, warehouse and distribution operations, Shishole Bay Marina (recreational moorage), and Fishermen's Terminal Pier and property. None of this information is organized so that expenses and revenues attributable to fishing activity (let alone specific fisheries such as the BSAI crab fishery) can be aggregated and assessed - although projects now underway will, in the future, provide such information to a greater degree than at present. Given this lack of breakout documentation, most of the information on the nature and magnitude of the importance of Alaskan fisheries for the Port of Seattle came from talks with the Director of Marine Operations for the port.

The Port's marine facilities occupy an extensive area but can generally be characterized as the Ship Canal-Elliott Bay areas. The Director of Marine Operations estimated that Alaska-related fishing activity generates port revenues of \$1 million to \$2 million a year. Facilities, and the degree to which they are connected with Alaska fishery activities, were identified as follows:

- Fishermen's Terminal (Ship Canal) - an estimated 10 percent of its revenues (roughly \$2 million for all fisheries per year) was judged to result from catcher-processor operations and an additional 10 percent from catcher vessel activity associated with all Alaska fisheries (i.e., not just BSAI crab).
- Pier and Terminal 91 (North Elliott Bay) - used extensively by the catcher-processor fleet and provides the bulk of the Port's revenue specifically derived from the Alaska groundfish fishery, through moorage and other fees. This facility also caters to ferries, a tug and barge company, an auto importer, apple exports, and cold storage facilities.

- Central waterfront (mid-Elliott Bay) piers – not as directly fishery-related as the preceding facilities, although they are sometimes used by larger vessels (Pier 48, Pier 66, Pier 69).
- Pier 25 (East Duwamish Waterway, south Elliott Bay) - permanent moorage for one of the pollock mothership operations but also used for catcher-processor offloading; has cold storage facilities to hold product for transshipping, and a small surimi plant is located there.
- South end in general (Duwamish manufacturing and industrial center) - has some fisheries-related activities (such as cold storage facilities) but is more oriented to cargo operations and other industrial activities.

The summary conclusion for port-focused analysis is that crab fishing-related activities take place throughout the Port but are concentrated in the Fishermen's Terminal area. The crab fleet is a significant, but by no means the major, part of the Alaska fleet's contribution to the port. Of primary importance for fishing activity, and especially for larger vessels, is the availability of suitable moorage. Much of this moorage is supplied by the port, in an aggressive response to the demand from the fishing fleet.

The initial development of Fishermen's Terminal in the 1980s was because of the perceived need for more moorage for larger vessels involved in the distant water fisheries. The current redevelopment of Fishermen's Terminal will likely increase this emphasis through the conversion of smaller moorage stalls to facilities more suitable for vessels 50 feet and longer (NRC 1999). This is in response to the drastic downturn in the economic viability of the local fishing fleet, especially the local salmon fleet that had been historically based at Fishermen's Terminal, and the increasing importance of Alaskan distant water fisheries for Seattle-based boats. These vessels tend to be 50 feet in length or more.

The vacancy rate at Fishermen's Terminal has been 25 to 40 percent since 1995, which demonstrated the need to redevelop and refocus the mission of the facility (Port of Seattle 2002a). To attract new vessels, a \$7,000,000 electrical upgrade to the electrical system and a \$2,000,000 structural upgrade of the West Wall (moorage and facilities) was completed in October 2001 (Port of Seattle 2001). A \$12.8 million replacement of the South Wall was scheduled for 2002. Prior to 1997, only commercial fishing vessels were permitted to moor in the Fishermen's Terminal, but in 1997 the Port changed its policies to allow commercial non-fishing vessels to moor there as well. In recognition that vacancy rates at Fishermen's Terminal remain too high, the Port recently agreed to permit limited moorage of recreational vessels at Fishermen's Terminal. This recognizes that recreational moorage in the Seattle area is relatively scarce, and that the numbers of commercial fishing vessels are declining, mainly in the smaller size classes (especially Pacific Northwest salmon boats). Still, Fishermen's Terminal will retain its commercial atmosphere, as recreational vessels will be confined to a limited number of relatively isolated docks (Port of Seattle 2002b).

Ballard

When looked at on a neighborhood basis, one of more obvious foci of the distant water fishery in the greater Seattle area is the community of Ballard. Today the term "Ballard" represents a loosely defined geographical neighborhood of northwest Seattle. There is no geographically standard area for which various types of comparable information exists. Nonetheless, the area does have a geographical identity in peoples' minds and, together with Magnolia and Queen Anne, has its own yellow pages telephone directory (published by the Ballard and Magnolia Chambers of Commerce). The following brief section is based predominately on information from the Ballard Chamber of Commerce (1998), Reinartz (1988a, 1988b, 1988c, 1988d), Hennig and Tripp (1988), and McRae (1988).

Fishermen's Terminal on Salmon Bay is recognized as the home of the Pacific fishing fleet and has been characterized as the West Coast's "premier home port." Fishermen's Terminal (Salmon Bay Terminal) in turn has often been identified with Ballard, which was formerly a separate city (incorporated 1890) before annexation by Seattle in 1907. Until the construction of the Chittenden Locks and the Lake Washington Ship Canal, opened in 1917, Salmon Bay Terminal was confined to relatively small vessels but was the focus of a developing fishing fleet. Once the area was platted and incorporated, it quickly attracted settlers and industries desiring or dependent upon access to Puget Sound. The timber industry was the first to develop, due to the need to clear land as well as the value of the timber that was available. By the end of the 1890s, Ballard was a well-established community with the world's largest shingle manufacturing industry, as well as boat building and fishing industries. By 1900 Ballard was the largest area of concentrated employment north of San Francisco.

Ballard effectively blocked the expansion of Seattle to the north, and court decisions had given Seattle control over Ballard's freshwater supply, with the result that Ballard became part of Seattle in 1907. At that time the community had 17 shingle mills, 3 banks, 3 saw mills, 3 iron foundries, 3 shipyards, and approximately 300 wholesale and retail establishments. The Scandinavian identity of Ballard developed at or somewhat before this time. In 1910, first- and second-generation Scandinavian-Americans accounted for 34 percent of Ballard's population, and almost half of Ballard's population was foreign-born. Currently, less than 12 percent of the population is of Scandinavian descent, but the cultural association remains pervasive.

Ballard's economy continued to develop and diversify, but it remained fundamentally dependent on natural resources, and especially timber and fishing. In 1930 the *Seattle Weekly News* reported that 200 of the 300 schooners of the North Pacific halibut fleet were homeported in Ballard, demonstrating not only the centrality of Ballard but the long-term importance of distant water fisheries to Seattle fishermen. In 1936 the Port of Seattle built a new wharf at the Salmon Bay terminal, and in 1937 a large net and gear warehouse was scheduled for construction there. Over the years, Seattle-based vessels were central to the evolution of a number of North Pacific fisheries.

Thus in some ways Ballard is considered a "fishing community within" Seattle. While this has historically been the case, when examined specifically with respect to the BSAI crab fishery, the area cannot cleanly be considered a "village within a city." While there is a concentration of multigenerational fishing families within the area, the "industrialization" of the Alaska fisheries has tended to disperse the ties and relationships. While support service businesses remain localized to a degree (as discussed in another section below), there does not appear to be a continuity of residential location that is applicable to the Alaska crab fishery. This is due to the many changes within the cluster of individual species fisheries that make up the overall Alaska crab fishery, and others in which these fishermen may participate. In summary, this "community within the community" issue is not straightforward due to the complex nature of historical ties, continuity of fishing support sector location through time, changes in the technology and methods of fishing, and industrialization of the fishery. Clearly, Seattle represents a different pattern of colocation of residence and industry with respect to the BSAI crab fishery than that seen in the relevant Alaska communities.

The Ballard Interbay Northend Manufacturing Industrial Center

One of the fundamental purposes for the establishment of the BINMIC Planning Committee was the recognition that this area provided a configuration of goods and services that supported the historical, industrial, and maritime character of the region. At the same time, developmental regional dynamics are promoting changes within the BINMIC area that may threaten the continued vitality of its maritime orientation. Among other objectives, the BINMIC final plan states:

The fishing and maritime industry depends upon the BINMIC as its primary Seattle home port. To maintain and preserve this vital sector of our economy, scarce waterfront industrial land shall be preserved for water-dependent industrial uses and adequate uplands parcels shall be provided to sufficiently accommodate marine-related services and industries (BINMIC Planning Committee 1998:6).

Previous documents produced for the NPFMC (e.g., NPFMC 2002; IAI 1998) have discussed the BINMIC area, and some of this information is abstracted below. It is now becoming dated, however, as the BINMIC planning document has remained in the form in which it was "finalized" and the City of Seattle does not collect time series measures for the BINMIC area comparable to those, for example, collected for the Port of Seattle.

As previously noted, Ballard, in northwest Seattle, is commonly identified as the center of Seattle's fishing community. This may be true in a historical residential sense, but commercial fishing-related suppliers and offices are spread along both sides of Salmon Bay-Lake Washington Ship Canal, around Lake Union, along 15th Avenue West through Queen Anne, and then along the shores of Elliot Bay on both sides of Pier 91. Not surprisingly, this is also the rough outline of the formal boundaries of BINMIC, which is bordered by the Ballard, Fremont, Queen Anne, Magnolia, and Interbay neighborhoods. It is defined so as to exclude most residential areas, but to include manufacturing, wholesale trade, and transportation-related businesses. It includes rail transportation, ocean and freshwater freight facilities, fishing and tug terminals, moorage for commercial and recreational boats, warehouses, manufacturing and retail uses, and various port facilities (Terminal 86, Piers 90 and 91).

The BINMIC "Economic Analysis" document (Economic Consulting Services 1997) uses much of the same information as was reviewed above, in combination with an economic characterization of the BINMIC area, to establish that certain economic activities are especially important for that area. One of these activities is commercial fishing, although again the specific extent of connections to the BSAI crab fishery in particular are difficult to establish.

The BINMIC area is relatively small, but contributes disproportionately to the city and regional economy (Table 3.1-2). Again, those characteristics are part of what determined its borders. The BINMIC resident population is only 1,120 (1990 census), but there are 1,048 businesses in the area and 16,093 employees. The great majority of business firms are small, 85 percent have fewer than 26 employees, but accounted for only 30 percent of total BINMIC employment. Self-employed individuals (i.e., fishermen) are probably not included in these numbers. Employment by industry sector is displayed in Table 3.1-3.

Table 3.1-2 Relationship of Estimated BINMIC Population and Employment to Local, Regional, and State Population and Employment

Area	1990 Population	BINMIC as % of Total	1994 Employment	BINMIC as % of Total
BINMIC	1,120	100.00%	16,093	100.00%
City of Seattle	516,259	0.22%	490,632	3.28%
King County	1,507,319	0.07%	912,038	1.76%
Puget Sound	2,748,895	0.04%	1,363,226	1.19%
Washington State	4,866,692	0.02%	2,212,594	0.73%

Note: Percent of total reflects BINMIC's share of each area's total population and employment
 Source: Economic Consulting Services 1997:14

Table 3.1-3 BINMIC Employment by Industry Sector

Industry Sector	Businesses	Employees	Percent of Total
Agriculture, Forestry, & Fishing	129	750	4.66%
Mining & Construction	83	1,169	7.26%
Manufacturing	216	5,322	33.07%
Transportation & Utilities	35	1,608	9.99%
Wholesale Trade	178	2,239	13.91%
Retail Trade	121	1,606	9.98%
Finance, Insurance, & Real Estate	43	306	1.90%
Services	233	2,604	16.18%
Government	10	489	3.04%
Total	1,048	16,093	100.00%

Source: Economic Consulting Services 1997:29

An important indicator of the importance of commercial fishing and other maritime activities is the availability of commercial moorage. As of 1994, more than 50 percent of all commercial moorage available in Puget Sound was located in Seattle, and of that, more than 50 percent was in the BINMIC area (representing 30 percent of all commercial moorage in the Puget Sound area). Thus, the BINMIC area is clearly important in terms of being an area where vessels (especially larger commercial vessels) are concentrated. The Port of Seattle has concluded that only the ports of Olympia and Tacoma at present provide a significant source of moorage in Puget Sound outside of Seattle. Port Angeles may build additional capacity at some point in the future. Olympia's facility was rebuilt in 1988. Some older moorage constructed of timber piling prior to 1950 is nearing the end of its useful life and will need to be replaced. On the other hand, it is expected that much of the private old timber moorage will not be replaced, so that overall moorage capacity will decline. In the Seattle area, there has also been a dynamic whereby commercial moorage had been converted to recreational moorage. Within the BINMIC area, recreational moorage within the UI Shoreline is prohibited altogether, because of the importance of commercial activity and the danger of interference from recreational moorage. The Port has concluded that it is unlikely that any new private commercial moorage will be developed (because of cost and regulatory regime) and is examining their options (Martin O'Connell Associates 1994). As previously mentioned, the Port is pursuing a program of repairing its facilities where economically feasible (when it can be fairly well assured of a steady tenant).

The BINMIC area is fairly well "built out." The BINMIC area contains 971 acres, divided into 806 parcels with an average size of 1.043 acres, but a median size of 0.207 acres. Thus there are many small parcels. Public entities of one sort or another own 574.8 acres (59 percent). The Port of Seattle is the largest landowner with 166 acres, while the city has 109 acres. Private land holders own 396 acres, of which only 19.45 acres were classified as vacant – 19.27 acres in 81 parcels as vacant industrial land and 0.18 acres in 2 parcels as vacant commercial land. An additional 200.76 acres were classified as "underutilized," meaning that it had few buildings or other improvements on it. This classification does not mean that the land may not be in use in a fruitful way (for instance, storage of gear or other use that is not capital intensive).

Economic Consulting Services (1997, Appendix C) lists 85 companies that have a processing presence in Washington State. Of these, over half (47) are located in Seattle, with many in the surrounding communities (Bellevue, Kirkland, Redmond). Of these 47, at least 18 are located within the BINMIC area, and the rest are located very near the boundaries of the BINMIC. Some examples of fairly large fishing entities that are located within the BINMIC (as well as elsewhere) are Trident Seafoods, Icicle Seafoods, Ocean Beauty

Seafoods, Peter Pan, Alaska Fresh Seafood, and NorQuest Seafoods. All demonstrate some degree of integration of various fishing industry enterprises.

The BINMIC area of Seattle displays the following characteristics, which indicate its important economic roles:

- significant component of, and plays a vital role in, the greater Seattle economy;
- integrated into local, regional, national, and multinational markets;
- key port for trade with Alaskan and the West Coast, Pacific, and Alaska fishing industries - and the Alaskan fishery is especially significant;
- Salmon Bay, Ship Canal, and Ballard function as a small port of its own but also support fishing and a wide range of other maritime activities - including recreation and tourist vessels and activities; and
- an area of concentration of businesses, corporations, organizations, institutions, and agencies that participate in, regulate, supply, service, administer, and finance the fishing industry.

General Community Level Ties to the BSAI Crab Fishery

The focus of this section is the contribution of the BSAI crab fishery to Seattle as a whole, rather than on a specific geographic focus. Unfortunately, here too most of the information available does not facilitate focusing on this issue with a fine resolution. Different sources address different partial aspects of this comprehensive question. Some discuss different scales of detail - local versus distant fisheries, crab versus other fisheries (groundfish, halibut, salmon, and so on), or fishing as a whole versus other maritime activity (shipping, for example). Some discuss different components of commercial fishing activity - harvest versus production, or one particular type of operation versus all others. Some concentrated on more confined, or more broadly regional, geographical areas. By collecting some of this material and piecing it together, however, a general level understanding of the overall contribution of commercial fishing to Seattle is possible.

Natural Resource Consultants (NRC) has compiled quite comprehensive accounts of commercial fishing activity by the Seattle and Washington state fleets (NRC 1986, 1999). They provide a brief historical narrative on the development of the various fisheries and then a more detailed summary of the status of fish stocks and historical harvest information. In 1986, the estimated ex-vessel value of the grand total of all seafood taken from local waters by Washington's local fleet was about \$93 million (NRC 1986:18,19). Distant water fisheries, primarily in the Gulf of Alaska and the Bering Sea, yielded an estimated grand total of \$290 million by 1,371 vessels with an aggregate crew of 6,088 (NRC 1986:28,33). The joint-venture fleet accounted for about \$80 million (ex-vessel) of this, with about 81 vessels and 405 crew, with an additional 11 catcher processors accounting for another \$25 million (ex-vessel) and about 330 jobs. In terms of weight or volume, 92 percent of the seafood harvested by Washington fishermen came from Alaskan waters, and only 7 percent from local waters. In terms of ex-vessel value, the Alaskan harvest was worth \$283 million and local harvest \$110 million (and other harvest \$8 million). None of these general statements had changed to any appreciable degree by 1998/99, and Alaskan distant waters fisheries still provided 95 percent of the harvest for the Washington state fishing fleet (NRC 1999).

Most of the Alaskan catch was processed to some extent in Alaska by processing entities based in Seattle (i.e., either by mobile facilities or onshore facilities owned by Seattle-based entities). NRC states that there were about 130 seafood processing/wholesaling and 33 wholesale/cold storage companies in Washington in 1985, operating 250 primary processing and wholesale plants in Washington and 120 shore based or at sea in Alaska. Washington processing employment was 4,000 seasonally and in Alaska was 8,000, with half coming from Washington (NRC 1986:35-39).

A similar NRC study in 1988 found that Washington fishermen harvested about 80 percent (ex-vessel value) of their catch in distant waters, with 98 percent of that coming from Alaskan waters. About 72 Washington state vessels participated in the joint venture trawl fishery, directly employing about 360 people. There were also 43 catcher processors employing about 2,200 people, and 26 shore-based trawlers, employing about 130 people.

Turning to relatively more recent data, Chase and Pascall (1996) focus on the importance of Alaska as a market for Seattle region (Puget Sound) produced goods and services. They do so by identifying particular industrial sectors that generate the bulk of these economic impacts, but they do not locate these industrial sectors in terms of particular geographic locations within the region. In their discussion of the fisheries sector, Chase and Pascall indicate that only a fraction of the regional economy is based on fishing and seafood processing industries, but that these industry sectors are concentrated in several communities and rely heavily on North Pacific (Alaskan) resources. The communities that they single out are Bellingham, Anacortes, and the Ballard neighborhood of Seattle. They say that Seattle is the major base for vessels for various fisheries – groundfish (catcher vessels, catcher processors, motherships), halibut, crab, salmon, and others. There are numerous secondary processing plants in the region, and about 60 percent of the seafood harvested and shipped south for processing moves through the Port of Tacoma (Chase and Pascall 1996:23).

The relative value of Alaskan shellfish (crab, shrimp, etc.) for the Seattle fleet varies from year to year, but in 1994 was about 25 percent of the ex-vessel value of the Alaska/North Pacific commercial fishing harvest (Chase and Pascall 1996:26), which represented about 75 percent by harvest value, and 92 percent by weight, of all fish harvested by the Puget Sound fishing fleet (Chase and Pascall 1996:23 - citing ADF&G, NPFMC, NMFS). Since that time, crab harvests have declined considerably, however, so this percentage would now be smaller.

Other relatively recent work (Martin O'Connell Associates 1994) indicates the wide range of activities that the Port of Seattle supports and the web of support services that commercial fishing helps support, but it provides no measure of the contribution of the BSAI crab fishery to this support. Fishing activities are included in this study only to the extent that they are reflected in activities at Fishermen's Terminal. This would generally reflect Bering Sea and Gulf of Alaska catcher vessel activity but would also include a great number of other smaller vessels moored at Fishermen's Terminal. On the other hand, it would also include some Alaskan groundfish activity of similarly sized and somewhat larger vessels, and some factory trawlers. It would not include the activities of larger Alaskan groundfish vessels such as catcher-processor, mothership, and secondary processing activities. By their estimation, fishing activity at Fishermen's Terminal in 1993 generated 4,007 direct jobs (the majority of them crew positions), earning an average of \$48,690 per direct job (total \$195 million). Also, an additional 2,765 induced and indirect jobs were created. Fishing businesses also expended \$145 million on local purchases of goods and services (Martin O'Connell Associates 1994:45-49). Again, this does not indicate the contribution of the BSAI crab fishery so much as it establishes that the local fishing/processing economy is densely developed. Also, if the estimates or models of vessel expenditures developed for operations using Fishermen's Terminal can be extrapolated to other vessels based in Seattle, an estimate of the contribution of the BSAI crab fishery may be possible.

A summary profile of the Puget Sound maritime industry, which includes commercial fishing, is included in Economic Development Council of Seattle and King County 1995 (Appendix A:39-49). Pertinent information has been abstracted here. The list of included businesses is quite long and is a good indicator of how far indirect benefits can spread:

. . . cargo shipping, tugs and barges, commercial fishing and supply; ship and boat building; cruise ships; vessel design and repair; fueling; moorage; the fabrication and sale of marine gear such as electronics; refrigeration, hydraulics, and propulsion equipment; the operation

of marinas, dry docks and boat yards; services provided by customs and insurance brokers and shipping agents; and maritime professional services including admittedly law, marine surveying and naval architecture (Appendix A:39).

It was estimated that in 1992 there were 30,000 jobs in the maritime sector within the four-county region, including 10,000 in commercial fishing, 7,000 in fish processing, 5,000 in marine recreation, and 3,900 in boat building and repair. Average wages were estimated at \$24,000 for fish processors, \$32,000 for ship and boat building and repair, and \$50,000 to \$80,000 for commercial fishing. The sector is one noted for providing entry-level positions for those with limited education and job skills, so that they can learn a high-wage job. Each job in this sector creates or supports one to two other jobs in the regional economy, and each dollar of sector output generates about one additional dollar in output from the rest of the economy.

Seattle offers the maritime sector, and the distant water fleet in particular, a "critical mass" of businesses that allows vessel owners and other buyers a competitive choice of goods and services. The same is true to a lesser extent of other regional ports, such as Tacoma. Efficient land transportation systems are also critical, and Seattle has good rail and truck linkages (and the Port of Seattle is working to improve them).

Although the maritime sector is an important one for the region, some of its components are currently experiencing some difficult times. Other regional communities (Anacortes, Bellingham, Port Townsend) as well as locations in Alaska (closer to the distant fishing waters) are working to develop port facilities to lure vessels so that they may gain the economic benefits of the associated support and supply business. Common sorts of projects are the improvement of shoreside access, building additional moorage, or work and storage capacity.

NRC revised some of their earlier work and added additional analysis focused specifically on the contributions of inshore Washington state (but also Alaska) processing plants to the Washington State economy (NRC n.d., 1997). The Washington inshore seafood processing industry purchased \$859.5 million of raw material in 1991, \$720.1 million from Alaska, and \$139.4 million from Washington waters. Salmon accounted for 46 percent of the total value of these purchases, shellfish for 20 percent, groundfish for 19 percent, halibut for 11 percent, and other species for much less. The total finished product from all this raw material was worth \$2.1 billion (\$1.8 billion from the Alaskan raw material). Salmon accounted for \$780 million of the final product's value, shellfish for \$563 million, and groundfish for \$482 million. "... inshore processors operating in Alaska and Washington account for more than 50 percent of the value of U.S. seafood exports" (NRC nd:4). For 1996, the total purchased was comparable at \$877.2 million – 41 percent salmon, 20 percent shellfish, groundfish 15 percent, halibut 9 percent, herring 7 percent, and other species much less. The total finished product totaled \$2.17 billion, \$1.9 billion from Alaskan material. Salmon accounted for 35 percent, shellfish for 28 percent, and groundfish for 18 percent. Thus Alaskan shellfish is at least as important in terms of value of product as is groundfish for 1991-1996.

Expenditure patterns for Washington (and Washington-owned Alaskan) inshore plants were modeled in these NRC documents. Inshore plants expenditures average 46 percent for their raw materials (fish and shellfish), 16 percent for wages and benefits, 9 percent for processing materials, and 7 percent for tendering and other transportation costs. About 55 percent of these expenditures were made in Washington, 43 percent in Alaska, and 2 percent from other states. This is stated to include fish and shellfish purchased in Alaska from fishermen who homeport in Washington (NRC nd:9), and economic benefits were produced from these expenditures in direct proportion to their magnitude.

The estimated total economic output from primary and secondary processing activities for all seafood to the Washington state economy in 1991 was calculated to be \$1.865 billion. This was the result of three main factors (in order of their significance in terms of contributions to economic benefits):

- A substantial portion of expenditures for raw material (fish) in Alaska is made to fishermen whose home ports are in Washington.
- The majority of administrative and sales functions of processing companies are carried out in Washington.
- A major portion of support industries (equipment and packaging manufacturing) is located in Washington.

In 1996 the Washington inshore seafood industry generated 32,837 full-time equivalent jobs (21,308 in Washington and 11,529 in Alaska) and \$791 million of earnings impacts (\$532 million in Washington and \$259 million in Alaska). In terms of economic output, it contributed \$1.9 billion to the Washington state economy and \$1.2 billion to the Alaska state economy (NRC 1997). As noted earlier, these data underscore the interrelatedness of the economies of Alaska and Washington and, as has been seen through the sector profiles and the ties to particular communities, the ties between Seattle and specific Alaska communities. Companies based in Washington depend on Alaska fisheries for the great bulk of the raw materials processed in Washington, and residents of both states harvest Bering Sea resources. Also, as noted earlier, the corporate offices and sales outlets of the processing companies are located in Washington, as are most of the suppliers and support services for the industry.

Seattle, BSAI Crab Fishery Socioeconomic Issues and a Sector-Based Approach

As noted in the introduction to this section, Seattle is an analytic challenge, in terms of a socioeconomic description and a social impact assessment directly related to the BSAI crab fishery, because of its scale and diversity. Seattle is arguably more involved in the BSAI crab fishery than any other community, but from a comparative perspective, Seattle is arguably among the least involved of the communities considered. The sheer size of Seattle dilutes the overall impact of the BSAI crab fishery jobs and general economic contributions when viewed on a community scale, in contrast to Alaskan communities where such jobs and revenues are a much greater proportion of the total economic base of the community. This section has attempted to portray the complexities of the ties of the BSAI crab fishery to Seattle in terms of specific portions of the economy and on a geographically localized basis.

All of the BSAI crab fishery sectors are tied to Seattle in one way or another, although the magnitude and nature of these ties vary considerably between sectors. It is clear that Seattle, as a community is, from a number of different perspectives encompassing specific sector structures and geographically attributable industrial areas, engaged in and dependent upon the BSAI crab fishery. To avoid losing the importance of the fishery in the "noise" of the greater Seattle area, the association will be described in terms of the BSAI crab fishery industry sectors and their linkages to Seattle for the balance of this profile, rather than attempting an overall contextualization of the fishery and impact analysis within the metropolitan area.

Links to Specific Crab Fishery Sectors

In addition to looking at region, port-focused, and neighborhood-focused activities, a relevant way to examine the nature of Seattle's involvement with the BSAI crab fishery is to look at the nature of the links between Seattle as a community and the relevant individual sectors of the crab fishery. This type of information is specifically intended to provide a general level overview of dynamic relationships of Seattle to all of the relevant sectors, and to discuss the nature and degree of variation between sectors. Summary quantitative data on Seattle's engagement in the fishery is presented in the main body of this document. This section presents overview information on the individual sectors and draws primarily on existing secondary information, supplemented by very limited fieldwork.

Processing

The following discussion is divided into shore-based processing and floating processor discussions. In terms of social impact assessment, the relative mobility, or lack thereof, is important in terms of ties between Seattle and specific communities of operation.

Shore-Based Processing

As noted in earlier NPFMC groundfish social impact assessment documents, while the larger shoreplants that process Alaska groundfish are located in Alaska, all have multi level ties to Seattle. The same is also true for crab. All of the larger facilities are administered from corporate headquarters in Seattle, which is the center for corporate and financial services. Thus, Seattle is the community where business decisions are made, or at least deliberated, for the Alaska shore plants (setting aside, as for other sectors, the complicating issue of degrees of foreign ownership that vary by entity). This distinction should not be carried too far, however, as plant managers resident in the communities clearly have a role in corporate decision making, and executives based in Seattle also spend time in the Alaskan communities where their plants are located. Nonetheless, the role of "Seattle" in the decision-making process, and the profound influence that process has in the Alaska shoreplant communities, is well recognized in the communities themselves.

In addition to being a decision-making and important administrative support community for the shoreplants, Seattle is also the location of some direct employment associated with the processing companies. While administrative shoreplant sector employment in Seattle consists of relatively few jobs compared with positions at the plants themselves, the Seattle component has a greater proportion of jobs within the upper compensation range. The day-to-day management of the labor force of shoreplants in Unalaska/Dutch Harbor tends to consist of year-round community residents (though these individuals were initially recruited from elsewhere). Managers of other shoreplants tend to maintain homes outside of Alaska (many in the Seattle area), even though most spend the majority of their time in Alaska and may well qualify as Alaskan residents. The bulk of the labor force for shore plants consists of the maintenance/support and the processing crews (although the two may well overlap). The former tends to be employed on a more year-round basis and thus tends to be more of an Alaska resident labor force. The latter tends to have a higher turnover and, with a significant percentage of the workforce still coming from the Pacific Northwest and the greater Seattle area in particular, employment ties to Seattle are still important for Bering Sea and Gulf of Alaska community-based operations. As discussed in the Inshore/Offshore-3 analysis document (NPFMC 1998a), non-Alaskan employees accounted for approximately 80 percent of the total groundfish plants workforce, but this figure varies widely by plant, with the range encompassing less than 10 percent to almost 40 percent of the workforce being Alaska residents of any one operation. A similar pattern is assumed to hold for all large crab processing plants, due to common ownership if not combined operations. While it is important to recall that there are significant differences between "residence" and the location of jobs, as discussed in earlier documents, there are impacts derived from the physical location of jobs more or less independent of the formal residency status of the workforce. Specific break-outs are not available; however, based on interviews with plant managers, it may be safely assumed that the bulk of the non-Alaska jobs comes from the Pacific Northwest region, and a disproportional number of those from Washington State and the greater Seattle area.

Interviews with processing personnel conducted for the NPFMC groundfish and crab license limitation and IFQ social impact assessment in the mid-1990s (IAI 1994) indicate that a substantial portion of the wages paid to workers in Alaskan plants were used to help support extended families outside of the region. While quantitative data do not exist regarding this type of wage flow, it is one more indication (particularly given a general knowledge of the industry) of the ties between the shoreplants and Seattle (and the greater West Coast area).

In terms of support services for the crab processors, Seattle would appear to play a role similar to that it has for several of the other sectors. Processors do purchase goods and services in their "host communities" but this is highly variable by processor and community. Among the major processor sites, Unalaska/Dutch Harbor has the highest degree of development of local support services, but it is still the case for these communities that materials and supplies needed for the operation of the plants are not manufactured locally, and a great deal of these are shipped out of the Seattle area, given that Seattle is both the headquarters of the individual companies and the nearest major port in the Lower 48. With the maturation of the fishing industry, the growth of local infrastructure and support services, and the overall changes in Unalaska/Dutch Harbor, the relationship between Seattle and Unalaska/Dutch Harbor has changed somewhat. It is no longer common to hear people express their recognition of the strong industry ties between Unalaska/Dutch Harbor and Seattle by saying that in some respects Unalaska is a "suburb of Seattle," as was not uncommon in the mid-1980s. The center-periphery relationship is perhaps more complex than ever for this sector. For the Bering Sea portion of the fishery, Seattle is the center of corporate operations; Unalaska/Dutch Harbor is the center of processing operations and the interdependencies are many and complex. A similar pattern applies to Kodiak for the Gulf of Alaska component of numerous Alaska federal (and state) waters fisheries. Further, while there is some variation in this pattern with smaller processors in other communities, plants in the other key Alaskan BSAI crab ports (St. Paul, King Cove, Adak, Akutan, and floaters associated with ports) are all operated by firms managed out of Seattle.

In terms of expenditure patterns for crab processors in relation to the Seattle area, there are several main areas to consider. First, the processors buy crab from the catcher vessel fleet and the crab fleet is primarily based in Seattle and the Washington inland waters region, with a significant minority from Alaska. This being the case, crew compensation as a function of processing expenditures for Alaska crab disproportionately accrue to Seattle and the Pacific Northwest as a region. Second, expenditures for support services would appear to be primarily directed toward the Seattle/Pacific Northwest area. Third, corporate finances would appear to flow through Seattle, so the community would derive economic benefits from these transactions. In short, crab processing expenditures are important to Seattle when examined on a sector basis. The localization of such expenditures within Seattle, however, is less clear.

In terms of fiscal impacts to Seattle, clearly the differences of scale between Seattle and the Alaska crab processing communities make a great difference in relative significance of the sector. Beyond this, there are different types of fiscal inputs/taxation relationships between the companies and communities based on where the actual "work" or "industry" of processing takes place. In the crab-dependent communities themselves, the processors, as described in the Alaska communities discussion, provide a basic fiscal underpinning for local government in the form of various business, property, sales, and fish taxes. Seattle, not being the "industrial" center of the processing, has a different relationship to the industry.

Floating Processors

Floaters, as a sector, have strong ties to the Seattle area. All Bering Sea crab floater operations are headquartered in Seattle, and the floaters themselves are managed and supported principally out of Seattle. Hiring is done from Seattle and, while we have no statistical breakdown of the labor force, many come from the Lower 48 and most are reportedly from the Pacific Northwest. All, and especially floaters with a CDQ group partner, have strong initiatives to hire Alaskans, and especially Alaskans from Western Alaska.

Given that the operations are headquartered in Seattle, the community acts as a corporate center for this industry sector, in terms of corporate and financial services support. There are a few administrative/office positions for each company in Seattle, but these account for less than 10 percent of the workforce in every case, even at the low end of operational range staffing aboard the vessels.

In terms of fiscal impacts to communities, like catcher processors, floaters are subject to the resource landing tax in Alaska, so they developed a different fiscal relationship to Alaska communities. Individual operations varied the location and number of offloads, so there was variability between operations in this regard. Some floaters, of course, are tied up in port when processing and so function much as a shoreplant.

The catcher vessel fleet for floaters mirrors that of the fleet as a whole, and tends to have Seattle owners and to be maintained in the Seattle/Pacific northwest region. Some vessels have California or Alaska owners, or may have some connections with Oregon. Regardless of ownership or "home port" designation, many of these catcher vessels normally remain in Alaskan waters between crab seasons, unless there is a compelling reason for them to go to Seattle. Some participate in other fisheries.

Catcher-Processor Sector

Almost all crab catcher processors participating in the relevant BSAI crab fisheries have been owned by residents of the greater Seattle area, as shown in Table 3.1-4. This is true of those with non-qualified landings (as discussed in Section 3.4.4.2 and shown in Table 3.4.4-15 in the main body of this EIS) as well as those with qualified landings. The exceptions consist of basically two qualified catcher processors from Kodiak, one currently with an Anchorage address, and two non-qualified catcher processors from Newport. Thus, this sector is markedly concentrated geographically. Seattle area non-qualified crab catcher processors outnumber qualified vessels by about 3 to 1 (25 to 8), which reflects the trend over time (1991-2000) for catcher-processor numbers in BSAI crab fisheries to decline. As may be expected, the decline on participation for crab catcher processors that would not be qualified under the proposed rationalization program has been much greater than for vessels that would be qualified. Seattle area-owned crab catcher processors participate primarily in the Bristol Bay red king, Bering Sea opilio, and Bering Sea tanner fisheries. The Kodiak vessel historically participates in these fisheries as well as the Adak king crab fisheries. BSAI crab fishery catcher processors have historically (1991-2000) harvested 10.8 percent of the qualified crab landings, 28.0 percent of the non-qualified crab landings, and 13.0 percent of the total (qualified plus non-qualified) landings. Given these circumstances, it is clear that direct impacts to the catcher-processor sector that could result from rationalization will accrue almost exclusively to the Seattle-Tacoma area.

Table 3.1-4 Annual Average Number of Catcher Processors by Relevant BSAI Species Crab Fishery with Seattle-Tacoma CMSA Ownership, 1991-2000

Data	Number of Vessels Qualified as Crab Catcher Processors Owned by Residents of Seattle-Tacoma CMSA	Number of Vessels Qualified as Crab Catcher Processors Owned by Residents of All Areas	Seattle-Tacoma Ownership as a Percentage of Total Ownership
Bristol Bay Red	6.0	6.9	87.0%
Bering Sea Opilio	8.6	9.9	86.9%
Bering Sea Tanner	6.7	7.3	91.8%
St. Matthew Blue	1.4	1.9	73.7%
Adak Red	0.3	1.2	25.0%
Adak Brown	0.2	1.2	16.7%
Pribilof Red	0.3	0.3	100.0%
Pribilof Brown	0.3	0.3	100.0%
Dutch Harbor Brown	0.1	0.1	100.0%

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Catcher Vessels

As shown in Table 3.1-5, the ownership of BSAI crab vessels is highly concentrated in the greater Seattle area. Over the 1991-2000 era, 163.2 vessels owned by area residents participated on an annual basis in all nine BSAI crab fisheries being considered for rationalization. By way of comparison, the figure for Kodiak, the Alaska community with the greatest harvester participation was 48.1 (the next highest Alaska figure was 9.6 for Homer); the figure for Newport, the Oregon community with the greatest participation was 11.1. These figures show the predominance of the Seattle area fleet in the BSAI crab fisheries.

Table 3.1-5 Average Number of Relevant BSAI Species Crab Vessels in Various Fisheries Categories, by Fisheries Category, Owned by Residents of the Seattle-Tacoma CMSA Area, 1991-2000

	Number of Seattle-Tacoma CMSA Owned Vessels	Total Number of Vessels, All Areas	S-T CMSA Ownership as a percentage of Total Vessels
Bristol Bay Red King Crab	145.9	256.8	56.8%
Bering Sea Opilio Crab	138.4	235.8	58.7%
Bering Sea Tanner Crab	139.3	243.8	57.1%
BBR/BSO/BST Crab group	162.0	280.9	57.7%
Other 6 PMA Crab group	81.6	149.4	54.6%
All 9 PMA Crab group	163.2	290.8	56.1%
Non-Qualified PMA Crab (all 9)	26.1	62.1	42.0%
"Overlap" Vessels, all 9 PMA Crab	9.7	19.8	49.0%
All Fisheries other than PMA Crab	80.5	165.4	48.7%

Notes: BSAI crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
 BSAI crab fishery and group vessel counts include all landings (qualified and non-qualified).
 Average vessel counts for individual fisheries are computed using years open during 1991-2000.
 Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community.
 Vessels fishing multiple fisheries have been counted only once in combined categories.
 Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns.
 "Overlap" vessels have both qualified and non-qualified BSAI crab fisheries landings but are counted only once in combined groups.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table 3.1-6 displays information on the relative importance of Seattle-Tacoma CMSA-owned vessels in the relevant crab fisheries compared to the total catcher vessel harvest. As shown, Seattle-Tacoma MSA-owned vessels are heavily engaged in the fishery, accounting for 63 percent of the total annual value of harvest in the nine fisheries being contemplated for rationalization. In terms of dependency internal to the Seattle-Tacoma crab fleet, the BSAI crab species proposed for rationalization account for about 82 percent of the harvest value for these vessels over the 1991-2000 period.

Table 3.1-6 Average Annual Value of Harvest for Relevant BSAI Species Crab Vessels in Various Fisheries Categories, by Fisheries Category, for Vessels Owned by Seattle-Tacoma CMSA Residents, 1991-2000

	Seattle-Tacoma CMSA Vessel Harvest Value	Fishery Values as a Percentage of Seattle-Tacoma CMSA (only) Totals	Total Vessel Harvest Value, All Areas	Seattle-Tacoma CMSA as a Percentage of Total Harvest Value
Bristol Bay Red King Crab	\$21,857,948	12.6%	\$35,263,972	62.0%
Bering Sea Opilio Crab	\$89,969,977	52.1%	\$139,393,635	64.5%
Bering Sea Tanner Crab	\$13,163,108	7.6%	\$20,721,675	63.5%
BBR/BSO/BST Crab group	\$124,991,034	72.3%	\$195,379,282	64.0%
Other 6 PMA Crab group	\$16,168,524	9.4%	\$28,726,520	56.3%
All 9 PMA Crab group	\$141,159,558	81.7%	\$224,105,802	63.0%
All fisheries other than PMA Crab	\$31,632,523	18.3%	\$52,585,352	60.2%
Total ALL Fisheries	\$172,792,081	100.0%	\$276,691,153	62.4%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
 BSAI crab fishery and group harvest values include all landings (qualified and non-qualified).
 Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Summary of Recent Community Fishery IFQ/Co-op Rationalization Experience and Implications for Likely Crab Rationalization Impacts

While no quantitative studies focusing on Seattle-specific community/social impacts are known, as the home of both substantial catching and processing capacity for the halibut and sablefish fisheries, it is assumed that these IFQ programs were essentially neutral for Seattle as a community. It may be the case, however, given the more geographically diversified nature of the halibut and sablefish fleets compared to halibut and sablefish processing capacity that there was some net loss to Seattle compared to smaller communities that serve as homeports to the scattered fleet. While clearly some shifts in relative advantage did take place between sectors and between individual entities, however, when examined on a community level and taking into account the presence of all sectors, these shifts would not appear to rise to a level of significance.

In terms of experience with co-op based rationalization under the AFA, different Seattle-based sectors fared quite differently, although some kinds of benefits are thought to have occurred across the board. The major impacts, and their applicability to potential outcomes of crab rationalization may be summarized as follows.

Shore-Based Processing

- Under the AFA, there was effectively an increase in volume (as a result of quota allocations to the associated catcher vessel co-ops, away from the offshore sector), but this was partially offset in the short term by compensation to the offshore sector. This is a complicating factor in the analysis of rationalization-specific impacts and would not occur under crab rationalization.
- Employment and various other forms of activity of the sector took place primarily in the Alaska processing communities, but ownership-derived economic benefits accrued to Seattle. Despite this significant accrual, there are not Seattle community level impacts arising from AFA-related changes to this sector.

Motherships

- In general, the utility of mothership experience under AFA co-op conditions to potential impacts under the crab rationalization conditions is limited, due to the type of groundfish orientation of the AFA mothership fleet and the lack of overlap with analogous crab operations. Essentially, there is no mothership sector in the crab fishery in the same sense that there is in the groundfish fishery.
- This sector did experience AFA-related ownership changes, but ownership remains concentrated in Seattle.
- A major structural change resulting from AFA was the splitting off of motherships into their own sector with their own allocative pool separate from the offshore catcher-processor sector. While motherships are no longer in direct competition with catcher processors, the quota assigned to motherships was somewhat less than recent harvest levels. This is not an experience generalizable to the crab rationalization context, other than the fact that some sectors may end up with less than current quota share.
- The catcher vessels associated with the three entities in this sector were placed into a single co-op, and there has been movement of catcher vessels between entities within the co-op. This is a quite different situation than seen in the onshore sector, where vessels of competing entities are in separate co-ops and there are obstacles to free movement of vessels between co-ops. This situation does provide some insight into potential crab rationalization alternative-linked impacts, where co-op design in this sector varied from, and has had quite different outcomes than, co-ops in the other rationalized sectors.
- The three entities in this sector were structured very differently prior to the AFA and continue to have different adaptations post-AFA making sector generalizations difficult. It is clear, however, that whatever impacts have been experienced by individual operators, or the sector as a whole, they have not resulted in community level impacts for Seattle. This is likely to be the case for similar rationalization efforts in crab.

Catcher Processors

- Under the AFA, by design, catcher processors experienced a significant reduction in allocated quota and a reduction in the overall sector fleet. This, of course, colors any attempt at drawing parallels between likely outcomes for catcher processors under AFA co-ops and the crab rationalization alternatives. A general point of divergence in the structure of the two fishery types is that catcher processors represent a much smaller proportion of the crab fishery than they do of groundfish fishery, and this tends to limit application of experience in the groundfish context to the potential crab context.
- Loss of access by the sector was mitigated to a degree by compensation for the planned reductions under the AFA. Employment losses, estimated at between 1,500 and 2,000 jobs, have not been regained. This is a large number within the fishery, when contrasted to the participant base. For example, the entire population of Unalaska/Dutch Harbor is 4,300 persons. Job loss was not localized in any particular community, as hiring patterns differed from entity to entity, workers came from a wide region, and the work aboard the mobile vessels did not take place "in" a particular community or communities. The effect of employment loss varied from firm to firm. One large catcher-processor firm estimated their overall loss at between 600 and 700 jobs. With a 30 to 35 percent normative turnover in crew positions per year, this yielded a net displacement of around 400

individuals. Compensation packages were offered to displaced employees, and an estimated 25 to 30 percent of key crew has been rehired as remaining positions opened through attrition. This type of wholesale, immediate employment loss is not anticipated under the crab rationalization alternatives and makes comparisons between the two programs for the catcher-processor sector problematic.

- There have been significant ownership changes within the sector as a result of the AFA, with American ownership interest increasing by design. The CDQ portion of ownership of this sector has increased significantly post-AFA, which has increased direct CDQ entity involvement with the fishery. Again, this is a set of circumstances that is quite different from the crab rationalization alternatives; however, increased CDQ group investment is clearly one potential outcome of a rationalized crab fishery.
- One major positive impact on the sector under AFA co-op conditions has been increased stability. Inefficient vessels were removed from the fleet, and those remaining are apparently on much more solid economic footing than was the case prior to the AFA. This has had beneficial impacts to both public and private entities providing services to the fleet. This type of outcome is likely under the crab rationalization alternatives, although it will occur through a different mechanism or process. Under the AFA, this reduction in this sector was accomplished through legislative means and was immediate; under crab rationalization (with the exception of the buy-back program) decapitalization and consolidation would occur through individual operational decision making in response to market conditions.
- Despite the fact that impacts to the sector resulting from the AFA were immediate and drastic they were not significant in terms of Seattle community level impacts. It is expected that this would be true for the situation under the crab rationalization as well – no matter how drastic at the operational level, impacts would not be significant at the community level.

Catcher Vessels

- One of the dramatic changes for the catcher vessel sector under AFA-driven rationalization was the formation of co-ops. This fundamentally changed the structure of the catcher vessel business and altered the relationship between catchers and processors. Former competitors are now in the same co-operative structure, and deliveries (and catcher vessel efforts) are structured to increase efficiencies in processing. Catcher vessel co-ops have tended to hire business managers that work with the processor to coordinate the fleet, and this has increased information flow between catchers and processors to a level that did not occur in the past due to competitive/business information tensions between the two sectors. This same type of outcome would be anticipated under the crab rationalization alternatives.
- How the AFA has influenced the trend in recent years of processing entities acquiring increasing ownership and/or control of catcher vessels is unclear and will take a longer period of time to sort out as entities adapt to changed conditions under the AFA. Given this uncertainty, there are not clear indications based upon this experience of how ownership patterns would change in the immediate future under the crab rationalization alternatives, but caps are designed to limit the impacts of this issue. There has been some ownership change of catcher vessels under the AFA, but these changes have not been extensive.
- Compensation structures within the sector have changed to a degree under AFA rationalization. Payment from processors to vessels is reported to be more based on the value of the finished product than in the past. There is also some indication that in at least a few instances crew compensation has

gone away from a traditional crew share format to a wage labor or salary format as a result of different ownership structure and/or changes in the risk/uncertainty environment under the AFA. This is a possible outcome under crab rationalization as well.

- Catcher vessel asset value has increased under AFA co-ops. At the same time, there has been an effective loss in flexibility in business operations due to the impediments to free movement under the co-op system. How applicable this is to crab rationalization will depend on the final structure of the co-ops.
- Leasing of quota, and the accompanying retirement or sidelining of excess capital within the shoreside co-ops, has not taken place to the degree that many predicted. Vessels have remained protective of their catch history, and protective of continuing to accrue catch history. Of the four vessels that are known to have leased quota and that are cited in the AFA Report to Congress (NPFMC 2002), two moved between co-ops, one was purchased by co-op members and had its quota share divided among the other vessels, and one leased quota in the Bering Sea and concentrated on operations in the Gulf of Alaska. (The pattern is very different for catcher vessels that prior to the AFA delivered to the catcher-processor fleet. All of these vessels have leased their quota to the catcher-vessel fleet.) Whether this less-than-anticipated consolidation would hold true for crab rationalization depends on individual vessel owner decision making.
- Another major structural change within the catcher vessel sector has been the cooperation seen under the Intercooperative Agreement. This has led to coordination between co-ops on both the primary and the sideboard species and areas, as well as to a "co-management" approach to data collection to support federal management of the fishery. It is expected that rationalization of the crab fishery would continue the trend of coordination across fisheries.
- AFA has slowed the fishery for the catcher vessels and has arguably made the fishery safer for owners and crews as it is now easier to make decisions to avoid extreme weather, sea, or other unsafe conditions. The short time that has passed since the AFA went into effect does not allow a statistical evaluation of this issue, but anecdotal evidence would indicate that a reduction of injuries has occurred. A similar outcome for the crab fishery under the rationalization alternatives is anticipated, and benefits would likely be even greater because crab fisheries are shorter (meaning a narrower "have-to-go-out" window), the vessels are often smaller, and the weather can be just as extreme if not more so during crab seasons than during groundfish seasons.
- In terms of social impacts on specific communities, the catcher vessel fleet is too dispersed for these generally beneficial impacts of AFA to be felt at the community level in Seattle. This would hold true for crab rationalization as well.

In sum, Seattle-based sectors experienced a variety of changes under previous North Pacific fisheries IFQ and co-op-oriented rationalization programs. The nature, magnitude and direction of the social impacts of these programs varied between individual entities and sectors, but Seattle cannot be said to have experienced social impacts on the community level, due to the size and complexity of the community itself as well as the engagement of the community with all of the major sectors, i.e., where relative losses in one sector are offset by relative gains in another. This situation is quite unlike the participating Alaska communities profiled, where a much greater degree of local asymmetry of engagement by sector exists. The same outcome may be anticipated for the crab rationalization alternatives. In terms of likely community level impacts that may result from regionalization, it is not anticipated that Seattle as a community would experience any significant change. Individual Seattle-based operations, if locked into a higher cost environment than competitors in an

otherwise rationalized fishery, may have to adopt somewhat different strategies in order to make some plant level operations competitive in the new environment.

Differential Impacts of the Three Rationalization Alternatives at the Community Level

As summarized above, for Seattle the engagement in the BSAI crab fishery is based upon multiple ties to all of the sectors involved in the fishery. Beneficial or adverse impacts to the community of Seattle deriving from the different rationalization alternatives result from the differential outcomes for all of these activities.

Each of the rationalization alternatives have identical provisions regarding increased allocations to the CDQ program (inclusion of additional species and an increase in the included species set-aside from 7.5 to 10 percent of the total allocation), creation of captain's harvest quota shares (3 percent of the TAC), and a community development allocation to Adak (10 percent of the WAI golden king crab allocation). Each of these provisions are directed toward fostering beneficial community or social impacts for at least some groups or areas. Seattle would not benefit from CDQ program increases. The creation of captain's shares would benefit a number of residents of Seattle, but this would not be significant on a community level. The Adak community allocation would not be significant for the community of Seattle.

Regionalization is a feature of the three-pie alternative and the IFQ alternative, but is not a part of the cooperative alternative. Regionalization is explicitly designed to create beneficial community or social impacts for at least some groups or areas. The north/south region designation was designed primarily to benefit the Pribilofs, while the west region designation in the WAI golden king crab fishery was designed primarily to benefit Adak. These regional designations would not result in substantial impacts to the community of Seattle. As Seattle is home to a number of entities that operate in the different regions, it is assumed that gains and losses from regional protections would be a zero sum game from Seattle's perspective.

Additional community protection features of a "cooling off" period and a right of first refusal on transfer of processing quota shares are a part of the three-pie alternative (and are not a part of any other alternative). Eligible communities (those that had 3 percent of processing activity for covered species) would be assured that during the 2-year "cooling off" period processing quota would not be moved out of the community. Subsequent transfers would be subject to a right of first refusal that would allow an eligible community (through its CDQ group or another community group, if a CDQ group were not present) to obtain ownership and control over processing quota to retain local processing activity. Due to an absence of processing activity, these provisions are not relevant to Seattle itself, but they would limit the abilities of Seattle based entities to maximize the benefits of rationalization by providing impediments to consolidation.

The rationalization alternatives also differ on the ability of communities to obtain harvest quota share. Under the three-pie and IFQ alternatives, CDQ groups, or other community groups if a CDQ group is not present, in eligible communities (again, those with 3 percent or more of processing activity for covered species during the qualification period) would be able to purchase harvest quota share due to a waiver of sea time requirements that would otherwise prevent such purchases. By design, the ability to obtain harvest quota share could result in beneficial community and social impacts through communities becoming more directly engaged in the fishery. Again, these provisions would not be relevant for the community of Seattle itself.

Another potentially distinguishing feature of the rationalization alternatives from a community or social impact perspective is the ability of harvesters to form co-ops under the three-pie and cooperative alternatives (but not under the IFQ alternative). For Seattle, this ability (or lack thereof) would not appear to result in significant beneficial or adverse impacts given its current nature of engagement that spans all of the participating sectors.

4.0 CDQ REGION AND PROGRAM EXISTING CONDITIONS

The CDQ region differs from the Alaska and Pacific Northwest communities profiled by the nature of its engagement with and dependence upon the BSAI crab fisheries. The communities within this region primarily engage in the fishery through the auspices of the program rather than through historic participation in the fishery, so the focus on this section is the program itself rather than a characterization of the many communities in the region.³⁷

4.1 INTRODUCTION

The western Alaska CDQ program was established to enable residents of rural communities in western Alaska to participate in the fisheries off their shores in a way that will bring significant economic development to the Bering Sea region. Originally involving only the pollock fishery, the program in recent years has expanded to become multispecies in nature, encompassing crab and other non-groundfish fisheries as well additional groundfish species.

The CDQ program is a federal program that allocates a portion of the TAC/GHL for federally managed Aleutian Island and Bering Sea species to eligible communities in western Alaska. The CDQ program includes such species as pollock, Pacific cod, Atka mackerel, flatfish, sablefish, and other groundfish, along with halibut, and crab. Currently, the CDQ program is allocated portions of the groundfish fishery that range from 10 percent for pollock to 7.5 percent for most other species. The CDQ program was granted in perpetuity through the Magnuson-Stevens Act authorized by the U.S. Congress in 1996. The State of Alaska is responsible for the administration and monitoring of the program. The State administers the program jointly through the Alaska DCED (the lead agency) and the ADF&G.

Sixty-five Alaska Native Claims Settlement Act (ANCSA) villages near the Bering Sea have established eligibility under federal and state regulations. These villages formed six non-profit CDQ groups: APICDA; Bristol Bay Economic Development Corporation (BBEDC); Central Bering Sea Fishermen's Association (CBSFA); Coastal Villages Region Fund (CVRF); Norton Sound Economic Development Corporation (NSEDC); and Yukon Delta Fisheries Development Association (YDFDA). The groups have established partnerships with fishing corporations. Local hire and reinvestment of proceeds in fishery development projects are a required part of the program.

In recent years the program has provided more than 1,000 jobs annually for region residents. Yearly wages have exceeded \$8 million. This program has also contributed to infrastructure development projects within the region as well as loan programs and investment opportunities for local fishermen.

Reports summarizing and/or reviewing the activities of the CDQ program have been prepared for several purposes (NPFMC 1998; NRC 1999; DCED 2001; NMFS 2001a), and the existing conditions portion of this regional profile is largely abstracted from the most recent of these documents, the Steller Sea Lion Protection Measures SEIS (NMFS 2001a). In addition, each of the CDQ groups files a management plan with the State when they apply for their requested share of the overall CDQ allocation. Each group also files quarterly reports that detail their activities and tracks their progress in relation to the goals they have set in their management plans. The State can adjust the percentages awarded to each group from one allocation period to the next, based on the State's evaluation of various factors – documented need, adequacy of the proposed plans to use the requested allocation to meet those needs, past performance, and perhaps others.

³⁷ This section is based on information derived from a number of sources, but much credit is due to Northern Economics for their work in this area on the Steller Sea Lion Protection Measures SEIS (NMFS 2001a).

CDQ Allocations and Harvest

In 1991, the NPFMC recommended to the Secretary of Commerce that a fishery CDQ program be created. The purpose of the CDQ program was to extend the economic opportunities of the productive fisheries in the Bering Sea and Aleutian Islands (especially pollock) to small, rural communities in proximity to these valuable living marine resources. As initially envisioned, the proposed program set aside 7.5 percent of the Bering Sea and Aleutian Islands' annual TAC for Alaska pollock for allocation to qualifying rural Alaskan communities. The program was initially proposed to run for a period of 4 years, lasting from 1992 through 1995 but was subsequently extended for an additional 3 years, carrying it through 1998. In subsequent actions, a CDQ program for BSAI halibut and sablefish was implemented in 1995. A CDQ program for some BSAI crab species was implemented in 1998, and the multispecies groundfish CDQ program was implemented in late 1998. The NPFMC also extended the pollock CDQ allocations permanently by including pollock in the multispecies groundfish CDQ program. The AFA of 1998 increased the pollock allocation for the CDQ program to 10 percent of the annual TAC.

Under the current regulations all groundfish and prohibited species caught by vessels fishing for CDQ groups accrue against the CDQ allocations and none of the groundfish or prohibited species caught in the groundfish CDQ fisheries accrue against the non-CDQ apportionment of the TAC or prohibited species catch limits. The CDQ groups are required to manage their catch to stay within all of their CDQ allocations. The CDQ allocations recommended by the State for 2001-2002 are displayed in Table 4.1-1. In 2001, these percentages represented approximately 185,000 metric tons of groundfish (Table 4.1-2).

CDQ Communities

The purpose of the CDQ program is to facilitate the participation of Bering Sea and Aleutian Islands community residents in the Bering Sea/Aleutian Island fishery, as a means to develop local community infrastructure and increase general community and individual economic and social well-being. CDQ communities are predominantly Alaska Native villages, as shown in Table 4.1-3. Alaska Native residents comprise 86.8 percent of the combined total population of all CDQ communities. They are remote, isolated settlements with few natural assets with which to develop and sustain a viable diversified economic base. As a result, economic opportunities have been few, unemployment rates have been chronically high, and communities (and the region) have been economically depressed.

While these communities border some of the richest fishing grounds in the world, they have largely been unable to exploit this proximity. The full Americanization of the Bering Sea/Aleutian Island fisheries occurred relatively quickly. However, the very high capital investment required to compete in these fisheries precluded small communities from participating in their development. The CDQ program serves to ameliorate some of these circumstances by extending an opportunity to qualifying communities to directly benefit from the productive harvest and use of these publicly owned resources.

Table 4.1-1 CDQ Allocation Percentages by Species and Group, 2001-2002

Species	Allocation (Percent)						
	APICDA	BBEDC	CBSFA	CVRF	NSEDC	YDFDA	Total
Crab							
Bristol Bay Red King	18%	18%	10%	18%	18%	18%	100%
Norton Sound Red King	0%	0%	0%	0%	50%	50%	100%
Pribilof Red & Blue King	0%	0%	100%	0%	0%	0%	100%
St. Matthew Blue King	50%	12%	0%	12%	14%	12%	100%
Bering Sea <i>C. Opilio</i>	10%	19%	19%	17%	18%	17%	100%
Bering Sea <i>C. Bairdi</i> Tanner	10%	19%	19%	17%	18%	17%	100%
Halibut							
4B	100%	0%	0%	0%	0%	0%	100%
4C	10%	0%	90%	0%	0%	0%	100%
4D	0%	26%	0%	24%	30%	20%	100%
4E	0%	30%	0%	70%	0%	0%	100%
Sablefish & Turbot							
Sablefish, Hook & Line – AI	15%	20%	0%	30%	20%	15%	100%
Turbot – AI	16%	20%	5%	21%	20%	18%	100%
Sablefish, Hook & Line – BS	15%	22%	18%	0%	20%	25%	100%
Turbot – BS	20%	22%	7%	15%	15%	21%	100%
Pacific Cod	16%	20%	10%	17%	18%	19%	100%
Pollock							
Bering Sea/ AI/Bogoslof	14%	21%	4%	24%	23%	14%	100%
Atka mackerel							
Eastern	30%	15%	8%	15%	14%	18%	100%
Central	30%	15%	8%	15%	14%	18%	100%
Western	30%	15%	8%	15%	14%	18%	100%
Yellowfin sole	28%	24%	8%	6%	7%	27%	100%
Flatfish							
Other Flats	25%	23%	9%	10%	10%	23%	100%
Rocksole	24%	23%	8%	11%	11%	23%	100%
Flathead	20%	20%	10%	15%	15%	20%	100%
Other Species	18%	20%	10%	16%	16%	20%	100%
Other Rockfish							
O. Rockfish – BS	25%	21%	7%	12%	13%	22%	100%
O. Rockfish – AI	23%	17%	7%	18%	17%	18%	100%
Arrowtooth	24%	22%	9%	11%	10%	24%	100%
Pacific Ocean Perch Complex							
True POP-BS	18%	21%	7%	18%	18%	18%	100%
Other POP-BS	23%	18%	8%	16%	16%	19%	100%
True POP – AI							
Eastern	30%	15%	8%	15%	14%	18%	100%
Central	30%	15%	8%	15%	14%	18%	100%
Western	30%	15%	8%	15%	14%	18%	100%
Sharp/Northern-AI	30%	15%	8%	15%	14%	18%	100%

Species	Allocation (Percent)						
	APICDA	BBEDC	CBSFA	CVRF	NSEDC	YDFDA	Total
Short/Rougheye – AI	22%	18%	7%	18%	17%	18%	100%
Sablefish, Trawl – AI	24%	23%	9%	10%	10%	24%	100%
Sablefish, Trawl – BS	17%	20%	10%	17%	18%	18%	100%
Prohibited Species							
Halibut	22%	22%	9%	12%	12%	23%	100%
Chinook salmon	15%	21%	4%	23%	23%	14%	100%
Other salmon	15%	21%	5%	23%	22%	14%	100%
Opilio	24%	22%	9%	11%	10%	24%	100%
<i>C. Bairdi</i> – Zone	26%	24%	8%	8%	8%	26%	100%
<i>C. Bairdi</i> – Zone 2	23%	22%	9%	12%	11%	23%	100%
Red King Crab	29%	23%	8%	7%	7%	26%	100%

Source: DCED 2001

Table 4.1-2 CDQ Allocation Amounts in Metric Tons by Species and Group, 2001

CDQ Species	2001 TAC	2001 CDQ Allocation	CDQ Group Allocation Amounts					
			APICDA	BBEDC	CBSFA	CVRF	NSEDC	YDFDA
BS FG Sablefish	780	156	23	34	28	0	31	39
AI FG Sablefish	1,875	375	56	75	0	113	75	56
BS Sablefish	780	59	10	12	6	10	11	11
AI Sablefish	625	47	11	11	4	5	5	11
BS Pollock - total	1,400,000	140,000	19,600	29,400	5,600	33,600	32,200	19,600
AI Pollock	2,000	200	28	42	8	48	46	28
Bogoslof Pollock	1,000	100	14	21	4	24	23	14
Pacific Cod	188,000	14,100	2,256	2,820	1,410	2,397	2,538	2,679
WAI Atka Mackerel	27,900	2,093	628	314	167	314	293	377
CAI Atka Mackerel	33,600	2,520	756	378	202	378	353	454
EAI/BS Atka Mackerel	7,800	585	176	88	47	88	82	105
Yellowfin Sole	113,000	8,475	2,373	2,034	678	509	593	2,288
Rock Sole	75,000	5,625	1,350	1,294	450	619	619	1,294
BS Greenland Turbot	5,628	422	84	93	30	63	63	89
AI Greenland Turbot	2,772	208	33	42	10	44	42	37
Arrowtooth Flounder	22,011	1,651	396	363	149	182	165	396
Flathead Sole	40,000	3,000	600	600	300	450	450	600
Other Flatfish	28,000	2,100	525	483	189	210	210	483
BS Pacific Ocean Perch	1,730	130	23	27	9	23	23	23
WAI Pacific Ocean Perch	4,740	356	107	53	28	53	50	64
CAI Pacific Ocean Perch	2,560	192	58	29	15	29	27	35
EAI Pacific Ocean Perch	2,900	218	65	33	17	33	31	39
BS Other Red Rockfish	135	10	2	2	1	2	2	2
AI Sharpchin/Northern	6,745	506	152	76	40	76	71	91
AI Shortraker/Rougheye	912	68	15	12	5	12	12	12
BS Other Rockfish	361	27	7	6	2	3	4	6
AI Other Rockfish	676	51	12	9	4	9	9	9
Other Species	26,500	1,988	358	398	199	318	318	398
Prohibited Species								
Zone 1 Red King Crab (number*)	97,000	7,275	2,110	1,673	582	509	509	1,892
Zone 1 Bairdi Tanner Crab (number)	730,000	54,750	14,235	13,140	4,380	4,380	4,380	14,235
Zone 3 Bairdi Tanner Crab (number)	2,070,000	155,250	35,708	34,155	13,973	18,630	17,078	35,708
Opilio Crab (number)	4,350,000	326,250	78,300	71,775	29,363	35,888	32,625	78,300
Pacific Halibut (metric tons)	4,575	343	75,460	75,460	30,870	41,160	41,160	78,890
Chinook Salmon (number)	41,000	3,075	461	646	123	707	707	431
Non-Chinook Salmon (number)	42,000	3,150	473	662	158	725	693	441

* For prohibited species listed (other than halibut) take is measured in number of animals rather than by weight.

Table 4.1-3 Alaska Native Percentage of Total Community Population, Alaska CDQ Communities, 2000

Aleutian Pribilof Island Community Development Association		<i>Coastal Villages Fishing Cooperative (Continued)</i>	
Akutan	16.4%	Mekoryuk	96.7%
Atka	91.3%	Napakiak	96.6%
False Pass	65.6%	Napaskiak	98.2%
Nelson Lagoon	81.9%	Newtok	96.9%
Nikolski	69.2%	Nightmute	94.7%
Saint George	92.1%	Oscarville	100.0%
Bristol Bay Economic Development Corporation		Platinum	92.7%
Aleknagik	84.6%	Quinhagak	97.3%
Clark's Point	92.0%	Scammon Bay	97.4%
Dillingham	60.9%	Toksook Bay	97.6%
Egegik	76.7%	Tuntutuliak	98.9%
Ekuk	0.0%	Tununak	96.9%
Ekwok	93.8%	Norton Sound Economic Development Corporation	
King Salmon	30.1%	Brevig Mission	92.0%
Levelock	95.1%	Diomede	93.8%
Manokotak	94.7%	Elim	94.9%
Naknek	47.1%	Gambell	95.8%
Pilot Point	86.0%	Golovin	92.4%
Port Heiden	78.2%	Koyuk	94.3%
Portage Creek	86.1%	Nome	58.7%
South Naknek	83.9%	Saint Michael	93.2%
Togiak	92.7%	Savoonga	95.5%
Twin Hills	94.2%	Shaktoolik	94.8%
Ugashik	81.8%	Stebbins	94.7%
Central Bering Sea Fishermen's Association		Teller	92.5%
St. Paul	86.5%	Unalakleet	87.7%
Coastal Villages Fishing Cooperative		Wales	90.1%
Chefornak	98.0%	White Mountain	86.2%
Chevak	95.9%	Yukon Delta Fisheries Development Association	
Eek	96.8%	Alakanuk	97.9%
Goodnews Bay	93.9%	Emmonak	93.9%
Hooper Bay	95.8%	Grayling	91.8%
Kipnuk	98.0%	Kotlik	96.1%
Kongiganak	97.2%	Mountain Village	93.5%
Kwigillingok	97.9%	Nunam Iqua	93.9%
		Total All Villages	86.8%

Source: U.S. Bureau of the Census 2000

According to Sec. 305(i)(1)(B) of the Magnuson-Stevens Act, to be eligible to participate in the CDQ program a community must–

- (i) be located within 50 nautical miles from the baseline from which the breadth of the territorial sea is measured along the Bering Sea coast from the Bering Strait to the westernmost of the Aleutian Islands, or on an island within the Bering Sea;
- (ii) not be located on the Gulf of Alaska coast of the north Pacific Ocean;
- (iii) meet criteria developed by the Governor of Alaska, approved by the Secretary, and published in the Federal Register;
- (iv) be certified by the Secretary of the Interior pursuant to the Alaska Native Claims Settlement Act (43 U.S.C. 1601 et seq.) to be a Native village;
- (v) consist of residents who conduct more than one-half of their current commercial or subsistence fishing effort in the waters of the Bering Sea or waters surrounding the Aleutian Islands; and
- (vi) not have previously developed harvesting or processing capability sufficient to support substantial participation in the groundfish fisheries in the Bering Sea, unless the community can show that the benefits from an approved Community Development Plan would be the only way for the community to realize a return from previous investments.

The 65 coastal communities currently eligible to participate in the CDQ program are organized into six CDQ groups, with between 1 and 21 communities in each group. The CDQ communities are geographically dispersed, extending westward to Atka, on the Aleutian chain, and northward along the Bering coast to the village of Wales, near the Arctic Circle. Table 4.1-4 summarizes the six CDQ groups in terms of their membership, approximate populations, and office locations. The total population of the 65 CDQ communities in 2000 was estimated to be 27,073. However, this population figure may include a substantial number of individuals who are not year-round residents. The administrative offices of CDQ groups tend to be located in regional hub communities, near government or industry partner offices, and/or near community or other ongoing projects.

4.2 CDQ GROUP PROFILES

Individual groups have followed a variety of strategies for using their CDQ allocations, and for the investment or other use of the proceeds. Most have formed stable partnerships with established fishing industry participants and have, or are seeking to, invest in the fishery. The following CDQ group profiles are adapted from those contained within the Steller Sea Lion Protection Measures SEIS (NMFS 2001a). Each CDQ group is allocated a share of the full suite of the species subject to CDQ allocations, but only crab are highlighted in the brief discussions below.

Aleutian Pribilof Island Community Development Association

The communities represented by APICDA are relatively small and located adjacent to the fishing grounds. Unalaska, the largest community in the region and the hub of the Bering Sea fishery is not a CDQ community but is an *ex officio* member of APICDA and has a non-voting member of the APICDA Board of Directors. Unalaska residents are eligible for APICDA training and education opportunities, many of which are located in Unalaska to take advantage of proximity to the industry, rather than in the other member villages.

Table 4.1-4 CDQ Group Communities, Populations (2000) and Administrative Locations

CDQ Group	Member Communities	2000 Population*	Office Locations
APICDA	Akutan Atka False Pass Nelson Lagoon	Nikolski St. George Unalaska**	1,143 Juneau Unalaska Staff also in Homer and Anchorage
BBEDC	Aleknagik Clark's Point Dillingham Egegik Ekuk Ekwok King Salmon/ Savinoski Levelock Manokotak	Naknek Pilot Point Portage Creek Port Heiden South Naknek Togiak Twin Hills Ugashik	5,932 Dillingham Juneau Seattle
CBSFA	St. Paul	532	St. Paul Anchorage
CVRF	Chefornak Chevak Eek Goodnews Bay Hooper Bay Kipnuk Kongiganak Kwigillinook Mekoryuk Mountain Village Napakiak	Napaskiak Newtok Nightmute Oscarville Platinum Quinhagak Scammon Bay Toksook Bay Tuntutuliak Tununak	7,855 Anchorage Bethel
NSEDC	Brevig Mission Diomedes/Ignaluk Elim Gambell Golovin Koyuk Nome Savoonga	Shaktoolik St. Michael Stebbins Teller Unalakeet Wales White Mountain	8,488 Anchorage Various
YDFDA	Alakanuk Emmonak Grayling	Kotlik Sheldon Point	3,123 Seattle Seward

* The population estimate may include individuals who are not year-round residents.

** Unalaska is an *ex-officio* member of APICDA.

Source: DCED 2001; U.S. Bureau of the Census, 2000

Currently, APICDA is allocated 18 percent of the Bristol Bay red king crab, 50 percent of the St. Matthew blue king crab, 10 percent of the Bering Sea *C. opilio*, and 10 percent of the Bering Sea *C. bairdi* tanner CDQ allocations. Because of proximity to the fishing grounds and year-round access to ice-free waters, APICDA's focus is primarily on community development and employment opportunities that occur in or near each community. These villages do not have the same need for offshore employment as do residents of many other CDQ communities, who do not have the same opportunity for local fishery development. This is reflected in APICDA's employment statistics, which show one of the highest total employment levels, but a relatively low number of processing jobs. APICDA also has a wide variety of investments in different sectors of the fishery, as well as in tourism, and other areas.

APICDA has employment provisions with both its inshore and offshore partners in different CDQ fisheries and has invested, both with them and individually, in a number of fisheries-based development projects in several of its villages, creating a variety of employment opportunities. APICDA residents in general have shown a preference for non-pollock employment, with the single largest source being renovation and operation of a halibut processing plant in Atka.

Bristol Bay Economic Development Corporation

BBEDC represents 17 villages distributed around the circumference of Bristol Bay, including Dillingham, the second-largest CDQ community with approximately 2,200 residents and the location of BBEDC's home office. BBEDC is currently allocated 18 percent of the Bristol Bay red king crab, 12 percent of the St. Matthew blue king crab, 19 percent of the Bering Sea *C. opilio*, and 19 percent of the Bering Sea *C. bairdi* tanner CDQ allocations.

To date, BBEDC has focused its community development efforts primarily on creating offshore employment opportunities in the groundfish fisheries, and it has employed more village residents in pollock processing jobs than any other group. BBEDC's current partner is said to hire approximately 20 percent of its crew from CDQ villages.

BBEDC has also invested in a variety of fishing vessels, including part-interest in two pollock catcher processors and a freezer longliner. However, BBEDC also has a program to evaluate investments in regional infrastructure. The group also has active vocational training and internship programs with its offshore partner and provides internship opportunities with out-of-region and local businesses to develop administrative and other specialized skills. BBEDC is also helping to promote workforce readiness skills through the four Bristol Bay school districts.

Central Bering Sea Fisherman's Association

CBSFA is unusual among CDQ groups in that it represents a single community, St. Paul in the Pribilof Islands. St. Paul is strategically located to serve the Bering Sea fishing industry. As a result, CBSFA has focused attention on working with other island entities to improve St. Paul's harbor facility and on expanding the island's small boat fleet. The group also operates a revolving loan program to provide boat and gear loans to resident fishermen. CBSFA has primarily invested in crab vessels and has a small ownership interest in American Seafoods. CBSFA has also been exploring the possibility of developing a multi-processing facility in St. Paul, including doing so in conjunction with its existing CDQ partners. Currently, CBSFA receives 10 percent of the Bristol Bay red king crab, 100 percent of the Pribilof red and blue king crab, 19 percent of the Bering Sea *C. opilio*, and 19 percent of the Bering Sea *C. bairdi* tanner CDQ allocations.

Reflecting the focus of St. Paul residents on developing local fishing ventures and infrastructure, CBSFA has not seen much demand among residents for off-island processing jobs, either offshore or inshore. The group is partnered with a large offshore company and would like to build on the benefits of product offloads at St. Paul harbor and the attendant support services its residents can provide.

Coastal Villages Region Fund

CVRF currently manages 18 percent of the Bristol Bay red king crab, 12 percent of the St. Matthew blue king crab, 17 percent of the Bering Sea *C. opilio*, and 17 percent of the Bering Sea *C. bairdi* tanner CDQ allocations. CVRF villages are located along the coast between the southern end of Kuskokwim Bay and Scammon Bay, including Nunivak Island. This remote area is poorly located to engage in the current Bering Sea fisheries. Furthermore, its residents, for the most part, have had little experience with commercial

enterprise. CVRF has focused on helping residents adjust to working conditions outside of the immediate area and employs a training coordinator who actively recruits residents for employment and internship opportunities. CVRF sees a distinct employment advantage in the offshore sector for its residents, primarily because of shorter time commitments and higher wages. However, the group currently has both inshore and offshore partners. CVRF has purchased 22.5 percent of American Seafoods, the largest offshore fishing company in the Bering Sea with seven factory trawlers.

CVRF provides employment to fishermen through its nearshore CDQ halibut fishery and on a longline vessel that harvests CDQ sablefish. The group continues to be interested in establishing salmon processing facilities both on the Kuskokwim and elsewhere in the region, as well as halibut processing facilities.

Norton Sound Economic Development Corporation

Fifteen villages make up the region represented by NSEDC, ranging from St. Michael to Diomedé. The geographic expanse and diversity of interests among NSEDC's communities are challenging, as are the hurdles to developing local fisheries in this remote area that is icebound in winter.

Nevertheless, NSEDC has actively pursued both local fisheries and Bering Sea pollock investment strategies. The group has purchased approximately 50 percent of its offshore processor partner, Glacier Fish Company (GFC), including two catcher/processors and a seafood marketing subsidiary. Together with GFC, NSEDC owns the Norton Sound Fish Company, which operates a longline vessel and employs significant numbers of region residents. The group also owns independently two tender vessels specially built for the Norton Sound region. NSEDC currently manages 18 percent of the Bristol Bay red king crab, 50 percent of the Norton Sound red king crab, 14 percent of the St. Matthew blue king crab, 18 percent of the Bering Sea *C. opilio*, and 18 percent of the Bering Sea *C. bairdi* tanner CDQ allocations.

NSEDC has developed or planned fisheries development projects in several villages, including Norton Sound Crab Company in Nome and commercial halibut operations on St. Lawrence Island. GFC hires residents of the Bering Sea region on a preferential basis for CDQ fishery operations. NSEDC operates an employment and training office in Unalakleet.

Yukon Delta Fisheries Development Association

YDFDA represents five communities. The group's emphasis has been on creating employment opportunities in the Bering Sea fishery both through its mothership partner in the groundfish fishery and through other pollock processors, both inshore and offshore. Another area of focus has been on a comprehensive training program that includes a combination trawl/pot/longline vessel and a 47-foot longline crab vessel. YDFDA currently has 18 percent of the Bristol Bay red king crab, 50 percent of the Norton Sound red king crab, 12 percent of the St. Matthew blue king crab, 17 percent of the Bering Sea *C. opilio*, and 17 percent of the Bering Sea *C. bairdi* tanner CDQ allocations.

YDFDA faces the challenges of representing a region with few natural resources to develop, long distances to most viable fisheries, and relatively undeveloped human resources with respect to active participation in a commercial economy setting. While the group places residents in jobs with all three sectors, it indicates that offshore and mothership employment are most useful for its residents. The group's CDQ royalties fund a variety of training activities encompassing technical and office skills.

4.3 ECONOMIC IMPACTS OF THE CDQ PROGRAM

Revenue Generation

To be eligible to participate in the CDQ program, CDQ communities could have no current or historical linkage to the fisheries in question at the time of the program's implementation. Therefore, at the onset of the program it was necessary for each CDQ group to enter into a relationship with one or more of the large commercial fishing companies that was participating in the pollock fishery. As other fisheries were added, this same general pattern was followed, with the exception of some of the halibut CDQs, to one degree or another. The CDQ community brings the asset of preferential access to the fishery resource while the partnering firm brings the harvesting/processing capacity and experience in the fishery. The nature of these relationships differs from group to group. In every case, the CDQ community receives royalty payments on apportioned catch shares. Some of the agreements also provide for training and employment of CDQ community members within the partners' fishing operations, as well as other community development benefits. Each of the six groups negotiates a specific price per metric ton for the use of the apportioned CDQ shares, or a base price plus some form of profit sharing.

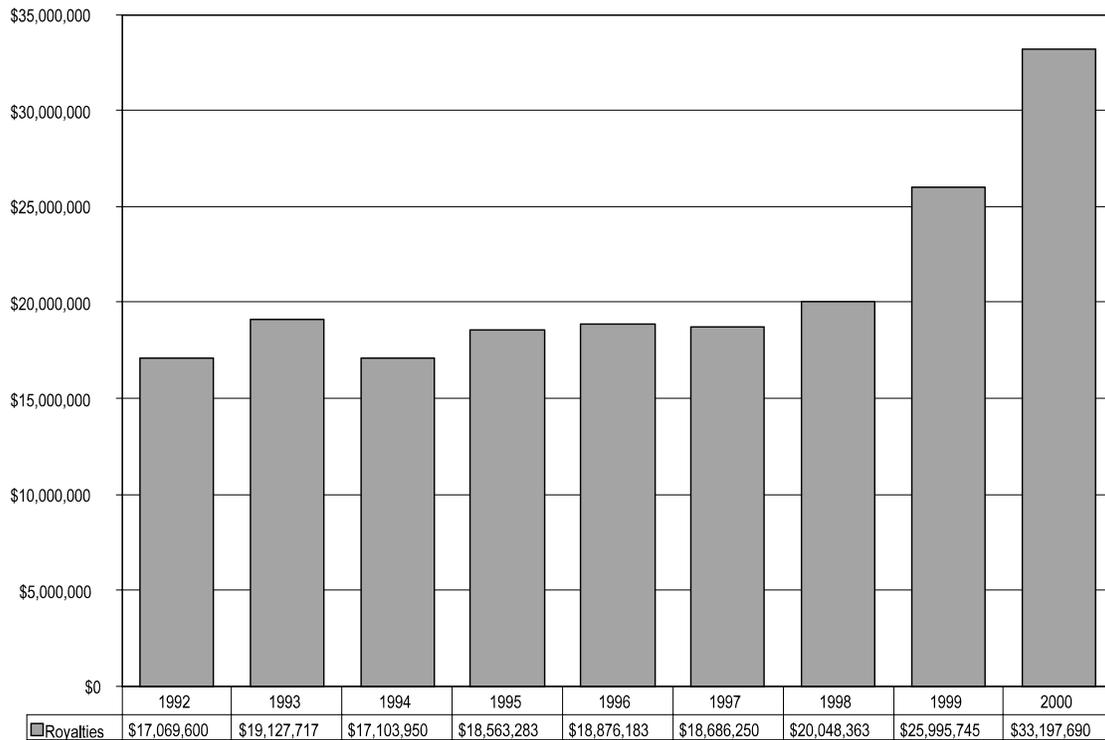
Based upon reports of consistently high bid-prices for CDQ shares (see, for example, testimony before the NPFMC on the impacts of Inshore/Offshore III on the pollock CDQ program), the partnering companies also apparently receive substantial benefits from these CDQ relationships. These benefits may include preferred access to the resource, resulting in better yields and more valuable product forms (e.g., roe), and the more efficient use of capacity. The positive aspects of the CDQ pollock fishery probably contributed to the successful implementation of the offshore cooperative management system by affirmatively demonstrating the economic gain of a rationalized approach to pollock harvesting.

The BSAI crab fisheries have been a relatively recent addition to the CDQ program. Initially focused on the pollock fishery, pollock has continued to dominate royalties even after the addition of other species to the CDQ program. For the years 1992 through 1998, pollock CDQ royalties fluctuated between \$17 million and \$20 million per year (Figure 4.3-1). Royalty income rose substantially in 1999 and 2000 because both the TAC and lease price of pollock CDQ shares increased. Stronger overseas markets for groundfish products and a shift by processors to higher value products were among the reasons for the increase in CDQ lease values. In 2000, the CDQ groups received over \$33 million in pollock CDQ royalties.

While pollock still dominates the program in terms of total royalties, royalties from the multispecies program provided an additional \$7.3 million to the CDQ groups in 2000 (DCED 2001). Of the 2000 total of approximately \$40.5 million for all species, pollock accounted for approximately 82 percent of all royalties, while all other species combined represented approximately 18 percent of total royalties. In 2000, crab was a significant contributor to, but not the majority of, the non-pollock royalty subtotal. The percentage of the total 2000 royalties generated by each non-pollock species were Pacific cod – 8 percent; opilio crab – 5 percent; Bristol Bay red king crab – 3 percent; and other species, including sablefish, Atka mackerel, halibut and turbot – 2 percent.³⁸ (Beyond royalties, as the CDQ program expanded to species other than pollock, different CDQ groups pursued different ways to participate in those fisheries, including vessel purchase, as noted below.)

³⁸ Note: the crab percentage contribution figures vary slightly from what would be calculated from the audited royalty figures for 2000 presented below but are of a similar magnitude (and comparably adjusted figures are not available for other CDQ fisheries).

Figure 4.3-1. Pollock CDQ Royalties, 1992-2000



Source: DCED (2001)

The crab CDQ species reserve initiated in 1998 includes all king and tanner crab species in the BSAI that have a GHF specified by the State, which are Bristol Bay red king crab, Pribilof Islands red and blue king crab, St. Matthew blue king crab, snow crab (*C. opilio*), Norton Sound red king crab, and tanner crab. The species actually harvested under the CDQ program, however, have varied in the few years since program implementation. In 1998, the CDQ groups harvested *C. opilio*, St. Matthew blue king crab, Pribilof red and blue king crab, and Bristol Bay red king crab, but no CDQ fishery for tanner crab occurred. In 1999, the State closed the fisheries for Pribilof red and blue king crab and St. Matthews blue king crab and, as a result, since 1999, CDQ groups have only harvested *C. opilio* and Bristol Bay red king crab. At the time the range of species actually harvested as CDQ crab was narrowing, the portion of TAC/GHL assigned to the CDQ reserve was increasing. The provisions of the Magnuson-Stevens Act guiding the program specified a phase-in period, with the CDQ groups receiving 3.5 percent of the CDQ crab species harvested in 1998, 5.0 percent in 1999, and 7.5 percent in 2000 and beyond.

In 1998, the first year of the crab fishery CDQ program, the total value of all CDQ crab fisheries was \$6.2 million. In 1999, this figure increased to \$11.5 million, but in 2000 it dropped back to \$7.2 million, due to stock decline (and despite of a percentage increase of the CDQ portion of the total fishery). Information on crab-specific royalties for 1998 and 1999 was not available at the time of this writing.

In 2000, CDQ royalties for opilio and Bristol Bay red king crab fisheries combined were \$2,842,100, according to recently released audited data. In 2001, the analogous figure was \$2,484,610. In 2000, opilio

royalties totaled \$1,680,954 for all CDQ groups, and in 2001 this figure dropped to \$1,206,559. Volume decreased over this same period from 2,090,692 pounds to 1,865,648 pounds, while average price declined from \$0.80 to \$0.65 per pound. For Bristol Bay red king crab, royalties for all CDQ groups totaled \$1,161,146 in 2000 and increased to \$1,278,051 in 2001. Volume remained nearly unchanged, going from 603,338 to 602,515 pounds, while average price increased from \$1.92 to \$2.12 per pound (G. Cashen [ADEC], personal communication, October 2002).

Asset Accumulation

The revenue stream from the lease of CDQ allocations has permitted the development of considerable savings within the CDQ groups. These savings provide important capital for making investments, and asset accumulation by CDQ communities is one empirical measure of the performance of the program. Amassing of equity interest in real assets represents a clear community development strategy. Data suggest that CDQ groups, when taken as a whole, have retained almost half of their gross revenues in some form of equity, whether vessel ownership, processing facilities, marketable securities, loan portfolios, and IFQ holdings. The value of CDQ assets in aggregate increased over tenfold in 8 years, going from \$1.5 million in 1992 to over \$157 million in 2000 (DCED 2001).

Another benefit of capital asset acquisitions and venturing with industry participants is the enhanced control communities may exercise over the joint economic activity. As members in fishing companies with ownership interest, the CDQ groups are better able to take part in decisions that directly impact business operations and, thus, profitability. Also, the opportunity for technology transfer and hands-on experience (whether operational or managerial) occurs from the industry partner to the CDQ group. CDQ groups and their residents are able to learn firsthand how the industry functions. This increases the likelihood of local control as CDQ residents, who have spent time learning from established industry partners, may one day be in control of their own operations and be able to operate independent of the CDQ program. In the interim, expanded employment opportunities, made available through vessel acquisition and partnering with established industry members, increase the sharing of benefits that accrue from the CDQ activities.

Increasingly, CDQ groups are using their CDQs to leverage capital investment in harvesting/processing capacity. Acquisition of ownership interest in commercial fishing operations and other fisheries-related enterprises is one important means of directly adding to a CDQ group's economic sustainability, consistent with the program's mandate. Current equity acquisitions in vessels are presented in Table 4.3-1.

All six CDQ groups have acquired ownership interests in the offshore pollock processing sector. In addition, APICDA and NSEDC have invested in inshore processing plants, some of which process crab (Table 4.3-2). These inshore plants include both shore-based and floating processing facilities. In most of the processing ventures in which CDQ groups have invested, the groups are minority owners. However, the revenues derived from these investments may be substantial.

Table 4.3-1 Vessel Acquisitions by CDQ Groups as of 2000

CDQ Group	Vessel Acquisitions (percent ownership in parentheses and vessel class in brackets)
APICDA	<ul style="list-style-type: none"> Starbound (20%) 240' pollock factory trawler Bering Prowler (25%) 124' longline vessel harvesting Pacific cod and sablefish Prowler (25%) 114' longline vessel harvesting Pacific cod and sablefish Golden Dawn (25%) 148' catcher vessel harvesting Pacific cod, pollock and crab Ocean Prowler (20%) 155' longline-processing vessel harvesting Pacific cod and sablefish Farwest Leader (25%) 105' pot vessel harvesting crab and Pacific cod Stardust (100%) 56' longline vessel harvesting Pacific cod and halibut Bonanza (100%) 38' longline vessel harvesting halibut AP#1, AP#2, AP#3 (100%) 36' longline vessels harvesting halibut and Pacific cod AP#4, AP#5 (100%) 35.5' longline vessels harvesting halibut and Pacific cod Konrad 1 (75%) 58' trawler/pot/tender vessel harvesting Pacific cod and pollock, salmon tender Nikka D (100%) 28' vessel harvesting halibut Agusta D (100%) 28' sportfishing charter vessel Grand Aleutian (100%) 32' sportfishing charter vessel
BBEDC	<ul style="list-style-type: none"> Arctic Fjord (20%) 270' pollock factory trawler Bristol Leader (50%) 167' longline vessel harvesting Pacific cod, halibut and sablefish Neahkahnne (20%) 110' pollock catcher processor Northern Mariner (45%) crab vessel Bristol Mariner (45%) 125' crab vessel Nordic Mariner (45%) 121' crab vessel Cascade Mariner (40%) 100' crab vessel
CBSFA	<ul style="list-style-type: none"> American Seafoods, LP (22.5%) which owns the following 270-340' catcher processors harvesting pollock, Pacific cod, yellowfin sole and rock sole: American Dynast, Katie Ann, Northern Eagle, Ocean Rover, Northern Jaeger, American Triumph, and Northern Hawk Zolotoi (20%) 98' crab vessel Ocean Cape (35%) 98' crab vessel
CVRF	<ul style="list-style-type: none"> American Seafoods, LP (22.5%) which owns the following 270-340' catcher processors harvesting pollock, Pacific cod, yellowfin sole and rock sole: American Dynast, Katie Ann, Northern Eagle, Ocean Rover, Northern Jaeger, American Triumph, and Northern Hawk Ocean Prowler (20%) 155' longline-processing vessel harvesting Pacific cod and sablefish Ocean Harvester (45%) 58' longline vessel harvesting halibut and Pacific cod Silver Spray (50%) 116' crab vessel and Pacific cod freezer boat
NSEDC	<ul style="list-style-type: none"> Glacier Fish Company (50%) which owns the following 201-276' catcher processors harvesting pollock and Pacific cod: Northern Glacier and Pacific Glacier Norton Sound (49%) 139' longline vessel Golovin Bay (100%) tender Norton Bay (100%) tender
YDFDA	<ul style="list-style-type: none"> Emmonak Leader (75%) 103' catcher vessel harvesting pollock Alakanuk Beauty (75%) 105' catcher vessel harvesting pollock Golden Alaska (19.6%) 308' pollock mothership Blue Dolphin (100%) 47' longline/crab vessel Lisa Marie (100%) 78' trawl/pot/longline vessel

Source: DCED 2001

Table 4.3-2 Inshore Processing Plant Acquisitions by CDQ Groups as of 2000

CDQ Group	Inshore Plant Acquisitions (percent ownership in parentheses)
APICDA	<ul style="list-style-type: none"> Atka Pride Seafoods, Inc. (100%) processes halibut Bering Pacific Seafoods (50%) processes Pacific cod, salmon and other species
NSEDC	<ul style="list-style-type: none"> Norton Sound Seafood Products (100%) processes mainly salmon Norton Sound Crab Company (100%) processes mainly crab

Source: DCED 2001

Employment and Income

At the time of the 1990 U.S. Census, all the communities in rural, western Alaska were experiencing relatively high levels of unemployment, ranging from 9 percent in the Bristol Bay area to 31 percent in the Yukon Delta area (DCED 2001). While these high unemployment rates partly reflect the seasonality of employment opportunities and the timing of the census in April, they also may show the effects of limited employment opportunities. All of the communities in the CDQ areas had median incomes that were lower than the state median income (DCED 2001). The median income of the Central Bering Sea area and the Bristol Bay area was less than 10 percent below the state level, but in the Yukon Delta area and the Aleutian Pribilof area the median income was only slightly greater than half the state level (DCED 2001). The poverty rates in all the CDQ areas except the Central Bering Sea were at least twice the state rate of 7 percent.

Employment opportunities have been one of the most tangible direct effects of the CDQ program for many western Alaska village residents. Indeed, the CDQ program has had some success in securing career track employment for many residents of qualifying communities and has opened opportunities for non-CDQ Alaskan residents, as well. Jobs generated by the CDQ program included work aboard harvesting vessels, internships with the partner company or government agencies, work at processing plants, and administrative positions.

Table 4.3-3 summarizes the total annual CDQ employment and wages presented in quarterly reports. The CDQ program has created an excess of \$8 million in wages annually since 1998. As shown in Table 4.3-3, non-pollock fisheries, although accounting for a relatively small proportion of total CDQ fisheries value or royalties, accounted for a significant majority (62.5 percent) of CDQ employment and almost half (47.6 percent) of total wages earned in 2000.

Table 4.3-3 CDQ Employment and Wages for all CDQ groups, 1993-2000

	1993	1994	1995	1996	1997	1998	1999	2000
Number of Persons Working*								
Management/ Administration	26	48	58	63	63	79	96	155
CDQ Pollock-Related	186	213	228	261	227	443	244	297
Other Fisheries	64	276	393	691	629	634	786	1,146
Other Employment	95	531	157	138	130	194	213	236
Total	371	1,068	836	1,153	1,049	1,350	1,339	1,834
Total Wages*								
Management/ Administration	\$586,537	\$1,012,125	\$1,218,892	\$1,636,860	\$1,803,766	\$2,284,792	\$2,661,976	\$3,084,757
CDQ Pollock-Related	\$1,000,360	\$1,280,695	\$1,866,619	\$1,686,104	\$2,660,938	\$2,649,001	\$2,149,062	\$1,741,871
Other Fisheries	\$609,058	\$1,000,103	\$1,132,824	\$2,280,554	\$2,756,688	\$2,075,495	\$4,201,775	\$5,959,516
Other Employment	\$0	\$1,791,479	\$1,350,766	\$723,724	\$887,338	\$1,167,173	\$1,573,358	\$1,723,054
Total	\$2,195,955	\$5,084,402	\$5,569,101	\$6,327,242	\$8,108,730	\$8,176,461	\$10,586,171	\$12,509,198

* Employment figures may not represent full-time positions. In addition, some double-counting of employment and wages may have occurred in the compilation of data for quarterly reports.
Source: DCED 2001

From 1993 through 2000, CDQ management and administration accounted for about 6 percent of the jobs and 24 percent of the wages. Pollock harvesting and processing accounted for 24 percent of the jobs and 26 percent of the wages. While pollock dominates in terms of royalty payments to groups, the multi-species fisheries actually accounted for much more employment (but less income per position). Fisheries other than pollock, which include employment related to crab, halibut, salmon, sablefish, and herring, accounted for 51

percent of the jobs and 34 percent of the wages. Finally, other employment, including internships, accounted for 18 percent of the jobs and 15 percent of the wages.

An overview of the relative impacts of the CDQ program may be gained by comparing income generated by the CDQ program with the total income in CDQ communities. Adjusted gross income data by zip code are available from the Internal Revenue Service for 2 years during the period that the CDQ program has existed - 1997 and 1998. The total adjusted gross income for all CDQ communities in these 2 years was \$242,200,000 and \$252,600,000, respectively. In addition, an estimate of adjusted gross income can be derived for 1999, the most recent year for which personal income data are available from the Regional Economic Information System (REIS) of the U.S. Bureau of Economic Analysis for Alaska boroughs and census areas. In 1997 and 1998, adjusted gross income in CDQ communities was approximately 27.5 percent of the total personal income in the boroughs and census areas in which CDQ communities are located. Applying this percent to the 1999 REIS personal income data yields an estimated adjusted gross income of \$259,800,000 in CDQ communities for that year.

Table 4.3-4 shows CDQ wages in 1997 and 1998 as reported to DCED and total adjusted gross income for all CDQ communities as estimated above. CDQ-related income accounted for about 4.1 percent of the total income in CDQ communities by 1999.

Table 4.3-4 CDQ Wages Compared with Total Adjusted Gross Income in CDQ Communities, 1997-1999

Year	Total Adjusted Gross Income	CDQ Wages*	CDQ Wages as % of Total Adjusted Gross Income
1997	\$242,200,000	\$8,108,730	3.3%
1998	\$252,600,000	\$8,176,461	3.2%
1999	\$259,800,000	\$10,586,171	4.1%

Note: Includes management/administration wages
Sources: DCED 2001; Internal Revenue Service

While this analysis is based on the best information available, it yields only a rough approximation of the contribution of CDQ wages to regional income. As noted above, CDQ management and administration account for nearly one-fourth of CDQ wages. Many of the individuals in administrative positions work and reside in non-CDQ communities (Table 4.1-4). By including the wages of those individuals, this analysis overestimates the contribution of CDQ wages to the total income of CDQ communities. Some level of error may also have been introduced in the analysis because Internal Revenue Service income data are reported by zip code. The incomes of a number of small non-CDQ communities that share a zip code with CDQ communities were included in the figure for total adjusted gross income. However, given the small size of the non-CDQ communities included, it is unlikely that the introduced error appreciably changed the analysis results. Similarly, the incomes of certain CDQ communities (Kongiganak, Napaskiak, Newtok, and Oscarville) were omitted from the total adjusted gross income figure because their zip code overlapped with the relatively large non-CDQ community of Bethel. Again, the introduced error is likely insignificant due to the small size of the CDQ communities omitted.

Adjusted gross income data obtained from the Internal Revenue Service for 1997 and 1998 can also be used to examine the contribution of CDQ wages of each CDQ group (Table 4.3-5). Among the factors that account for the differences across groups is the presence or absence of communities with comparatively large populations and diverse economies. For example, the CDQ communities of King Salmon and Dillingham in

the BBEDC region and Nome in the NSEDC region contributed about half of the total adjusted gross income for all CDQ communities in 1997 and 1998. The higher level of economic activity in these towns results in higher per capita incomes and reduces the relative importance of CDQ wages.

Table 4.3-5 CDQ Wages Compared with Total Adjusted Gross Income in CDQ Communities, by CDQ Group, 1997-1998

Wages	APICDA	BBEDC	CBSFA	CVRF	NSEDC	YDFDA
1997						
CDQ Wages*	\$134,395	\$1,480,979	\$223,201	\$1,193,590	\$1,252,493	\$1,831,355
Total Adjusted Gross Income	\$11,115,000	\$74,730,000	\$8,517,000	\$33,381,000	\$97,171,000	\$17,256,000
CDQ Wages as a Percentage of Total Adjusted Gross Income	12.09%	1.98%	2.62%	3.58%	1.29%	10.61%
1998						
CDQ Wages*	\$1,061,750	\$1,317,694	\$714,288	\$1,645,402	\$1,663,439	\$1,773,888
Total Adjusted Gross Income	\$10,209,000	\$80,655,000	\$8,010,000	\$35,719,000	\$100,375,000	\$17,659,000
CDQ Wages as a Percentage of Total Adjusted Gross Income	10.40%	1.63%	8.92%	4.61%	1.66%	10.05%

* Includes management/administration wages

Sources: DCED 2001; Internal Revenue Service; Regional Economic Information System

Training and Education

Training of CDQ community residents has been a primary objective for all the CDQ groups from the outset of the program and has been promoted as an essential means to a sustainable locally based fishery economy. Each CDQ group provides training for their residents, based not only upon the individual needs of the trainee, but upon the overall needs of the community.

Training programs span the range of educational opportunities, from vocational and technical training, to support for higher education at college and university levels. CDQ groups have spent nearly \$8 million directly on training expenditures involving over 7,000 residents since 1993 (DCED 2001).

These investments are wholly dependent upon the revenues generated by the CDQ apportionments and, therefore, are another empirical measure of benefits deriving from the groundfish fisheries of the BSAI management area.

Indirect Employment and Income Effects

Some of the income earned in CDQ jobs, as well as spending for supplies and services in support of CDQ projects, passes through local merchants, service providers, and others before leaking out of the region in exchange for imports. The additional employment and income generated in this way is referred to as indirect economic impacts. In an area such as western Alaska, where very few goods and services are provided locally, money leaks out of the region relatively quickly. Nevertheless, every extra contribution to jobs and income helps, and these additional economic impacts of the CDQ program should not be overlooked.

4.4 POTENTIAL CRAB MANAGEMENT ALTERNATIVE CDQ REGION SOCIAL IMPACTS

Status Quo Alternative

No significant impacts to the CDQ region are anticipated under the status quo alternative. The fishery would continue to operate under the existing conditions system, whereby the CDQ crab fishery operates on a set-aside separate and apart from the race-for-fish regular BSAI crab fisheries. As a result, CDQ groups receive returns that are proportionately greater than those seen in the regular fishery.

Three-Pie Voluntary Cooperative Alternative

The three-pie alternative includes provisions for expanding the program into all BSAI crab fisheries managed under the FMP (with the exception of the WAI golden king crab fishery), and increasing the overall percentage of crab TAC/GHL that would be designated for CDQ set-aside from 7.5 percent to 10 percent. This same increase also applies to the other two rationalization alternatives (the IFQ alternative and the cooperative alternative). These changes would be beneficial to the CDQ regions and their communities. Accompanying this increase in CDQ allocation is a provision that earmarks 25 percent of crab CDQ allocations (i.e., the proportion of the new total allocation attributable to the increase from 7.5 to 10 percent) to be delivered to shore based facilities.

Under existing conditions, the CDQ crab fishery operates in much the same way that one would expect a rationalized crab fishery to operate – at a somewhat slower pace, with a reportedly higher utilization rate, and more value-added products than in the open access fishery. Rationalization of the current open access portion of the fishery would not appear likely to change this pattern, in that it would make the entire fishery come to more closely resemble the current CDQ portion of the fishery rather than vice versa. In a number of ways, the CDQ portion of the crab fishery is already rationalized. The only identified potential adverse impact would be a relative decrease in the value of CDQ crab in a rationalized fishery. That is, as the entire fishery rationalizes, CDQ crab does not have the additional attraction of being the only rationalized portion of a fishery otherwise structured for a race for fish. It is not possible to quantify the potential impact of this structural change vis-a-vis the rest of the fishery at this point, however, as the economic benefits that will extend to the fishery as a whole under rationalization may result in net benefits to CDQ participants as well (i.e., increased market prices may make up for the incremental advantage over the rest of the fishery lost during rationalization).

CDQ experience with rationalization of the pollock fishery through the AFA and co-ops indicates that a rationalized fishery provides a great deal of investment opportunity for CDQ groups. However, a complicating factor in the pollock fishery that may limit the applicability of this experience to the crab fishery is that CDQ investments were perhaps more attractive in the pollock fishery than would otherwise be the case due to the need to "Americanize" the fishery, and the CDQ groups provided a relatively seamless means to do so. A similar situation does not exist in the crab fishery. Nevertheless, CDQ investments in a rationalized crab fishery could be expected to increase, all things being equal.

CDQ groups could also benefit from the three-pie alternative through community protection provisions regarding the right of first refusal on sale of processing quota share. As detailed elsewhere, following a two year "cooling off" period (another community protection feature of this alternative) that prevents the movement of processor quota out of communities (with the exception of a relatively minor amount to allow companies some degree of flexibility in adjusting their operations), eligible communities (that is those with 3 percent or more of the processing total of a covered species) would have the right of first refusal on sales of quota share. For communities where a CDQ group exists, the community group that could exercise this right is the CDQ group (communities without a local CDQ group would form a community group along the

lines of similar groups formed to address halibut and sablefish rationalization needs, as detailed elsewhere). In this way, CDQ groups could expand holdings into processor shares, which would be a benefit to the CDQ groups.

An additional feature of the three-pie alternative under community development allocations is a provision that for the WAI golden king crab fishery, the percentage of the resource not utilized (difference between actual catch and GHL) during the base period is allocated to the community of Adak, with a provision capping the total percentage at 10 percent. Essentially, this equates to a 10 percent set-aside of the WAI golden king crab fishery for Adak. In other words, at the same time the CDQ program set-aside was increased to 10 percent and enlarged to encompass all BSAI crab fisheries except WAI golden king crab, 10 percent of WAI golden king crab was set aside in a similar fashion for the non-CDQ community of Adak. This provision was explicitly intended to help the growth of a commercial fisheries economic base for the emerging civilian community of Adak following the post-Cold War closure of military facilities on the island.

As noted in the Adak community profile, while Adak is not a CDQ community, fisheries development that is occurring in the community is happening under the auspices of the Aleut Corporation (and/or its subsidiaries), which has assumed ownership and control over the former military installation and is overseeing the conversion to a civilian community and the fostering of a local economy. Aleut Corporation development plans explicitly include the development of fish processing on Adak to support a local fishing fleet, but which is not meant to adversely affect development efforts in the nearby CDQ community of Atka in regard to halibut. Crab processing on Adak at present is considerably less important economically than cod, halibut, and sablefish and has so far been limited primarily to WAI golden king crab, as Adak is not particularly advantageously located with respect to processing other species of BSAI crab. Essentially this "community development allocation" provision would have a community group in Adak function like another type of CDQ group (but it would not be a part of the CDQ program itself). This set aside should not directly impact the CDQ region communities, so long as nearby Atka interests are protected. Impacts to other communities would be limited by the provision that the Adak set-aside is confined to that portion of the resource that was not being utilized during the base or qualification period; however, the most recent information indicates that there is essentially no unutilized resource at present. To the extent that is accurate, the impact of such a set-aside on other communities would depend on the specific manner in which such an allocation would be made from among existing participants.

The regionalization component of this alternative could have an impact specifically on the CBSFA CDQ group, as fish processing, and the support of local fisheries as well as Bering Sea industrial commercial fisheries, has been a primary goal on St. Paul. Currently, it is reported that five out of six CDQ groups have their crab delivered to, and processed on, St. Paul. This is likely to continue, and to in essence help to support processing facilities on St. Paul, or in and near St. Paul harbor. APICDA would also potentially experience positive impacts due to the inclusion of St. George in the north region. Regionalization, or the absence of it, could conceivably affect all CDQ groups and their fisheries operations on a more general level. With regionalization, CDQ group efforts to process more Bering Sea fish in CDQ communities would seem to be supported (at least for St. Paul, and likely St. George). CDQ processing of crab on St. Paul in combination with regionalization may form the nucleus for a larger multispecies processing effort there. Without regionalization, CDQ crab may still provide leverage by which some processing is maintained in St. Paul as CDQ groups could require that CDQ crab be delivered and processed there as part of their formal contracts, although this, of course, would have to be an individual business decision. St. George would seem to be in a much more tenuous position. Other St. Paul and St. George specific impacts of a regionalization approach are discussed in the respective community profiles. The regionalization feature directed at the WAI golden king crab fishery (requiring delivery of 50 percent of crab caught in that fishery to be delivered west of 174° West Longitude) effectively mandates that processing take place on the Aleutian Chain from the community of Atka westward. While this provision would initially primarily benefit the community of Adak, due to the

already developed processing capacity in that community, it could, over time, benefit the CDQ community of Atka as well.

Individual Fishing Quota Alternative

CDQ region direct impacts under the IFQ alternative would be similar to those associated with the three-pie alternative as identical CDQ allocation increases apply. These impacts would be immediate and beneficial. Differences between the impacts of the two alternatives on CDQ groups would result from the fact that under the IFQ alternative there are no processor quota shares, and no specific community protection provisions (other than the waiver of sea time requirements for the purchase of harvester shares). Regionalization would still apply, but movement or consolidation of existing processing capacity within regions would be much easier, and this may have the effect of shifting processing activity away from some CDQ communities, such as St. George. This would, however, not be a direct impact resulting from CDQ program changes.

Cooperative Alternative

CDQ region direct impacts under the cooperative alternative would be similar to those associated with the three-pie and IFQ alternatives as identical CDQ allocation increases apply. Other impacts would be similar to those seen under the IFQ alternative, except that regionalization would not apply. Without regionalization, processing activity is expected to diminish if not completely vanish from the north region, which would have negative impacts on local CDQ groups, as well as the communities themselves, as detailed in the St. Paul and St. George community profiles.

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**ATTACHMENTS
TO
APPENDIX 3
SOCIAL IMPACT ASSESSMENT
BSAI CRAB FMP EIS
OVERVIEW AND COMMUNITY PROFILES**

SIA Attachment 1: Social Impact Assessment Study Methodology

SIA Attachment 2: Unalaska Municipal Revenue Note

SIA Attachment 3: Supporting Data Tables

August 2004

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SIA Attachment 1: Social Impact Assessment Study Methodology

This document builds directly upon, and is a planned extension of, earlier efforts conducted for the Bering Sea/Aleutian Islands (BSAI) Crab Rationalization Program Alternatives analysis provided in Public Review Draft form at the June 2002 meetings of the North Pacific Fishery Management Council (NPFMC) in Dutch Harbor, Alaska. The earlier document represented analysis that supported NPFMC selection of a preferred (rationalization) alternative, whereas the present effort expands that analysis to support a multiple alternative Environmental Impact Statement (EIS) analysis.

Steps in the Research Process

The overall research generally followed the steps outlined below. In practice, a number of different tasks took place simultaneously.

- *Preliminary Data Analysis.* NPFMC staff provided the subcontractor staff with sector and location data throughout the project as they became available. Results included homeport data, harvest data, and other relevant data by sector/location. These data were used initially to help focus the research effort, including helping to identify entities and individuals to contact. Much of this effort was in effect an augmentation of the earlier work accomplished for the Steller Sea Lion Protection Measures Supplemental EIS (SEIS) (the SSL SEIS for short), the American Fisheries Act (AFA) Report to Congress, and the Groundfish SEIS, and used that work as a foundation. The results of the analysis of these data are presented in the main body of this document, and detailed supporting information is contained in Social Impact Assessment (SIA) Attachment 3: Supporting Data Tables.
- *Formulate Study Plan, including a Field Plan.* Following a preliminary examination of the current fishery data, an overall study plan, with emphasis upon the field plan for collecting additional sector, and especially community information, was prepared.
- *Summarize Relevant Existing Information.* Prior to the collection of field data, existing information relevant to the present effort was summarized. A good foundation for this existed in the SSL SEIS and earlier documents, which has incorporated important sources such as the 1991 community profiles and accompanying SIA, the 1994 Sector Profiles and Supplemental SIA (and supporting materials), the 1998 Inshore/Offshore-3 analysis, the Groundfish SEIS, and the AFA Report to Congress SIA section previously prepared by team members for earlier NPFMC groundfish management tasks. While these were somewhat limited with respect to crab-specific information (being oriented primarily toward analyses of the groundfish fisheries), these materials, along with other relevant sources, were used to develop preliminary pre-field regional and community profiles, to identify information gaps, and to guide field interviews and research.
- *Conduct Initial Field Visits and Phone Contacts to Collect Required Information.* Field time was limited by schedule and resource constraints. Brief field site visits were made to Unalaska/Dutch Harbor (4 days), St. Paul (3 days), Kodiak (4 days), and Seattle (3 days). Other in-person contacts were made in Anchorage, and phone contacts were made with entities or individuals for all communities profiled.
- *Incorporate Additional Council Staff Analysis.* Portions of the rest of this report relevant to social and community effects were incorporated and discussed with Council staff.

- *Prepare Initial Review Draft Report.* Primary data and the available secondary data were analyzed, and a draft report prepared. The draft report included overview discussions and community profiles, and impacts analysis by region and community based on these profiles.
- *NPFMC Meeting and Consultation.* The draft community profiles and accompanying discussions (in the form of Appendix 2-6 of the BSAI Crab Rationalization Program Alternatives document) were presented at the February 2002 Council meetings in Anchorage. Input in the form of SSC, AP, and Council questions or comments was received.
- *Prepare Revised Initial Review Draft Report.* Input from the NPFMC February 2002 meetings was incorporated in this revision, along with field data from St. Paul. Secondary data received from Council staff subsequent to the February 2002 meetings were utilized as the basis for the newly written Community and Social Impacts section in the main BSAI Crab Rationalization Program Alternatives document.
- *NPFMC Meeting and Consultation.* The revisions to community profiles appendices were summarized and presented along with the newly written main document community and social impacts section at the April 2002 Council meetings in Anchorage. Input in the form of SSC, AP, and Council questions or comments was received.
- *Prepare Public Review Draft Report.* Input from the NPFMC April 2002 meetings was incorporated into this revision, along field data from Kodiak. Limited additional secondary information was incorporated into various subsections of the main document as well as the SIA appendix, and a limited number of sections were edited for clarity. A new attachment (Supporting Data Tables) was added, containing individual year tables to support summary tables that appeared elsewhere in the document. This version was distributed in hard copy beforehand and presented at the June 2002 NPFMC meetings in Unalaska/Dutch Harbor.
- *Prepare Final BSAI Rationalization Program Alternatives Report.* Minor modifications were made based on input received at the June 2002 NPFMC meetings and a final report was delivered to NPFMC staff in mid-June, completing that portion of the research process.
- *Initiate Crab FMP EIS Specific SIA Work.* Following the completion of the BSAI Crab Rationalization Program Alternatives document, work was begun on an expanded SIA to meet the needs of the EIS. This part of the process included the following steps:

(1) Preparation of a revised Social Impact Assessment: Overview and Community Profiles Appendix for inclusion in the Draft EIS was delivered prior to the December 2002 NPFMC meetings. This appendix represented a modification of the analogous appendix from the *BSAI Crab Rationalization Program Alternatives Public Review Draft* as presented at the June 2002 NPFMC meetings. This document was modified from the earlier version to:

- Incorporate changes in the overview section to broaden it to cover the range of EIS alternatives on a general level (Status Quo, Preferred [Rationalization], and No Fishing) and to narrow the existing discussion of the range of rationalization alternatives to focus on the preferred alternative.
- Revise the community profile of King Cove to incorporate information gained from fieldwork (3 days) conducted for this effort.

- Revise the community profile of Adak to incorporate information gained from fieldwork (3 days) conducted for this effort.
- Revise the community profile of Seattle to incorporate information gained from additional fieldwork (5 days) conducted for this effort.
- Add a community profile of Akutan. No fieldwork was conducted in the community. This profile is primarily on earlier community profiles produced for the NPFMC, supplemented by limited interview data from relevant entities based in Anchorage and Seattle.
- Add a community profile of Sand Point. No fieldwork was conducted in the community. This profile was based primarily on earlier community profiles produced for the NPFMC, supplemented by limited interview data from relevant entities based in Anchorage and Seattle.
- Add a community profile of St. George. This profile is based on fieldwork (3 days) conducted in the community for this project, combined with existing information and limited interview data from relevant entities based in Anchorage and Seattle.
- Revise the CDQ region profile by incorporating crab royalty information.

(2) A new Community and Social Existing Conditions section (Section 3.4.4) was prepared for the Draft EIS. This relatively brief section cross-referenced the detailed overview and community profiles appendix. It contained a summary of the relative importance of the crab fishery in the relevant communities, the varying nature of the engagement of the communities in the crab fishery, distinctions between the two analytic regions defined by the Council.

(3) A new Community/Social Effects of the Alternatives section (Section 4.6.5) was prepared for the Draft EIS. This section provided an analysis of the potential community/social impacts, by alternative, for three alternatives specified by NPFMC/National Marine Fisheries Service (NMFS): (a) the status quo alternative, (b) the preferred alternative (the ‘three pie’ rationalization alternative), and (c) the no fishing alternative.

(4) A new Environmental Justice Considerations section (Section 4.7) was prepared for the Draft EIS. This section presented existing conditions information on minority populations and low income populations relevant to environmental justice analysis, and provided an analysis of the potential environmental justice impacts, by alternative, for three alternatives specified by NPFMC/NMFS: (a) the status quo alternative, (b) the preferred alternative (the ‘three pie’ rationalization alternative), and (c) the no fishing alternative.

- *NPFMC Consultation.* The sections relevant to the social impact assessment were delivered to the NPFMC in November 2002, and were originally scheduled to be presented at the December 2002 Council meetings in Anchorage. Following the October 2002 meetings, however, the schedule changed to allow for the modification of existing alternatives and the potential creation new alternatives. New alternatives were introduced (the Individual Fishing Quota alternative and the Cooperative alternative) and existing alternatives were either modified (in the case of the three-pie alternative) or dropped (in the case of the no fishing alternative), with changes finalized at the April 2003 meetings.

- *Document Revision.* Draft EIS sections 4.6.5 and 4.7 as well as Appendix 3 were modified to incorporate changes to the preferred (three-pie) alternative, deletion of the no fishing alternative, and the addition of the IFQ alternative and the cooperative alternative. These revised sections were delivered to the NPFMC on May 1, 2003 for incorporation into the Draft EIS and presentation at the June, 2003 Council meetings.

Information Goals, Objectives, and Techniques

Methods used were similar to those used by the researchers for past NPFMC projects. General community contacts were renewed (and, where necessary, established) with key community officials to gain access to the community and collect planning documents and other contextual information. This was confined for the most part to that information required to update the existing community profile for the specific communities identified in the scope of work (initially Unalaska/Dutch Harbor, King Cove, Adak, St. Paul, Kodiak, and Seattle, with Akutan, Sand Point, and St. George added subsequently). Contacts were chosen on the basis of our prior knowledge, the official position they occupied, or the consistent recommendation of a number of fishery participants ("snowball sample" approach). Thus, the people we talked with are not a representative sample of the fishery as a whole, but rather were chosen as especially knowledgeable and/or as potentially especially linked to community effects in regard to crab rationalization and/or the other alternatives. They thus represent a judgmental sample from a select number of categories. That is, not all categories were represented, and not all were equally represented (see sampling discussion below). The intent of this strategy was not to provide a statistically random sample; rather, it was to provide access to a broad range of information to be able to characterize the direction and magnitude of changes likely to be seen in the communities as a result of implementing the proposed crab management alternatives, informed by more than a decade of working on related fisheries issues in these communities.

Implementation of this study generally followed the standards for ethnographic work and the methods of Rapid Ethnographic Assessment Procedures as outlined by the National Park Service (NPS) in the *Cultural Resource Management Guideline*, Release 4 (1994) and the NOAA Guidelines and Principals for Social Impact Assessment. Implementation of this study used multiple data collection techniques, discussed below in terms of documentary research and ethnographic research. Separate discussions are also devoted to sampling and other special considerations.

Because of the unique circumstances of this project, much of the previous literature and other documentary sources had already been compiled in previous work. Since the action to be taken was in some respects a continuation of a number of previous actions in these and related fisheries, the research required was more in the way of an update and supplementation than a complete new construction. Thus there was little need for a new literature review as such.

Industry participant and municipal official contacts were a primary means through which existing profiles were updated. Our main method was to talk with a broad range of industry participants from each of the sectors identified as important components of the fisheries -- shoreside processors (fixed location plants as well as inshore floating processors), catcher-processors, and catcher vessels. Interviews were also conducted with individuals from support service sector businesses and, in the case of the Alaska communities, with individuals knowledgeable about other community economic sectors as well as with participants in other locally pursued fisheries. As in previous projects, our conversations were guided by a research protocol so that we could collect comparable information from those people we talk with, without submitting them to the time requirements of a more formal and inflexible survey instrument. The time horizons for this project were too short to allow for the development of a formal survey instrument, which would have been subject to a lengthy review process by the Office of Management and Budget, because of the federal funding of the project. Again, as in previous projects, employment and labor participation were addressed primarily through direct industry sector contacts, although it was also part of the community profile discussion. Most specific

employment information was developed as part of the field interview process (and follow-up data requests from industry associations and individual entities).

Preliminary examples of the protocols used in the field were derived from those used in our work in support of the NPFMC's Groundfish License Limitation analysis (1994), the Inshore/Offshore-3 analysis (1998), the Groundfish SEIS (2001), and the Steller Sea Lion Protection Measures SEIS (2001). As with previous projects for the Council, these were subject to internal team review and modification following initial field contacts, but they represent the main topical or information issue areas about which relatively consistent information needed to be developed for the purposes of this project.

Compared to earlier efforts, relatively little effort was devoted to fieldwork, but the work that was conducted was crucial to the research. The ethnographic methods utilized are based on traditional anthropological and social science methods to investigate the nature and meaning of public values, attitudes, and beliefs. These schema and context data were collected through primarily open-ended, key informant interviews with persons representing different sector/community interest groups. Also, keeping in mind that a good portion of the field effort was directed toward updating information already in hand (and often collected from the same individuals or entities contacted for previous study efforts such as the AFA fieldwork that took place during 2001) for most interviews only a subset of protocol topics were pursued after some general questions were asked regarding relevant changes since the last set of interviews. Our experience has been that if the interviewee is discussing topics of interest that it is generally more efficient overall to allow him or her to guide the discussion rather than to impose the more artificial structure of direct questions. A more inflexible, formally structured, interview often produces much less direct information and very little interpretative context. The successful use of protocol interviewing of course depends upon the judgement of the interviewer but is a technique with which we have much experience. Even with a "standard" protocol, not all interviews/contacts were guided by them to the same extent. We briefly discuss several of these special interview situations below.

"Standard Protocol" Interviews: The most common interview situation involved the researcher talking with an individual about his or her participation in the fishery, but often in a group context for larger corporate fishery entities. The interview was guided by the use of a protocol that specifies certain areas of interest and topics to be covered.

Key Person Interviews: Most of the initial interviews completed were "key person" interviews. Key person interviews are conducted with people who hold central positions in public or private community organizations, or are key participants in the activity of main interest. These types of interviews are only semi-structured because the interviewees involved usually have busy schedules and time constraints. Although semi-structured interviews maintain the same open-ended quality of informal interviews, the structure of the interviews is determined by the researcher. Semi-structured interviews are usually employed in situations in which the researcher only has one chance to interview an informant. All interviews were recorded in narrative form, primarily by written notes. Upon review of the data, follow-up interviews or contacts were sometimes arranged to clarify or obtain further information.

Group Meetings: There were many occasions when we had meetings of the researcher(s) with a number of people at the same time. These were not always predictable. Often the person with whom the meeting had been arranged would have asked one or more additional employees to attend, to provide information as well as to keep them informed of our role in the NPFMC's research and information gathering to support their decision-making process. There were other occasions when a number of fishery participants would talk with us as a group, either because they all happened to be in the same place and/or because they (or we) did not have the time or flexibility to talk individually. In our experience, local people can be interested in such group meetings for a number of reasons -- to find out from the researcher what he or she is doing, to

communicate to the researcher some specific sorts of information, or to make themselves available to the researcher for whatever he or she wants to know.

Participant Observation: Participant observations are among the standard methodologies used in anthropological research. While this is a method that is best suited to longer-term work, it may nonetheless be applied on a limited basis in shorter-term fieldwork. This approach requires that the researcher establish a rapport with individuals in research communities and to engage this community and its members so that there is minimal disruption of the usual flow of everyday activity. This technique is valuable even in limited, focused efforts when there is an opportunity to engage some portion of a community about a focused topic as well as interact with individuals outside of the interview context per se. This process was facilitated by the individual researchers' previous experience. In addition to having many years of formal research experience in general, Mike Downs has been doing ethnographic research in Unalaska/Dutch Harbor (and, to a much lesser degree, Akutan) since 1982; Michael Galginaitis began working on Southwest Alaska region projects in 1985. Both Downs and Galginaitis have both worked in the communities relevant to the present work on NPFMC-specific projects since 1990.

Nonreactive Observations: Nonreactive observations are sometimes referred to as "unobtrusive" measures, and refer to a research approach that does not require the participation of an informant. Unobtrusive observations typically have little no impact on what is being studied and include all methods for studying behavior and context in which informants do not actively participate. One of this technique's main concerns is to avoid sensitizing informants to issues that are important to the researcher. Thus, researchers do not ask informants direct questions about individual behavior or community patterns of behavior. Instead, they conduct systematic observations that measure behaviors of interest in a less direct form. As an example, researchers may count vessels at various private docks or public moorage locations to gain insight into patterns of use during fishing seasons that may then be followed up on during interviews. Such measures sometimes provide insight and information that are often unobtainable through other techniques when informants are aware of the researcher or subject matter of interest, particularly where a strong potential for biasing answers exists. Nonreactive observations are especially useful when weighing conflicting information from different informants. Again, given the limited scope of the field research for this project, these techniques were of limited utility, but were employed to a degree.

Informal "Unstructured" Interviews: Informal interviews are often considered to be a form of participant observation. However, an unstructured interview differs from a conversation held during participant observations. While participant observation implies letting a "cultural consultant" define the form and content of conversations, informal interviews are clearly interviews. That is, when the researcher meets with informants, he or she has a clear plan in mind concerning conversational topics but does not have a specific set of questions that should be asked. Although the researcher establishes the general direction of the conversation, he or she maintains little control over the direction or topicality of informant's responses. The objective of this type of interviewing is to allow the informant to speak freely and at his or her own pace. These types of interviews are often useful in conjunction with more formal interviews when more than one informant is present.

Sampling

Obtaining a randomly selected and statistically representative sample was not the goal of this study. Rather, for this type of study data are needed from a non-random but systematically selected sample. The intention of this study is to identify knowledgeable "industry experts" and key fishery participants who can identify relationships and associations (both historic and current) between themselves and other fishery participants. Also targeted were community officials, and key persons in other sectors of the local economy and social structure to allow for a characterization of the role of the fishery in the local economy and a description of (and perspective on) co-occurring changes over the relevant time frame.

Given that a specific type of information is desired, and this information is not randomly distributed within the group, efficient gathering of these data required a well-defined, targeted approach. Such targeted sampling approaches include quota sampling, purposive sampling, and "snowball" or network sampling. These methods are systematic approaches to the identification of appropriate interviewees. Each is briefly described below.

Snowball sampling may be used as an entre for research with members of various interest and stakeholder groups as a means to identify the full range of groups that are similar to or different from the point of entre. Like most other research of this type, initial field data collection among any particular group identified almost always begins with informant networking. Networking is a process whereby the researcher requests several key informants to identify others who would be suitable to interview. The process begins with the researcher contacting and interviewing a person who holds a formal status in the group, such as an association executive director, or the like. The informants are apprised of the research project during the interviews, and if they are confident that the researcher will not violate group interests and values, they will usually refer the researcher to other knowledgeable individuals. This sampling technique provides an effective means of building an adequate sampling frame in short order, particularly in a small population where people are likely to be in contact with one another and when the research is focused to the point where the type of information desired is held by a relatively few individuals. Snowball sampling is also a useful tool when studying small, bounded, or difficult to locate populations. In this case, we started with the various industry and/or sector associations and worked outward in addition to recontacting individuals known from previous research.

Quota sampling can be used to a degree to assure adequate coverage of geographical areas, interest groups, and stakeholders. In quota sampling the researcher decides on the categories of interest before the research begins. The sample is selected from those predetermined categories and then a targeted number of individuals are interviewed from each category. That is, the researcher constructs a matrix describing all of the characteristics of information to be obtained. A relative proportion is assigned to each cell in the matrix, and data are collected from persons who possess the characteristics of a given cell. Of all the non-probability sampling techniques, quota sampling is closest to approximating a true random sample. In addition, it guarantees that all the research categories of interest will be represented in the study. In most instances, it is possible to indicate some sort of estimate or evaluation, since this sort of sample represents the population from which it is drawn. Under extremely good conditions, quota sampling results in a stratified random sample, but in most cases it is not possible to determine if members of all categories have had an equal chance of selection. For the purposes of this research, the relatively small number of interviews conducted in any one location, and the focus of such interviews on "key" people and sector/industry experts, would not result in any sort of random sample. In any event, however, the research did benefit from well-defined categories for the beginning "matrix" so this did not prove to be a significant difficulty.

Purposive or "judgement" sampling refers to the selection of a sample based on what the researcher believes will yield the most comprehensive understanding of the subject under study. This sampling technique is similar to quota sampling in that the researcher selects his or her target categories of inquiry based on the objectives of the research. However, for this type of sample there is no overall sampling design that dictates how many respondents from each category are needed for the study. Purposive samples are often used when a researcher wants to select only a few cases for intensive study, when conducting life history research, or when engaging in qualitative research on special populations. The potential problems of defining and enumerating the sampling universe exist for this method as well. This type of sampling, in practical terms, means keeping the design flexible so that, in the words of National Standard 8, "the analysis does not have to contain an exhaustive listing of all communities [or, by extension subcommunities or subsectors] that might fit the definition [of fishing communities]; a judgement can be made as to which are primarily affected" (Fed Reg 1997:41918). Purposive sampling allows for reasoned judgement in adjusting interview targeting strategies once the fieldwork is underway, information begins to be developed, and salient issues begin to become apparent.

Use of formal interview instruments that would require Office of Management and Budget (OMB) approval was precluded by the short time horizon and amount of resources available for the work. Further, it was recognized that representative samples in a statistical sense (at least for some communities and sectors) would not be achievable. A complete characterization of the population before sampling was infeasible (such description was, after all, one of the intended goals of the research), and the random selection (and contact) of interviewees impractical. Given these limitations, the sampling strategy was guided by a statistical description based on historical fishery participation data, with special emphasis on the most recently available information (2000 in most cases). Based on this categorization and the focus on community effects, and in view of the amount of other information already available and a judgement as to the extent of change in different sectors of the fishery since the construction of the last sector profile, the decision was made to focus on those communities with the most direct linkages to the BSAI crab fisheries – Unalaska/Dutch Harbor, Akutan, King Cove, Sand Point, Adak, St. Paul, St. George, Kodiak, and Seattle. This decision was made prior to study initiation and was made a part of the scope of work. No targets for "samples" were set in each community, primarily due to the brevity of field time in any field location, and the availability of prior information. Fieldwork for this project was in essence to "calibrate" the existing information in terms of its applicability and usefulness for this document. Target goals for the adequate description of each sector and a discussion of the dynamics of change in that sector were established.

For sectors with a small number of participants it was judged necessary to contact as high a proportion of category members as possible, within the constraints of the project. This was most pressing in the processing sectors, given the ties to the specific communities involved. For catcher processors, sampling was more problematic due to the variation in operational size within this sector. For catcher vessels, due to limitations of time and resources, and the dispersed nature of the sector, we worked through industry associations, such as United Catcher Boats for fleet level data and supplemented this with opportunistic interviews in the field and at NPFMC meetings. Catcher vessels interviews are inherently a difficult challenge, partly because of the larger number of individual entities and the variation among them, as well as the wider geographical distribution of these entities. As with the catcher processor sector, some business entities operated more than one vessel, and in those cases information obtained about individual vessel operations was less detailed than for other entity interviews. In any event, less emphasis was placed on these interviews for two reasons. First, this effort is primarily focused on community effects (not sector effects), and community effects due to potential vessel-related effects of the alternatives on communities were judged to be potentially less than for processor-related effects. Second, the time and resource constraints of the research dictated that relatively few such interviews be conducted.

Effort was also made to contact a number of fishery support service entities in each community, although we did not try to establish the sample universe. In practical terms, however, we were able to cover the range of these businesses in the smaller Alaska communities where the types of entities and the total number of these entities is few. (For Unalaska/Dutch Harbor, support service businesses were a specific focus of this research because this community has a more highly developed support service sector than other communities in the region, information on this sector was relatively undeveloped, and these businesses as a group were seen to be a likely nexus of crab management alternative-related fishery/community intersection impacts.) These interviews were used to elicit local views on community trends, in terms of fishery dynamics, from experience with previous rationalization efforts as well. For the most part, this information confirmed the information derived from other measures, which were also based on partial, rather than complete or statistically representative information (housing sales, tax revenue trends, spending in general). Interviews with "key" community officials also fit into this category, as the information derived from them was not robust enough by itself to establish any trends or conclusions, but in conjunction with other information was useful to establish at least the direction (if not the magnitude) of effects. The following table (Table A1-1) provides a summary of in-person field contacts and substantive telephone contacts.

Table A1-1 Number of Interviews by Community and Sector

Community	Sector	Count
Unalaska/Dutch Harbor	City	6
	Shore Processors (Companies) ¹	8
	Catcher Vessel Owners/Crew ²	5
	Catcher Processors	1
	Fishery Support Service Providers	7
	Native Corporation	1
	Other Community Interests	3
Akutan ³	City Manager/Mayor/Processor/Native Corporation/CDQ Representative	5
King Cove	City	3
	Shore Processors (Companies)	1
	Catcher Vessel Owners/Crew	7
	Fishery Support Service Providers	5
	Native Corporation	2
	Tribal Council	2
	Other Community Interests	1
Sand Point ³	AEB Admin/Processor	2
Adak	City	4
	Shore Processor	2
	Catcher Vessel Owners/Crew ²	2
	Fishery Support Service Providers	11
	Native Corporation/related entities	4
	Other Community Interests	7
St. Paul	City/CDQ/Native Corporation/Community Groups	14
	Shore Processors (Companies)	2
St. George	City	3
	Fisherman's Association	2
	Fishery Support Service Providers	2
	Native Corporation	1
	Tribal Council	3
	Other Community Interests	1
Kodiak	City/Borough	2
	Shore Processors (Companies)	4
	Catcher Vessel Owners	5
	Catcher Processors	1
	Fishery Support Service Providers	2
	Fishery Issue Meetings Attended	4
Seattle	Fisheries Organizations	5
	Crab Processing Companies	4
	City/Fisheries Support Service	1

Notes:

¹Where "company" is identified in the different communities, more than one individual (and often several) may have been contacted and/or interviewed singly or in a group.

²Some catcher vessel owners in various communities interviewed own more than one vessel, so the number of interviews listed undercounts total vessels these interviews represent.

³Akutan and Sand Point profiles were compiled from existing data with no in-community interviews, but a minimal number of contacts were made as noted to update or verify a few key points.

Other Methodological Considerations

There are four interrelated concerns that should be noted regarding the data utilized in this research. These topics are industry participation, confidentiality, informed consent, and self-interest.

Industry Participation: The ability to carry out this project depended to a large extent on the active involvement of industry participants. Given the real-world constraints associated with this project, we approached industry organizations early in the study and asked for their assistance in providing aggregated data from their membership. These groups also facilitated contact with member and non-member entities alike.

Confidentiality: The tasks required for the specified scope of work impose substantial challenges in the area of guaranteeing confidentiality for those research participants who desire this protection. Any ethnographic fieldwork in small communities requires that the form of publicly disseminated products be carefully designed and written so that the privacy of individuals is protected. When this is combined with potential financial and operational confidential information concerns, these considerations are even more accentuated. A verbal process of informed consent for research participants, combined with the coding of field notes and a restrained use of information identifying individuals in public reports, is usually adequate to handle these problems. This project was less problematic in these regards than it could have been because of the clear awareness most industry participants have in these areas, and their familiarity with the NPFMC analysis and decision-making process.

Informed Consent: Informed consent is a very difficult subject, because if everyone were truly "fully informed" of all of the more remote potential consequences of their participation, this would be an extraordinarily extensive discourse, and few would be likely to participate in whatever they are being asked to do. Most social science is conducted within ethical guidelines and with verbal, or even implied, informed consent obtained. Verbal informed consent, through a disclosure of the research goals and process, as well as contractor and sponsor information, was a part of every interview, as was the question of whether the individual wished to speak with us. (Notes made about public behavior were not subject to such informed consent.)

Self-Interest: It must be recognized that much of the information, other than that derived from data sets obtained from NPFMC staff, is from parties with a vested interest in the management decisions made by the NPFMC. As such, all can contain potential sources of bias. This is not an unusual situation, however, and truly "objective" information about any human endeavor is extremely rare. The object is not to eliminate self-interested information from this research, but rather to balance that information with data from other sources.

SIA Attachment 2: Unalaska Municipal Revenue Note

The following DCED Unalaska municipal revenue table is less detailed than the information provided in the community profile itself but is provided here to allow comparability of information between Alaska communities. Table A2-1 provides information for 1999 and 2000.

Table A2-1 Unalaska Municipal Revenues, 1999 and 2000

Revenue Source	1999	2000
Local Operating Revenues		
Taxes	\$11,853,490	\$12,775,775
License/Permits	\$13,687	\$22,018
Service Charges	\$566,459	\$586,947
Enterprise	\$10,925,442	\$11,955,169
Other Local Revenue	\$2,793,052	\$2,351,981
Total Local Operating Revenues	\$26,152,130	\$27,691,890
Outside Operating Revenues		
Federal Operating	\$336,193	\$193,065
State Revenue Sharing	\$201,088	\$129,402
State Safe Communities	\$125,281	\$83,312
State Fish Tax Sharing	\$5,164,608	\$4,708,573
Other State Revenue	\$1,083,384	\$1,073,143
State/Federal Education Funds	\$2,303,157	\$2,453,287
Total Outside Revenues	\$9,213,711	\$8,640,782
Total Operating Revenues	\$35,365,841	\$36,332,672
Operating Revenue Per Capita	\$8,465	\$8,483
State/Federal Capital Project Revenues	\$217,144	\$6,828,094
TOTAL ALL REVENUES	\$35,582,985	\$43,160,766

Source: DCED Website, 2001, 2002

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SIA Attachment 3: Supporting Data Tables

The detailed existing conditions tables in this attachment are intended primarily to support the summary or "annual average" tables that appear in the community and social existing conditions discussion (Section 3.4.4) in the main body of this EIS. The detail provided by time-series values for 1991-2000 contained in the existing conditions tables within this section also allow for the identification of directional trends or other patterns in the data over time. These tables fall into seven different table or table series categories, including:

- Series 1: Annual Average Vessel Counts
- Series 2: Harvest Vessel Count Trend Data
- Series 3: Harvest Value Data
- Series 4: Community Fleet Dependency Data
- Series 5: Processing Entity by Community and Region Data
- Series 6: Processing Value by Community and Region Data
- Series 7: Catcher Processor Ownership Location and Value Data

An eighth table series (Series 8: Harvest Allocation Information, Rationalization Alternatives) provides different categorization of data to provide support for the allocation output tables that appear in the analysis of alternatives discussion in Section 4.6.5 in the main body of the EIS. Each of these data tables or table series are presented in turn in this section.

Series 1: Annual Average Harvest Vessel Counts

This series consists of one table that is actually an aggregate of several component pieces. Table A3-1 enumerates the community of residence for owners of harvesting vessels (the category includes both catcher vessels and catcher processors) in the relevant BSAI crab fisheries, that is, fisheries subject to management changes under the proposed management alternatives (PMA).¹ It aggregates vessel counts over the 10-year period 1991-2000, and thus counts a vessel for each fishery that it participated in each year, but only once for each multifishery category. That is, a vessel is counted once for each year during the period for 1991-2000 for each fishery category (column) that describes a fishery or fisheries in which that vessel participated. This table (and all others that follow) does not distinguish between "qualified" and "non-qualified" PMA crab landings, although that information is theoretically available. In practical terms, however, attempting to provide descriptive information at that level of detail would result in a great number of suppressed cells in the tables that have been provided (which have a substantial number of suppressed cells even though qualified and non-qualified landings are combined). Including non-qualified landings increases the communities with one or two vessels by a substantial number but reduces later confidentiality problems and does reflect the overall historic harvest of PMA crab species by vessels from all fishing communities. Those communities with the largest number of non-qualified vessels (or vessels qualified in one fishery with non-qualified landings in another) are the same communities with the largest numbers of qualified vessels. The table further simplifies the counts by enumerating only the three largest PMA fisheries individually, and by providing more summary counts of unique vessels that participate in any of those three fisheries, in any of the other six PMA crab fisheries, and finally in any of the nine such fisheries. This last count is perhaps the most accurate or useful total, and these three summary totals allow at least broad conclusions about the different crab fisheries in which the same vessels may participate. In more general terms, Table A3-1 supports the summary count tables in the main text and demonstrates that the ownership of PMA crab fishery harvest vessels is concentrated in a few communities, with a wide dispersal of a few vessels over a large number of additional communities.

¹ In this attachment to Appendix 3, "PMA crab" is used in data tables and the accompanying summary text as an abbreviated reference to relevant BSAI crab species that are being considered for inclusion in the proposed management alternatives in this EIS (the rationalization alternatives, along with the status quo alternative). Crab species and stocks included in the proposed management alternatives include Adak (Western Aleutian Islands [WAI]) brown (golden) king crab (*Lithodes aequispina*), Adak (WAI) red king crab (*Paralithodes camtschaticus*), Bristol Bay red king crab (*P. camtschaticus*), Bering Sea opilio (snow) crab (*Chionoecetes opilio*), Bering Sea tanner (*C. bairdi*), Dutch Harbor (Eastern Aleutian Islands [EAI]) brown (golden) king crab (*L. aequispina*), Pribilof blue king crab (*P. platypus*), Pribilof red king crab (*P. camtschaticus*), and St. Matthew blue king crab (*P. platypus*). Three additional species or stocks were originally proposed for inclusion in the rationalization program but were later excluded (and do not appear in the quantitative data tables in this section) due to low levels of harvest and/or recent multi-year closures: Dutch Harbor (EAI) red king crab (*P. camtschaticus*), EAI tanner (*C. bairdi*), and WAI tanner (*C. bairdi*). The rationalization program includes Adak red king crab west of 179° W Longitude and excludes it east of this line, but the tables in this section include data for this species/stock from both sides of the line. In the tables, the "non-PMA" crab designation includes all crab species not included under the alternatives including, among others, species covered by the BSAI crab FMP but managed under state discretion via an ADF&G commissioner's permit (e.g. AI scarlet king crab [*L. couesi*]), BSAI federal waters fishery crab managed by the state and not included in the FMP (e.g., Korean hair crab [*Erimacrus isenbeckii*]), low-volume primarily state water fisheries (e.g., Aleutian District Dungeness [*Cancer magister*], or non-BSAI FMP area federal fisheries (e.g., multiple Gulf of Alaska crab fisheries).

Table A3-1. Average Annual Number of Vessels with Qualified Landings Participating in PMA Crab Fisheries (1991-2000 for years fishery open only) by State and Community

	Data	Bristol Bay Red	Bering Sea Opilio	Bering Sea Tanner	BBR/BSO/BST	Other 6 PMA Crab	All 9 PMA Crab	Non-qualified PMA	"Overlap" Vessels
Alaska	Kodiak	35.8	31.9	34.8	37.1	19.6	38.6	11.3	1.8
	Homer	7.8	7.8	8.3	8.3	4.8	8.3	1.3	0.0
	Anchorage	5.4	5.6	4.5	6.1	3.2	6.1	1.2	0.6
	Sand Point	3.6	3.1	3.5	3.8	2.6	4.5	3.4	0.5
	Petersburg	3.9	4.0	3.2	4.0	1.6	4.0	0.6	0.4
	Unalaska	1.8	2.1	1.5	3.0	2.4	3.4	0.8	0.8
	King Cove	2.9	2.1	2.7	3.1	1.4	3.1	1.9	0.8
	Cordova	1.9	1.8	2.2	2.0	0.8	2.0	1.0	0.0
	Kenai	0.8	0.9	0.5	1.0	0.0	1.0	0.1	0.1
	Seldovia	1.0	1.0	1.0	1.0	0.7	1.0	0.0	0.0
	Yakutat	0.9	0.9	1.0	1.0	0.7	1.0	0.0	0.0
	Seward	0.8	0.5	0.7	0.8	0.0	0.8	1.5	0.2
	Sitka	0.4	0.8	0.0	0.8	0.3	0.8	0.5	0.4
	Akutan	0.1	0.2	0.0	0.2	0.0	0.2	0.0	0.0
	Soldotna	0.1	0.0	0.0	0.1	0.0	0.1	0.0	0.0
Alaska Total		66.9	62.7	63.8	72.3	38.1	74.9	25.6	5.6
Washington	Seattle	100.1	94.2	97.7	110.7	52.7	111.9	19.8	7.3
	Edmonds	9.6	7.8	7.8	10.3	4.4	10.3	1.0	0.2
	Bellevue	3.9	4.0	4.8	4.4	2.0	4.4	1.5	1.3
	Lynnwood	2.5	2.5	1.5	2.5	1.0	2.5	0.1	0.1
	Bellingham	2.0	2.1	1.7	2.3	0.6	2.3	1.8	0.7
	Mercer Island	1.6	1.9	1.5	2.0	1.6	2.0	1.2	0.0
	Milton	1.9	1.9	2.0	1.9	1.1	1.9	0.4	0.3
	Bothell	1.8	1.8	2.0	1.8	1.0	1.8	0.6	0.1
	Mill Creek	1.4	1.3	0.8	1.3	0.6	1.3	0.0	0.0
	Chehalis	1.1	1.2	0.8	1.2	0.4	1.2	0.3	0.3
	Redmond	1.5	1.2	0.8	1.2	0.8	1.2	0.3	0.0
	Snohomish	1.0	1.2	1.3	1.2	0.7	1.2	0.2	0.0
	Kirkland	1.1	1.1	1.0	1.1	0.7	1.1	0.0	0.0
	Stanwood	1.1	1.0	0.3	1.1	0.2	1.1	0.0	0.0
	Woodinville	0.8	0.9	0.8	1.1	0.5	1.1	0.0	0.0
	Cathlamet	1.0	1.0	1.0	1.0	0.7	1.0	0.1	0.1
	Olympia	0.9	1.0	0.8	1.0	0.3	1.0	0.1	0.0
	Sedro Woolley	1.0	1.0	0.7	1.0	0.1	1.0	0.0	0.0

	Data	Bristol Bay Red	Bering Sea Opilio	Bering Sea Tanner	BBR/BSO/BST	Other 6 PMA Crab	All 9 PMA Crab	Non-qualified PMA	"Overlap" Vessels
	Shoreline								
	Mukilteo								
	Edison								
	Gig Harbor								
	Issaquah								
	Kent								
	Poulsbo								
	Bainbridge Isla								
	Brier								
	Carnation								
	Curtis								
	Manson								
	Oysterville								
	Sedro Wolley								
	Longview								
	Ocean Shores								
	Camano Island								
	Monroe								
	Vashon								
	Anacortes								
	Clinton								
	Depoe Bay								
	Everett								
	Federal Way								
	Medina								
	Nahcotta								
	Oak Harbor								
	South Bend								
Washington Total		143.8	135.2	134.3	156.3	73.1	157.8		
Oregon	Newport	8.6	7.5	7.5	9.4	4.9	10.6		
	Prineville								
	Seal Rock								
	Cascade Locks								
	Warrenton								
	Hammond								
	South Beach								
	Depoe Bay								
Oregon Total		13.1	11.9	13.3	14.6	7.0	15.8		

	Data	Bristol Bay Red	Bering Sea Opilio	Bering Sea Tanner	BBR/BSO/BST	Other 6 PMA Crab	All 9 PMA Crab	Non-qualified PMA	"Overlap" Vessels
Other States	Richmond CA	1.1	1.2	1.0	1.2	0.7	1.2	0.0	0.0
	Stryker MT	0.6	0.8	0.5	0.8	0.4	0.8	0.0	0.0
	Kailua HI	0.0	0.0	0.0	0.0	0.7	0.7	1.1	0.7
	Kailua Kona HI	0.5	0.6	0.3	0.6	0.4	0.6	0.0	0.0
	Emmett ID	0.4	0.4	0.7	0.4	0.4	0.4	0.0	0.0
	Swanlake MT	0.1	0.0	0.0	0.1	0.3	0.3	0.0	0.0
	Brewster MA	0.1	0.2	0.0	0.2	0.1	0.2	0.0	0.0
	Mankato MN	0.1	0.2	0.0	0.2	0.2	0.2	0.0	0.0
	Lake Havasu AZ	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0
	Lakeside MT	0.0	0.0	0.2	0.1	0.1	0.1	0.0	0.0
Other States Total		3.1	3.5	2.7	3.7	3.3	4.6	2.0	0.7
Grand Total		226.9	213.3	214.2	246.9	121.5	253.1	64.1	20.5

Notes: Shaded cells are those for which harvest information COULD NOT be disclosed, as they are confidential.
Average vessel counts for combined crab categories are based on 10 years.
Average vessel counts for individual crab fisheries are based on the number of years 1991-2000 each was actually open -- BSO 10 years; BBR 8 years; BST 6 years.
Sand Point and King Cove combined in later tables so harvest information is nonconfidential for some cells.
S-T CMSA is composed of King County, Pierce County, and Snohomish County. Those communities in this area that averaged more than 2 vessels participating in any PMA crab fishery were Seattle, Edmonds, Bellevue, Lynnwood, and Mercer Island.
Communities which averaged fewer than 2 such vessels were Milton, Bothell, Mill Creek, Redmond, Snohomish, Kirkland, Stanwood, Woodinville, Shoreline, Mukilteo, Gig Harbor, Issaquah, Kent, Bainbridge Island, Brier, Carnation, Monroe, Vashon, Depoe Bay, Everett, Federal Way, Medina, and Tacoma.
"Other States" excluded from other tables for confidentiality concerns and simplicity -- effect is not significant.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Series 2: Harvest Vessel Count Trend Data

The group of tables that follows provides more detailed count information for PMA crab harvester vessels by fishery category by year (1991-2000), and "community of residence" category (state, region, or city) of vessel owner. No distinction is made between qualified and non-qualified landings, so that counts include both "qualified" and "non-qualified" vessels. Fishery categories are the same three individual PMA crab fisheries and groups of fisheries as for Table A3-1, as well as additional "grouped" categories for all combined non-PMA fisheries. Grouping all these "other" fisheries together greatly reduces confidentiality concerns and simplifies presentation and makes sense as the purpose of these tables is to describe the importance of the different PMA crab fisheries to the PMA crab harvest vessels from each community (to the degree that is possible within confidentiality requirements). For the enumeration or "count" tables, the number of vessels with non-qualified PMA crab landings as well as the number of "overlap" vessels with both qualified and non-qualified landings are provided. Each vessel is counted only once per year for each applicable category. In no case does a vessel have both qualified and non-qualified landings for the same PMA crab fishery in the same year. These numbers are provided so that the reader may evaluate the harvest information and proposed allocations with some idea of the number of vessels that will be excluded from fisheries in which they had participated. As briefly discussed above, providing harvest information on vessels with non-qualified landings quickly leads to confidentiality concerns such that little, if any, quantitative information would be available. Even combining qualified and non-qualified landings, confidentiality concerns remain. The enumeration tables serve to determine confidentiality masks for subsequent harvest tables. For similar reasons, information of the number of vessels from states other than Alaska, Washington, and Oregon are provided in the enumeration tables but are excluded from the harvest tables.

Vessel enumeration tables include four subsets: overall fisheries, Alaska tables, Washington tables, and Oregon tables. These are presented each in turn.

Series 2: Harvest Vessel Count Trend Data, Subset 1 - Overall Fisheries Tables

The following are overall fishery tables, which aggregate vessels at the level of state of residence of the owner of the vessel.

- Table A3-2 provides the number of vessels participating in the fisheries categories for each year (1991-2000) by state (Alaska, Washington, Oregon, and "Other" States).
- Table A3-3 calculates the percentage of vessels participating in each fishery category from each state for each year (1991-2000), as well as the overall average percentage for the entire 10-year period, as a percentage of all vessels participating in that fishery category.

Table A3-2. Count of PMA Crab Vessels by Fishery Category, State of Vessel Owner, and Year (1991-2000)

State	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Alaska	All Fisheries other than PMA Crab	65	79	76	64	83	65	56	51	53	61	65.3
	Bristol Bay Red King Crab	102	99	96	0	0	63	78	81	67	71	82.1
	Bering Sea Opilio Crab	66	75	73	84	72	75	71	68	67	65	71.6
	Bering Sea Tanner Crab	91	101	101	55	53	64	0	0	0	0	77.5
	BBR/BSO/BST group	108	107	102	89	74	79	82	82	76	74	87.3
	Other 6 PMA Crab group	26	53	76	63	84	77	64	71	3	4	52.1
	All 9 PMA Crab group	110	108	112	100	99	89	90	89	77	75	94.9
	Non-Qualified PMA Crab	33	27	35	26	36	28	25	26	8	12	25.6
"Overlap" Vessels	4		2	2	12	14	10	10	1	1	5.6	
Washington	All Fisheries other than PMA Crab	59	80	75	69	120	84	106	83	100	102	87.8
	Bristol Bay Red King Crab	176	162	173	0	0	114	159	171	165	152	159.0
	Bering Sea Opilio Crab	140	157	165	170	163	140	137	142	153	138	150.5
	Bering Sea Tanner Crab	172	185	197	111	126	116	0	0	0	0	151.2
	BBR/BSO/BST group	186	186	200	178	175	154	172	173	180	160	176.4
	Other 6 PMA Crab group	59	125	123	125	119	109	94	110	11	11	88.6
	All 9 PMA Crab group	187	189	204	181	179	154	173	173	180	160	178.0
	Non-Qualified PMA Crab	36	32	36	31	40	32	32	37	25	18	31.9
"Overlap" Vessels	5	3	5	7	17	26	21	23	5	5	11.7	
Oregon	All Fisheries other than PMA Crab	11	17	13	11	11	9	12	12	13	14	12.3
	Bristol Bay Red King Crab	18	14	18	0	0	12	14	15	18	16	15.6
	Bering Sea Opilio Crab	12	14	13	15	12	13	13	13	14	18	13.7
	Bering Sea Tanner Crab	18	17	20	13	11	12	0	0	0	0	15.2
	BBR/BSO/BST group	19	18	20	16	14	14	16	16	19	20	17.2
	Other 6 PMA Crab group	4	8	11	11	14	10	12	13	2	2	8.7
	All 9 PMA Crab group	20	19	21	17	16	14	16	17	19	20	17.9
	Non-Qualified PMA Crab	4	3	4	2	6	5	4	7	6	5	4.6
"Overlap" Vessels	1		1	1	5	5	4	4	2	2	2.5	
Total AK/WA/OR	All Fisheries other than PMA Crab	135	176	164	144	214	158	174	146	166	177	165.4
	Bristol Bay Red King Crab	296	275	287	0	0	189	251	267	250	239	256.8
	Bering Sea Opilio Crab	218	246	251	269	247	228	221	223	234	221	235.8
	Bering Sea Tanner Crab	281	303	318	179	190	192	0	0	0	0	243.8
	BBR/BSO/BST group	313	311	322	283	263	247	270	271	275	254	280.9
	Other 6 PMA Crab group	89	186	210	199	217	196	170	194	16	17	149.4
	All 9 PMA Crab group	317	316	337	298	294	257	279	279	276	255	290.8
	Non-Qualified PMA Crab	73	62	75	59	82	65	61	70	39	35	62.1
"Overlap" Vessels	10	3	8	10	34	45	35	37	8	8	19.8	

Notes: Shaded cells values cannot be disclosed in analogous volume or value tables.
PMA crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
PMA crab fishery and group vessel counts include all landings (qualified and non-qualified).
Average vessel counts for individual fisheries are computed using years open during 1991-2000.
Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community.
Vessels fishing multiple fisheries have been counted only once in combined categories.
Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns.
Overlap vessels have both qualified and non-qualified PMA landings, but are counted only once in combined groups.
Data from vessels owned by residents of states other than AK, WA, and OR are deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-3. PMA Crab Vessels by Fishery Category, State of Vessel Owner, and Year (1991-2000) as a Percentage of Total Vessels (all States)

State	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
Alaska	All Fisheries other than PMA Crab	48.1%	44.9%	46.3%	44.4%	38.8%	41.1%	32.2%	34.9%	31.9%	34.5%	39.5%	
	Bristol Bay Red King Crab	34.5%	36.0%	33.4%			33.3%	31.1%	30.3%	26.8%	29.7%	32.0%	
	Bering Sea Opilio Crab	30.3%	30.5%	29.1%	31.2%	29.1%	32.9%	32.1%	30.5%	28.6%	29.4%	30.4%	
	Bering Sea Tanner Crab	32.4%	33.3%	31.8%	30.7%	27.9%	33.3%						31.8%
	BBR/BSO/BST group	34.5%	34.4%	31.7%	31.4%	28.1%	32.0%	30.4%	30.3%	27.6%	29.1%	31.1%	
	Other 6 PMA Crab group	29.2%	28.5%	36.2%	31.7%	38.7%	39.3%	37.6%	36.6%	18.8%	23.5%	34.9%	
	All 9 PMA Crab group	34.7%	34.2%	33.2%	33.6%	33.7%	34.6%	32.3%	31.9%	27.9%	29.4%	32.6%	
	Non-Qualified PMA Crab	45.2%	43.5%	46.7%	44.1%	43.9%	43.1%	41.0%	37.1%	20.5%	34.3%	41.2%	
"Overlap" Vessels	40.0%	0.0%	25.0%	20.0%	35.3%	31.1%	28.6%	27.0%	12.5%	12.5%	28.3%		
Washington	All Fisheries other than PMA Crab	43.7%	45.5%	45.7%	47.9%	56.1%	53.2%	60.9%	56.8%	60.2%	57.6%	53.1%	
	Bristol Bay Red King Crab	59.5%	58.9%	60.3%			60.3%	63.3%	64.0%	66.0%	63.6%	61.9%	
	Bering Sea Opilio Crab	64.2%	63.8%	65.7%	63.2%	66.0%	61.4%	62.0%	63.7%	65.4%	62.4%	63.8%	
	Bering Sea Tanner Crab	61.2%	61.1%	61.9%	62.0%	66.3%	60.4%					62.0%	
	BBR/BSO/BST group	59.4%	59.8%	62.1%	62.9%	66.5%	62.3%	63.7%	63.8%	65.5%	63.0%	62.8%	
	Other 6 PMA Crab group	66.3%	67.2%	58.6%	62.8%	54.8%	55.6%	55.3%	56.7%	68.8%	64.7%	59.3%	
	All 9 PMA Crab group	59.0%	59.8%	60.5%	60.7%	60.9%	59.9%	62.0%	62.0%	65.2%	62.7%	61.2%	
	Non-Qualified PMA Crab	49.3%	51.6%	48.0%	52.5%	48.8%	49.2%	52.5%	52.9%	64.1%	51.4%	51.4%	
"Overlap" Vessels	50.0%	100.0%	62.5%	70.0%	50.0%	57.8%	60.0%	62.2%	62.5%	62.5%	59.1%		
Oregon	All Fisheries other than PMA Crab	8.1%	9.7%	7.9%	7.6%	5.1%	5.7%	6.9%	8.2%	7.8%	7.9%	7.4%	
	Bristol Bay Red King Crab	6.1%	5.1%	6.3%			6.3%	5.6%	5.6%	7.2%	6.7%	6.1%	
	Bering Sea Opilio Crab	5.5%	5.7%	5.2%	5.6%	4.9%	5.7%	5.9%	5.8%	6.0%	8.1%	5.8%	
	Bering Sea Tanner Crab	6.4%	5.6%	6.3%	7.3%	5.8%	6.3%					6.2%	
	BBR/BSO/BST group	6.1%	5.8%	6.2%	5.7%	5.3%	5.7%	5.9%	5.9%	6.9%	7.9%	6.1%	
	Other 6 PMA Crab group	4.5%	4.3%	5.2%	5.5%	6.5%	5.1%	7.1%	6.7%	12.5%	11.8%	5.8%	
	All 9 PMA Crab group	6.3%	6.0%	6.2%	5.7%	5.4%	5.4%	5.7%	6.1%	6.9%	7.8%	6.2%	
	Non-Qualified PMA Crab	5.5%	4.8%	5.3%	3.4%	7.3%	7.7%	6.6%	10.0%	15.4%	14.3%	7.4%	
"Overlap" Vessels	10.0%	0.0%	12.5%	10.0%	14.7%	11.1%	11.4%	10.8%	25.0%	25.0%	12.6%		
Totals	All Fisheries other than PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	Bristol Bay Red King Crab	100.0%	100.0%	100.0%			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	Bering Sea Opilio Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	Bering Sea Tanner Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%					100.0%	
	BBR/BSO/BST group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	Other 6 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	All 9 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	Non-Qualified PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
"Overlap" Vessels	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		

Notes: Shaded cells values cannot be disclosed in analogous volume or value tables.
PMA crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
PMA crab fishery and group vessel counts include all landings (qualified and non-qualified).
Average vessel counts for individual fisheries are computed using years open during 1991-2000.
Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community.
Vessels fishing multiple fisheries have been counted only once in combined categories.
Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns.
Overlap vessels have both qualified and non-qualified PMA landings, but are counted only once in combined groups.
Data from vessels owned by residents of states other than AK, WA, and OR are deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Series 2: Harvest Vessel Count Trend Data, Subset 2 - State of Alaska Tables

The following are State of Alaska tables that aggregate vessels at the level of the named community (or area) of residence of the owner of the vessel, for those communities for which harvest information is potentially non-confidential, by fishery category and year. Named communities for Alaska tables are Anchorage, Homer, Kodiak, King Cove and Sand Point combined, and all other Alaska communities combined.

- Table A3-4 provides the number of vessels participating in the fisheries categories for each year by named community as well as for the state as a whole and then for each fishery as a whole (all states combined).
- Table A3-5 displays the vessels participating in each fishery category from each named community for each year, as well as the overall average percentage for the entire 10-year period, as a percentage of all Alaska boats participating in that fishery category.
- Table A3-6 displays the vessels participating in each fishery category from each named community for each year, as well as the overall average percentage for the entire 10-year period, as a percentage of all vessels (from all states) participating in that fishery category.

Table A3-4. Count of PMA Crab Vessels from Alaska by Fishery Category and Year (1991-2000)

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Anchorage	All Fisheries other than PMA Crab	4	4	4	3	7	5	2	1	2	3	3.5
	Bristol Bay Red King Crab	6	5	5	0	0	7	6	6	6	5	5.8
	Bering Sea Opilio Crab	4	2	5	6	8	8	7	6	6	5	5.7
	Bering Sea Tanner Crab	4	4	5	2	7	7	0	0	0	0	4.8
	BBR/BSO/BST group	7	5	6	6	8	8	7	6	6	6	6.5
	Other 6 PMA Crab group	2	2	4	4	7	7	6	5	1	1	3.9
	All 9 PMA Crab group	7	5	7	7	8	8	7	6	6	6	6.7
	Non-Qualified PMA Crab	2	1	2	3	1	1	1	1	0	0	1.2
"Overlap" Vessels	1			1	1	1	1	1				0.6
Homer	All Fisheries other than PMA Crab	10	11	12	9	8	6	5	6	7	7	8.1
	Bristol Bay Red King Crab	10	12	12	0	0	7	9	8	8	8	9.3
	Bering Sea Opilio Crab	7	7	8	10	9	9	7	8	8	8	8.1
	Bering Sea Tanner Crab	8	12	12	9	8	7	0	0	0	0	9.3
	BBR/BSO/BST group	11	12	12	10	9	9	9	8	8	8	9.6
	Other 6 PMA Crab group	1	4	7	8	7	7	6	8	0	0	4.8
	All 9 PMA Crab group	11	12	12	10	9	9	9	8	8	8	9.6
	Non-Qualified PMA Crab	3	3	3	1	0	0	1	0	1	1	1.3
"Overlap" Vessels												0.0
King Cove/Sand Point	All Fisheries other than PMA Crab	2	4	7	10	23	13	8	6	4	7	8.4
	Bristol Bay Red King Crab	6	6	7	0	0	7	8	8	6	8	7.0
	Bering Sea Opilio Crab	3	3	5	7	7	7	6	6	4	5	5.3
	Bering Sea Tanner Crab	5	6	7	7	6	7	0	0	0	0	6.3
	BBR/BSO/BST group	6	6	7	8	8	8	8	8	6	8	7.3
	Other 6 PMA Crab group	2	4	7	11	25	16	9	10	0	0	8.4
	All 9 PMA Crab group	6	6	10	12	26	17	12	11	6	8	11.4
	Non-Qualified PMA Crab	0	0	3	4	20	11	5	5	0	3	5.1
"Overlap" Vessels				1	4	3	1	2				1.1
Kodiak	All Fisheries other than PMA Crab	37	47	40	32	34	31	29	29	31	34	34.4
	Bristol Bay Red King Crab	60	59	57	0	0	31	37	39	35	36	44.3
	Bering Sea Opilio Crab	37	50	44	47	32	35	34	31	33	35	37.8
	Bering Sea Tanner Crab	55	61	59	30	25	32	0	0	0	0	43.7
	BBR/BSO/BST group	62	64	59	50	32	36	38	40	39	38	45.8
	Other 6 PMA Crab group	19	34	45	28	31	32	32	33	2	3	25.9
	All 9 PMA Crab group	64	65	63	53	39	37	39	42	40	39	48.1
	Non-Qualified PMA Crab	21	19	20	14	7	7	9	9	3	4	11.3
"Overlap" Vessels	2				2	4	6	4				1.8
Other Alaska	All Fisheries other than PMA Crab	12	13	13	10	11	10	12	9	9	10	10.9
	Bristol Bay Red King Crab	20	17	15	0	0	11	18	20	12	14	15.9
	Bering Sea Opilio Crab	15	13	11	14	16	16	17	17	16	12	14.7
	Bering Sea Tanner Crab	19	18	18	7	7	11	0	0	0	0	13.3
	BBR/BSO/BST group	22	20	18	15	17	18	20	20	17	14	18.1
	Other 6 PMA Crab group	2	9	13	12	14	15	11	15	0	0	9.1
	All 9 PMA Crab group	22	20	20	18	17	18	23	22	17	14	19.1

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Total Alaska	Non-Qualified PMA Crab	7	4	7	4	8	9	9	11	4	4	6.7
	"Overlap" Vessels	1		2		5	6	2	3	1	1	2.1
	All Fisheries other than PMA Crab	65	79	76	64	83	65	56	51	53	61	65.3
	Bristol Bay Red King Crab	102	99	96	0	0	63	78	81	67	71	82.1
	Bering Sea Opilio Crab	66	75	73	84	72	75	71	68	67	65	71.6
	Bering Sea Tanner Crab	91	101	101	55	53	64	0	0	0	0	77.5
	BBR/BSO/BST group	108	107	102	89	74	79	82	82	76	74	87.3
	Other 6 PMA Crab group	26	53	76	63	84	77	64	71	3	4	52.1
	All 9 PMA Crab group	110	108	112	100	99	89	90	89	77	75	94.9
	Non-Qualified PMA Crab	33	27	35	26	36	28	25	26	8	12	25.6
Total AK/WA/OR	"Overlap" Vessels	4		2	2	12	14	10	10	1	1	5.6
	All Fisheries other than PMA Crab	135	176	164	144	214	158	174	146	166	177	165.4
	Bristol Bay Red King Crab	296	275	287	0	0	189	251	267	250	239	256.8
	Bering Sea Opilio Crab	218	246	251	269	247	228	221	223	234	221	235.8
	Bering Sea Tanner Crab	281	303	318	179	190	192	0	0	0	0	243.8
	BBR/BSO/BST group	313	311	322	283	263	247	270	271	275	254	280.9
	Other 6 PMA Crab group	89	186	210	199	217	196	170	194	16	17	149.4
	All 9 PMA Crab group	317	316	337	298	294	257	279	279	276	255	290.8
	Non-Qualified PMA Crab	73	62	75	59	82	65	61	70	39	35	62.1
	"Overlap" Vessels	10	3	8	10	34	45	35	37	8	8	19.8

Notes: Shaded cells values cannot be disclosed in analogous volume or value tables.
PMA crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
PMA crab fishery and group vessel counts include all landings (qualified and non-qualified).
Average vessel counts for individual fisheries are computed using years open during 1991-2000.
Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community.
Vessels fishing multiple fisheries have been counted only once in combined categories.
Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns.
Overlap vessels have both qualified and non-qualified PMA landings, but are counted only once in combined groups.
Data from vessels owned by residents of states other than AK, WA, and OR are deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-5. PMA Crab Vessels from Alaska by Fishery Category and Year (1991-2000) as Percentage of Total Alaskan Vessels in each Fishery Category

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Anchorage	All Fisheries other than PMA Crab	6.2%	5.1%	5.3%	4.7%	8.4%	7.7%	3.6%	2.0%	3.8%	4.9%	5.4%
	Bristol Bay Red King Crab	5.9%	5.1%	5.2%			11.1%	7.7%	7.4%	9.0%	7.0%	7.0%
	Bering Sea Opilio Crab	6.1%	2.7%	6.8%	7.1%	11.1%	10.7%	9.9%	8.8%	9.0%	7.7%	8.0%
	Bering Sea Tanner Crab	4.4%	4.0%	5.0%	3.6%	13.2%	10.9%					6.2%
	BBR/BSO/BST group	6.5%	4.7%	5.9%	6.7%	10.8%	10.1%	8.5%	7.3%	7.9%	8.1%	7.4%
	Other 6 PMA Crab group	7.7%	3.8%	5.3%	6.3%	8.3%	9.1%	9.4%	7.0%	33.3%	25.0%	7.5%
	All 9 PMA Crab group	6.4%	4.6%	6.3%	7.0%	8.1%	9.0%	7.8%	6.7%	7.8%	8.0%	7.1%
	Non-Qualified PMA Crab	6.1%	3.7%	5.7%	11.5%	2.8%	3.6%	4.0%	3.8%	0.0%	0.0%	4.7%
	"Overlap" Vessels	25.0%		0.0%	50.0%	8.3%	7.1%	10.0%	10.0%	0.0%	0.0%	10.7%
Homer	All Fisheries other than PMA Crab	15.4%	13.9%	15.8%	14.1%	9.6%	9.2%	8.9%	11.8%	13.2%	11.5%	12.4%
	Bristol Bay Red King Crab	9.8%	12.1%	12.5%			11.1%	11.5%	9.9%	11.9%	11.3%	11.3%
	Bering Sea Opilio Crab	10.6%	9.3%	11.0%	11.9%	12.5%	12.0%	9.9%	11.8%	11.9%	12.3%	11.3%
	Bering Sea Tanner Crab	8.8%	11.9%	11.9%	16.4%	15.1%	10.9%					12.0%
	BBR/BSO/BST group	10.2%	11.2%	11.8%	11.2%	12.2%	11.4%	11.0%	9.8%	10.5%	10.8%	11.0%
	Other 6 PMA Crab group	3.8%	7.5%	9.2%	12.7%	8.3%	9.1%	9.4%	11.3%	0.0%	0.0%	9.2%
	All 9 PMA Crab group	10.0%	11.1%	10.7%	10.0%	9.1%	10.1%	10.0%	9.0%	10.4%	10.7%	10.1%
	Non-Qualified PMA Crab	9.1%	11.1%	8.6%	3.8%	0.0%	0.0%	4.0%	0.0%	12.5%	8.3%	5.1%
	"Overlap" Vessels	0.0%		0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
King Cove/Sand Point	All Fisheries other than PMA Crab	3.1%	5.1%	9.2%	15.6%	27.7%	20.0%	14.3%	11.8%	7.5%	11.5%	12.9%
	Bristol Bay Red King Crab	5.9%	6.1%	7.3%			11.1%	10.3%	9.9%	9.0%	11.3%	8.5%
	Bering Sea Opilio Crab	4.5%	4.0%	6.8%	8.3%	9.7%	9.3%	8.5%	8.8%	6.0%	7.7%	7.4%
	Bering Sea Tanner Crab	5.5%	5.9%	6.9%	12.7%	11.3%	10.9%					8.2%
	BBR/BSO/BST group	5.6%	5.6%	6.9%	9.0%	10.8%	10.1%	9.8%	9.8%	7.9%	10.8%	8.4%
	Other 6 PMA Crab group	7.7%	7.5%	9.2%	17.5%	29.8%	20.8%	14.1%	14.1%	0.0%	0.0%	16.1%
	All 9 PMA Crab group	5.5%	5.6%	8.9%	12.0%	26.3%	19.1%	13.3%	12.4%	7.8%	10.7%	12.0%
	Non-Qualified PMA Crab	0.0%	0.0%	8.6%	15.4%	55.6%	39.3%	20.0%	19.2%	0.0%	25.0%	19.9%
	"Overlap" Vessels	0.0%		0.0%	50.0%	33.3%	21.4%	10.0%	20.0%	0.0%	0.0%	19.6%
Kodiak	All Fisheries other than PMA Crab	56.9%	59.5%	52.6%	50.0%	41.0%	47.7%	51.8%	56.9%	58.5%	55.7%	52.7%
	Bristol Bay Red King Crab	58.8%	59.6%	59.4%			49.2%	47.4%	48.1%	52.2%	50.7%	53.9%
	Bering Sea Opilio Crab	56.1%	66.7%	60.3%	56.0%	44.4%	46.7%	47.9%	45.6%	49.3%	53.8%	52.8%
	Bering Sea Tanner Crab	60.4%	60.4%	58.4%	54.5%	47.2%	50.0%					56.3%
	BBR/BSO/BST group	57.4%	59.8%	57.8%	56.2%	43.2%	45.6%	46.3%	48.8%	51.3%	51.4%	52.5%
	Other 6 PMA Crab group	73.1%	64.2%	59.2%	44.4%	36.9%	41.6%	50.0%	46.5%	66.7%	75.0%	49.7%
	All 9 PMA Crab group	58.2%	60.2%	56.3%	53.0%	39.4%	41.6%	43.3%	47.2%	51.9%	52.0%	50.7%
	Non-Qualified PMA Crab	63.6%	70.4%	57.1%	53.8%	19.4%	25.0%	36.0%	34.6%	37.5%	33.3%	44.1%
	"Overlap" Vessels	50.0%		0.0%	0.0%	16.7%	28.6%	60.0%	40.0%	0.0%	0.0%	32.1%
Other Alaska	All Fisheries other than PMA Crab	18.5%	16.5%	17.1%	15.6%	13.3%	15.4%	21.4%	17.6%	17.0%	16.4%	16.7%
	Bristol Bay Red King Crab	19.6%	17.2%	15.6%			17.5%	23.1%	24.7%	17.9%	19.7%	19.3%
	Bering Sea Opilio Crab	22.7%	17.3%	15.1%	16.7%	22.2%	21.3%	23.9%	25.0%	23.9%	18.5%	20.5%
	Bering Sea Tanner Crab	20.9%	17.8%	17.8%	12.7%	13.2%	17.2%					17.2%
	BBR/BSO/BST group	20.4%	18.7%	17.6%	16.9%	23.0%	22.8%	24.4%	24.4%	22.4%	18.9%	20.7%
	Other 6 PMA Crab group	7.7%	17.0%	17.1%	19.0%	16.7%	19.5%	17.2%	21.1%	0.0%	0.0%	17.5%
	All 9 PMA Crab group	20.0%	18.5%	17.9%	18.0%	17.2%	20.2%	25.6%	24.7%	22.1%	18.7%	20.1%

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
	Non-Qualified PMA Crab	21.2%	14.8%	20.0%	15.4%	22.2%	32.1%	36.0%	42.3%	50.0%	33.3%	26.2%
	"Overlap" Vessels	25.0%		100.0%	0.0%	41.7%	42.9%	20.0%	30.0%	100.0%	100.0%	37.5%
Total Alaska	All Fisheries other than PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bristol Bay Red King Crab	100.0%	100.0%	100.0%			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bering Sea Opilio Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bering Sea Tanner Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%					100.0%
	BBR/BSO/BST group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Other 6 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	All 9 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Non-Qualified PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	"Overlap" Vessels	100.0%		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Shaded cells values cannot be disclosed in analogous volume or value tables.
PMA crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
PMA crab fishery and group vessel counts include all landings (qualified and non-qualified).
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Overlap vessels have both qualified and non-qualified PMA landings, but are counted only once in combined groups.
Data from vessels owned by residents of states other than AK, WA, and OR are deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-6. PMA Crab Vessels from Alaska by Fishery Category and Year (1991-2000) as Percentage of Total Vessels (all States) in each Fishery Category

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Anchorage	All Fisheries other than PMA Crab	3.0%	2.3%	2.4%	2.1%	3.3%	3.2%	1.1%	0.7%	1.2%	1.7%	2.1%
	Bristol Bay Red King Crab	2.0%	1.8%	1.7%			3.7%	2.4%	2.2%	2.4%	2.1%	2.2%
	Bering Sea Opilio Crab	1.8%	0.8%	2.0%	2.2%	3.2%	3.5%	3.2%	2.7%	2.6%	2.3%	2.4%
	Bering Sea Tanner Crab	1.4%	1.3%	1.6%	1.1%	3.7%	3.6%					2.0%
	BBR/BSO/BST group	2.2%	1.6%	1.9%	2.1%	3.0%	3.2%	2.6%	2.2%	2.2%	2.4%	2.3%
	Other 6 PMA Crab group	2.2%	1.1%	1.9%	2.0%	3.2%	3.6%	3.5%	2.6%	6.3%	5.9%	2.6%
	All 9 PMA Crab group	2.2%	1.6%	2.1%	2.3%	2.7%	3.1%	2.5%	2.2%	2.2%	2.4%	2.3%
	Non-Qualified PMA Crab	2.7%	1.6%	2.7%	5.1%	1.2%	1.5%	1.6%	1.4%	0.0%	0.0%	1.9%
	"Overlap" Vessels	10.0%	0.0%	0.0%	10.0%	2.9%	2.2%	2.9%	2.7%	0.0%	0.0%	3.0%
Homer	All Fisheries other than PMA Crab	7.4%	6.3%	7.3%	6.3%	3.7%	3.8%	2.9%	4.1%	4.2%	4.0%	4.9%
	Bristol Bay Red King Crab	3.4%	4.4%	4.2%			3.7%	3.6%	3.0%	3.2%	3.3%	3.6%
	Bering Sea Opilio Crab	3.2%	2.8%	3.2%	3.7%	3.6%	3.9%	3.2%	3.6%	3.4%	3.6%	3.4%
	Bering Sea Tanner Crab	2.8%	4.0%	3.8%	5.0%	4.2%	3.6%					3.8%
	BBR/BSO/BST group	3.5%	3.9%	3.7%	3.5%	3.4%	3.6%	3.3%	3.0%	2.9%	3.1%	3.4%
	Other 6 PMA Crab group	1.1%	2.2%	3.3%	4.0%	3.2%	3.6%	3.5%	4.1%	0.0%	0.0%	3.2%
	All 9 PMA Crab group	3.5%	3.8%	3.6%	3.4%	3.1%	3.5%	3.2%	2.9%	2.9%	3.1%	3.3%
	Non-Qualified PMA Crab	4.1%	4.8%	4.0%	1.7%	0.0%	0.0%	1.6%	0.0%	2.6%	2.9%	2.1%
	"Overlap" Vessels	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
King Cove/Sand Point	All Fisheries other than PMA Crab	1.5%	2.3%	4.3%	6.9%	10.7%	8.2%	4.6%	4.1%	2.4%	4.0%	5.1%
	Bristol Bay Red King Crab	2.0%	2.2%	2.4%			3.7%	3.2%	3.0%	2.4%	3.3%	2.7%
	Bering Sea Opilio Crab	1.4%	1.2%	2.0%	2.6%	2.8%	3.1%	2.7%	2.7%	1.7%	2.3%	2.2%
	Bering Sea Tanner Crab	1.8%	2.0%	2.2%	3.9%	3.2%	3.6%					2.6%
	BBR/BSO/BST group	1.9%	1.9%	2.2%	2.8%	3.0%	3.2%	3.0%	3.0%	2.2%	3.1%	2.6%
	Other 6 PMA Crab group	2.2%	2.2%	3.3%	5.5%	11.5%	8.2%	5.3%	5.2%	0.0%	0.0%	5.6%
	All 9 PMA Crab group	1.9%	1.9%	3.0%	4.0%	8.8%	6.6%	4.3%	3.9%	2.2%	3.1%	3.9%
	Non-Qualified PMA Crab	0.0%	0.0%	4.0%	6.8%	24.4%	16.9%	8.2%	7.1%	0.0%	8.6%	8.2%
	"Overlap" Vessels	0.0%	0.0%	0.0%	10.0%	11.8%	6.7%	2.9%	5.4%	0.0%	0.0%	5.6%
Kodiak	All Fisheries other than PMA Crab	27.4%	26.7%	24.4%	22.2%	15.9%	19.6%	16.7%	19.9%	18.7%	19.2%	20.8%
	Bristol Bay Red King Crab	20.3%	21.5%	19.9%			16.4%	14.7%	14.6%	14.0%	15.1%	17.2%
	Bering Sea Opilio Crab	17.0%	20.3%	17.5%	17.5%	13.0%	15.4%	15.4%	13.9%	14.1%	15.8%	16.0%
	Bering Sea Tanner Crab	19.6%	20.1%	18.6%	16.8%	13.2%	16.7%					17.9%
	BBR/BSO/BST group	19.8%	20.6%	18.3%	17.7%	12.2%	14.6%	14.1%	14.8%	14.2%	15.0%	16.3%
	Other 6 PMA Crab group	21.3%	18.3%	21.4%	14.1%	14.3%	16.3%	18.8%	17.0%	12.5%	17.6%	17.3%
	All 9 PMA Crab group	20.2%	20.6%	18.7%	17.8%	13.3%	14.4%	14.0%	15.1%	14.5%	15.3%	16.5%
	Non-Qualified PMA Crab	28.8%	30.6%	26.7%	23.7%	8.5%	10.8%	14.8%	12.9%	7.7%	11.4%	18.2%
	"Overlap" Vessels	20.0%	0.0%	0.0%	0.0%	5.9%	8.9%	17.1%	10.8%	0.0%	0.0%	9.1%
Other Alaska	All Fisheries other than PMA Crab	8.9%	7.4%	7.9%	6.9%	5.1%	6.3%	6.9%	6.2%	5.4%	5.6%	6.6%
	Bristol Bay Red King Crab	6.8%	6.2%	5.2%			5.8%	7.2%	7.5%	4.8%	5.9%	6.2%
	Bering Sea Opilio Crab	6.9%	5.3%	4.4%	5.2%	6.5%	7.0%	7.7%	7.6%	6.8%	5.4%	6.2%
	Bering Sea Tanner Crab	6.8%	5.9%	5.7%	3.9%	3.7%	5.7%					5.5%
	BBR/BSO/BST group	7.0%	6.4%	5.6%	5.3%	6.5%	7.3%	7.4%	7.4%	6.2%	5.5%	6.4%
	Other 6 PMA Crab group	2.2%	4.8%	6.2%	6.0%	6.5%	7.7%	6.5%	7.7%	0.0%	0.0%	6.1%

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
	All 9 PMA Crab group	6.9%	6.3%	5.9%	6.0%	5.8%	7.0%	8.2%	7.9%	6.2%	5.5%	6.6%
	Non-Qualified PMA Crab	9.6%	6.5%	9.3%	6.8%	9.8%	13.8%	14.8%	15.7%	10.3%	11.4%	10.8%
	"Overlap" Vessels	10.0%	0.0%	25.0%	0.0%	14.7%	13.3%	5.7%	8.1%	12.5%	12.5%	10.6%
Total Alaska	All Fisheries other than PMA Crab	48.1%	44.9%	46.3%	44.4%	38.8%	41.1%	32.2%	34.9%	31.9%	34.5%	39.5%
	Bristol Bay Red King Crab	34.5%	36.0%	33.4%			33.3%	31.1%	30.3%	26.8%	29.7%	32.0%
	Bering Sea Opilio Crab	30.3%	30.5%	29.1%	31.2%	29.1%	32.9%	32.1%	30.5%	28.6%	29.4%	30.4%
	Bering Sea Tanner Crab	32.4%	33.3%	31.8%	30.7%	27.9%	33.3%					31.8%
	BBR/BSO/BST group	34.5%	34.4%	31.7%	31.4%	28.1%	32.0%	30.4%	30.3%	27.6%	29.1%	31.1%
	Other 6 PMA Crab group	29.2%	28.5%	36.2%	31.7%	38.7%	39.3%	37.6%	36.6%	18.8%	23.5%	34.9%
	All 9 PMA Crab group	34.7%	34.2%	33.2%	33.6%	33.7%	34.6%	32.3%	31.9%	27.9%	29.4%	32.6%
	Non-Qualified PMA Crab	45.2%	43.5%	46.7%	44.1%	43.9%	43.1%	41.0%	37.1%	20.5%	34.3%	41.2%
	"Overlap" Vessels	40.0%	0.0%	25.0%	20.0%	35.3%	31.1%	28.6%	27.0%	12.5%	12.5%	28.3%

Notes: Shaded cells values cannot be disclosed in analogous volume or value tables.
PMA crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
PMA crab fishery and group vessel counts include all landings (qualified and non-qualified).
Average vessel counts for individual fisheries are computed using years open during 1991-2000.
Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community.
Vessels fishing multiple fisheries have been counted only once in combined categories.
Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns.
Overlap vessels have both qualified and non-qualified PMA landings, but are counted only once in combined groups.
Data from vessels owned by residents of states other than AK, WA, and OR are deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Series 2: Harvest Vessel Count Trend Data, Subset 3 - State of Washington Tables

The following are State of Washington tables that aggregate vessels at the level of the named community of residence of the owner of the vessel, for those communities for which harvest information is potentially non-confidential, by fishery category and year. Named communities for Washington tables are the Seattle-Tacoma Consolidated Metropolitan Statistical Area (S-T CMSA) and "Other Washington."

- Table A3-7 provides the number of vessels participating in the fisheries categories for each year by named community as well as for the state as a whole and for the total fishery categories (all states) as a whole.
- Table A3-8 displays the vessels participating in each fishery category from each named community for each year, as well as the overall average percentage for the entire 10-year period, as a percentage of all Washington boats participating in that fishery category.
- Table A3-9 displays the vessels participating in each fishery category from each named community for each year, as well as the overall average percentage for the entire 10-year period, as a percentage of all vessels (from all states) participating in that fishery category.

Table A3-7. Count of PMA Crab Vessels from Washington by Fishery Category and Year (1991-2000)

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Other Washington	All Fisheries other than PMA Crab	6	8	8	6	9	5	8	7	8	8	7.3
	Bristol Bay Red King Crab	15	11	15	0	0	9	13	14	15	13	13.1
	Bering Sea Opilio Crab	9	10	13	16	14	11	12	12	13	11	12.1
	Bering Sea Tanner Crab	14	14	16	11	7	9	0	0	0	0	11.8
	BBR/BSO/BST group	16	14	16	16	14	12	14	14	15	13	14.4
	Other 6 PMA Crab group	3	9	11	12	11	7	6	11	0	0	7.0
	All 9 PMA Crab group	16	14	18	16	16	12	14	14	15	13	14.8
	Non-Qualified PMA Crab	5	4	7	7	8	6	6	7	4	4	5.8
"Overlap" Vessels		1	2	4	2	3	4	4				2.0
S-T CMSA	All Fisheries other than PMA Crab	53	72	67	63	111	79	98	76	92	94	80.5
	Bristol Bay Red King Crab	161	151	158	0	0	105	146	157	150	139	145.9
	Bering Sea Opilio Crab	131	147	152	154	149	129	125	130	140	127	138.4
	Bering Sea Tanner Crab	158	171	181	100	119	107	0	0	0	0	139.3
	BBR/BSO/BST group	170	172	184	162	161	142	158	159	165	147	162.0
	Other 6 PMA Crab group	56	116	112	113	108	102	88	99	11	11	81.6
	All 9 PMA Crab group	171	175	186	165	163	142	159	159	165	147	163.2
	Non-Qualified PMA Crab	31	28	29	24	32	26	26	30	21	14	26.1
"Overlap" Vessels	5	2	3	3	15	23	17	19	5	5	9.7	
Total WA	All Fisheries other than PMA Crab	59	80	75	69	120	84	106	83	100	102	87.8
	Bristol Bay Red King Crab	176	162	173	0	0	114	159	171	165	152	159.0
	Bering Sea Opilio Crab	140	157	165	170	163	140	137	142	153	138	150.5
	Bering Sea Tanner Crab	172	185	197	111	126	116	0	0	0	0	151.2
	BBR/BSO/BST group	186	186	200	178	175	154	172	173	180	160	176.4
	Other 6 PMA Crab group	59	125	123	125	119	109	94	110	11	11	88.6
	All 9 PMA Crab group	187	189	204	181	179	154	173	173	180	160	178.0
	Non-Qualified PMA Crab	36	32	36	31	40	32	32	37	25	18	31.9
"Overlap" Vessels	5	3	5	7	17	26	21	23	5	5	11.7	
Total AK/WA/OR	All Fisheries other than PMA Crab	135	176	164	144	214	158	174	146	166	177	165.4
	Bristol Bay Red King Crab	296	275	287	0	0	189	251	267	250	239	256.8
	Bering Sea Opilio Crab	218	246	251	269	247	228	221	223	234	221	235.8
	Bering Sea Tanner Crab	281	303	318	179	190	192	0	0	0	0	243.8
	BBR/BSO/BST group	313	311	322	283	263	247	270	271	275	254	280.9
	Other 6 PMA Crab group	89	186	210	199	217	196	170	194	16	17	149.4
	All 9 PMA Crab group	317	316	337	298	294	257	279	279	276	255	290.8
	Non-Qualified PMA Crab	73	62	75	59	82	65	61	70	39	35	62.1
"Overlap" Vessels	10	3	8	10	34	45	35	37	8	8	19.8	

Notes: Shaded cells values cannot be disclosed in analogous volume or value tables.
PMA crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
PMA crab fishery and group vessel counts include all landings (qualified and non-qualified).
Average vessel counts for individual fisheries are computed using years open during 1991-2000.
Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community.
Vessels fishing multiple fisheries have been counted only once in combined categories.
Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns.
Overlap vessels have both qualified and non-qualified PMA landings, but are counted only once in combined groups.
Data from vessels owned by residents of states other than AK, WA, and OR are deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-8. PMA Crab Vessels from Washington by Fishery Category and Year (1991-2000) as Percentage of Total Washington Vessels in each Fishery Category

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Other Washington	All Fisheries other than PMA Crab	10.2%	10.0%	10.7%	8.7%	7.5%	6.0%	7.5%	8.4%	8.0%	7.8%	8.3%
	Bristol Bay Red King Crab	8.5%	6.8%	8.7%			7.9%	8.2%	8.2%	9.1%	8.6%	8.3%
	Bering Sea Opilio Crab	6.4%	6.4%	7.9%	9.4%	8.6%	7.9%	8.8%	8.5%	8.5%	8.0%	8.0%
	Bering Sea Tanner Crab	8.1%	7.6%	8.1%	9.9%	5.6%	7.8%					7.8%
	BBR/BSO/BST group	8.6%	7.5%	8.0%	9.0%	8.0%	7.8%	8.1%	8.1%	8.3%	8.1%	8.2%
	Other 6 PMA Crab group	5.1%	7.2%	8.9%	9.6%	9.2%	6.4%	6.4%	10.0%	0.0%	0.0%	7.9%
	All 9 PMA Crab group	8.6%	7.4%	8.8%	8.8%	8.9%	7.8%	8.1%	8.1%	8.3%	8.1%	8.3%
	Non-Qualified PMA Crab	13.9%	12.5%	19.4%	22.6%	20.0%	18.8%	18.8%	18.9%	16.0%	22.2%	18.2%
"Overlap" Vessels	0.0%	33.3%	40.0%	57.1%	11.8%	11.5%	19.0%	17.4%	0.0%	0.0%	17.1%	
S-T CMSA	All Fisheries other than PMA Crab	89.8%	90.0%	89.3%	91.3%	92.5%	94.0%	92.5%	91.6%	92.0%	92.2%	91.7%
	Bristol Bay Red King Crab	91.5%	93.2%	91.3%			92.1%	91.8%	91.8%	90.9%	91.4%	91.7%
	Bering Sea Opilio Crab	93.6%	93.6%	92.1%	90.6%	91.4%	92.1%	91.2%	91.5%	91.5%	92.0%	92.0%
	Bering Sea Tanner Crab	91.9%	92.4%	91.9%	90.1%	94.4%	92.2%					92.2%
	BBR/BSO/BST group	91.4%	92.5%	92.0%	91.0%	92.0%	92.2%	91.9%	91.9%	91.7%	91.9%	91.8%
	Other 6 PMA Crab group	94.9%	92.8%	91.1%	90.4%	90.8%	93.6%	93.6%	90.0%	100.0%	100.0%	92.1%
	All 9 PMA Crab group	91.4%	92.6%	91.2%	91.2%	91.1%	92.2%	91.9%	91.9%	91.7%	91.9%	91.7%
	Non-Qualified PMA Crab	86.1%	87.5%	80.6%	77.4%	80.0%	81.3%	81.3%	81.1%	84.0%	77.8%	81.8%
"Overlap" Vessels	100.0%	66.7%	60.0%	42.9%	88.2%	88.5%	81.0%	82.6%	100.0%	100.0%	82.9%	
Total WA	All Fisheries other than PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bristol Bay Red King Crab	100.0%	100.0%	100.0%			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bering Sea Opilio Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bering Sea Tanner Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%					100.0%
	BBR/BSO/BST group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Other 6 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	All 9 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Non-Qualified PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
"Overlap" Vessels	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Notes: Shaded cells values cannot be disclosed in analogous volume or value tables.
PMA crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
PMA crab fishery and group vessel counts include all landings (qualified and non-qualified).
Average vessel counts for individual fisheries are computed using years open during 1991-2000.
Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community.
Vessels fishing multiple fisheries have been counted only once in combined categories.
Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns.
Overlap vessels have both qualified and non-qualified PMA landings, but are counted only once in combined groups.
Data from vessels owned by residents of states other than AK, WA, and OR are deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-9. PMA Crab Vessels from Washington by Fishery Category and Year (1991-2000) as Percentage of Total Vessels (all States) in each Fishery Category

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Other Washington	All Fisheries other than PMA Crab	4.4%	4.5%	4.9%	4.2%	4.2%	3.2%	4.6%	4.8%	4.8%	4.5%	4.4%
	Bristol Bay Red King Crab	5.1%	4.0%	5.2%			4.8%	5.2%	5.2%	6.0%	5.4%	5.1%
	Bering Sea Opilio Crab	4.1%	4.1%	5.2%	5.9%	5.7%	4.8%	5.4%	5.4%	5.6%	5.0%	5.1%
	Bering Sea Tanner Crab	5.0%	4.6%	5.0%	6.1%	3.7%	4.7%					4.9%
	BBR/BSO/BST group	5.1%	4.5%	5.0%	5.7%	5.3%	4.9%	5.2%	5.2%	5.5%	5.1%	5.1%
	Other 6 PMA Crab group	3.4%	4.8%	5.2%	6.0%	5.1%	3.6%	3.5%	5.7%	0.0%	0.0%	4.7%
	All 9 PMA Crab group	5.0%	4.4%	5.3%	5.4%	5.4%	4.7%	5.0%	5.0%	5.4%	5.1%	5.1%
	Non-Qualified PMA Crab	6.8%	6.5%	9.3%	11.9%	9.8%	9.2%	9.8%	10.0%	10.3%	11.4%	9.3%
	"Overlap" Vessels	0.0%	33.3%	25.0%	40.0%	5.9%	6.7%	11.4%	10.8%	0.0%	0.0%	10.1%
S-T CMSA	All Fisheries other than PMA Crab	39.3%	40.9%	40.9%	43.8%	51.9%	50.0%	56.3%	52.1%	55.4%	53.1%	48.7%
	Bristol Bay Red King Crab	54.4%	54.9%	55.1%			55.6%	58.2%	58.8%	60.0%	58.2%	56.8%
	Bering Sea Opilio Crab	60.1%	59.8%	60.6%	57.2%	60.3%	56.6%	56.6%	58.3%	59.8%	57.5%	58.7%
	Bering Sea Tanner Crab	56.2%	56.4%	56.9%	55.9%	62.6%	55.7%					57.1%
	BBR/BSO/BST group	54.3%	55.3%	57.1%	57.2%	61.2%	57.5%	58.5%	58.7%	60.0%	57.9%	57.7%
	Other 6 PMA Crab group	62.9%	62.4%	53.3%	56.8%	49.8%	52.0%	51.8%	51.0%	68.8%	64.7%	54.6%
	All 9 PMA Crab group	53.9%	55.4%	55.2%	55.4%	55.4%	55.3%	57.0%	57.0%	59.8%	57.6%	56.1%
	Non-Qualified PMA Crab	42.5%	45.2%	38.7%	40.7%	39.0%	40.0%	42.6%	42.9%	53.8%	40.0%	42.0%
	"Overlap" Vessels	50.0%	66.7%	37.5%	30.0%	44.1%	51.1%	48.6%	51.4%	62.5%	62.5%	49.0%
Total WA	All Fisheries other than PMA Crab	43.7%	45.5%	45.7%	47.9%	56.1%	53.2%	60.9%	56.8%	60.2%	57.6%	53.1%
	Bristol Bay Red King Crab	59.5%	58.9%	60.3%			60.3%	63.3%	64.0%	66.0%	63.6%	61.9%
	Bering Sea Opilio Crab	64.2%	63.8%	65.7%	63.2%	66.0%	61.4%	62.0%	63.7%	65.4%	62.4%	63.8%
	Bering Sea Tanner Crab	61.2%	61.1%	61.9%	62.0%	66.3%	60.4%					62.0%
	BBR/BSO/BST group	59.4%	59.8%	62.1%	62.9%	66.5%	62.3%	63.7%	63.8%	65.5%	63.0%	62.8%
	Other 6 PMA Crab group	66.3%	67.2%	58.6%	62.8%	54.8%	55.6%	55.3%	56.7%	68.8%	64.7%	59.3%
	All 9 PMA Crab group	59.0%	59.8%	60.5%	60.7%	60.9%	59.9%	62.0%	62.0%	65.2%	62.7%	61.2%
	Non-Qualified PMA Crab	49.3%	51.6%	48.0%	52.5%	48.8%	49.2%	52.5%	52.9%	64.1%	51.4%	51.4%
	"Overlap" Vessels	50.0%	100.0%	62.5%	70.0%	50.0%	57.8%	60.0%	62.2%	62.5%	62.5%	59.1%

Notes: Shaded cells values cannot be disclosed in analogous volume or value tables.
PMA crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
PMA crab fishery and group vessel counts include all landings (qualified and non-qualified).
Average vessel counts for individual fisheries are computed using years open during 1991-2000.
Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community.
Vessels fishing multiple fisheries have been counted only once in combined categories.
Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns.
Overlap vessels have both qualified and non-qualified PMA landings, but are counted only once in combined groups.
Data from vessels owned by residents of states other than AK, WA, and OR are deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Series 2: Harvest Vessel Count Trend Data, Subset 4 - State of Oregon Tables

The following are State of Oregon tables that aggregate vessels at the level of the named community of residence of the owner of the vessel, for those communities for which harvest information is potentially non-confidential, by fishery category and year. Named communities for Oregon tables are Newport and "Other Oregon."

- Table A3-10 provides the number of vessels participating in the fisheries categories for each year by named community as well as for the state as a whole and for the total fishery categories (all states) as a whole.
- Table A3-11 displays the vessels participating in each fishery category from each named community for each year, as well as the overall average percentage for the entire 10-year period, as a percentage of all Oregon boats participating in that fishery category.
- Table A3-12 displays the vessels participating in each fishery category from each named community for each year, as well as the overall average percentage for the entire 10-year period, as a percentage of all boats (from all states) participating in that fishery category.

Table A3-10. Count of PMA Crab Vessels from Oregon by Fishery Category and Year (1991-2000)

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Newport	All Fisheries other than PMA Crab	6	10	5	5	8	6	9	8	8	10	7.5
	Bristol Bay Red King Crab	10	7	10	0	0	8	10	9	11	9	9.3
	Bering Sea Opilio Crab	7	8	8	8	7	8	9	9	9	11	8.4
	Bering Sea Tanner Crab	10	9	11	7	6	8	0	0	0	0	8.5
	BBR/BSO/BST group	10	10	11	9	8	9	12	10	12	13	10.4
	Other 6 PMA Crab group	2	5	6	7	9	7	9	9	2	2	5.8
	All 9 PMA Crab group	11	11	12	10	10	9	12	11	12	13	11.1
	Non-Qualified PMA Crab	3	2	2	1	3	3	2	3	2	2	2.3
	"Overlap" Vessels	1		1	1	3	3	2	3	2	2	1.8
Other Oregon	All Fisheries other than PMA Crab	5	7	8	6	3	3	3	4	5	4	4.8
	Bristol Bay Red King Crab	8	7	8	0	0	4	4	6	7	7	6.4
	Bering Sea Opilio Crab	5	6	5	7	5	5	4	4	5	7	5.3
	Bering Sea Tanner Crab	8	8	9	6	5	4	0	0	0	0	6.7
	BBR/BSO/BST group	9	8	9	7	6	5	4	6	7	7	6.8
	Other 6 PMA Crab group	2	3	5	4	5	3	3	4	0	0	3.6
	All 9 PMA Crab group	9	8	9	7	6	5	4	6	7	7	6.8
	Non-Qualified PMA Crab	1	1	2	1	3	2	2	4	4	3	2.3
	"Overlap" Vessels					2	2	2	1			0.7
Total Oregon	All Fisheries other than PMA Crab	11	17	13	11	11	9	12	12	13	14	12.3
	Bristol Bay Red King Crab	18	14	18	0	0	12	14	15	18	16	15.6
	Bering Sea Opilio Crab	12	14	13	15	12	13	13	13	14	18	13.7
	Bering Sea Tanner Crab	18	17	20	13	11	12	0	0	0	0	15.2
	BBR/BSO/BST group	19	18	20	16	14	14	16	16	19	20	17.2
	Other 6 PMA Crab group	4	8	11	11	14	10	12	13	2	2	8.7
	All 9 PMA Crab group	20	19	21	17	16	14	16	17	19	20	17.9
	Non-Qualified PMA Crab	4	3	4	2	6	5	4	7	6	5	4.6
	"Overlap" Vessels	1		1	1	5	5	4	4	2	2	2.5
Total AK/WA/OR	All Fisheries other than PMA Crab	135	176	164	144	214	158	174	146	166	177	165.4
	Bristol Bay Red King Crab	296	275	287	0	0	189	251	267	250	239	256.8
	Bering Sea Opilio Crab	218	246	251	269	247	228	221	223	234	221	235.8
	Bering Sea Tanner Crab	281	303	318	179	190	192	0	0	0	0	243.8
	BBR/BSO/BST group	313	311	322	283	263	247	270	271	275	254	280.9
	Other 6 PMA Crab group	89	186	210	199	217	196	170	194	16	17	149.4
	All 9 PMA Crab group	317	316	337	298	294	257	279	279	276	255	290.8
	Non-Qualified PMA Crab	73	62	75	59	82	65	61	70	39	35	62.1
	"Overlap" Vessels	10	3	8	10	34	45	35	37	8	8	19.8

Notes: Shaded cells values cannot be disclosed in analogous volume or value tables.
PMA crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
PMA crab fishery and group vessel counts include all landings (qualified and non-qualified).
Average vessel counts for individual fisheries are computed using years open during 1991-2000.
Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community.
Vessels fishing multiple fisheries have been counted only once in combined categories.
Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns.
Overlap vessels have both qualified and non-qualified PMA landings, but are counted only once in combined groups.
Data from vessels owned by residents of states other than AK, WA, and OR are deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-11. PMA Crab Vessels from Oregon by Fishery Category and Year (1991-2000) as Percent of Total Oregonian Vessels in each Fishery Category

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Newport	All Fisheries other than PMA Crab	54.5%	58.8%	38.5%	45.5%	72.7%	66.7%	75.0%	66.7%	61.5%	71.4%	61.0%
	Bristol Bay Red King Crab	55.6%	50.0%	55.6%			66.7%	71.4%	60.0%	61.1%	56.3%	59.2%
	Bering Sea Opilio Crab	58.3%	57.1%	61.5%	53.3%	58.3%	61.5%	69.2%	69.2%	64.3%	61.1%	61.3%
	Bering Sea Tanner Crab	55.6%	52.9%	55.0%	53.8%	54.5%	66.7%					56.0%
	BBR/BSO/BST group	52.6%	55.6%	55.0%	56.3%	57.1%	64.3%	75.0%	62.5%	63.2%	65.0%	60.5%
	Other 6 PMA Crab group	50.0%	62.5%	54.5%	63.6%	64.3%	70.0%	75.0%	69.2%	100.0%	100.0%	66.7%
	All 9 PMA Crab group	55.0%	57.9%	57.1%	58.8%	62.5%	64.3%	75.0%	64.7%	63.2%	65.0%	62.0%
	Non-Qualified PMA Crab	75.0%	66.7%	50.0%	50.0%	50.0%	60.0%	50.0%	42.9%	33.3%	40.0%	50.0%
	"Overlap" Vessels	100.0%		100.0%	100.0%	60.0%	60.0%	50.0%	75.0%	100.0%	100.0%	72.0%
Other Oregon	All Fisheries other than PMA Crab	45.5%	41.2%	61.5%	54.5%	27.3%	33.3%	25.0%	33.3%	38.5%	28.6%	39.0%
	Bristol Bay Red King Crab	44.4%	50.0%	44.4%			33.3%	28.6%	40.0%	38.9%	43.8%	40.8%
	Bering Sea Opilio Crab	41.7%	42.9%	38.5%	46.7%	41.7%	38.5%	30.8%	30.8%	35.7%	38.9%	38.7%
	Bering Sea Tanner Crab	44.4%	47.1%	45.0%	46.2%	45.5%	33.3%					44.0%
	BBR/BSO/BST group	47.4%	44.4%	45.0%	43.8%	42.9%	35.7%	25.0%	37.5%	36.8%	35.0%	39.5%
	Other 6 PMA Crab group	50.0%	37.5%	45.5%	36.4%	35.7%	30.0%	25.0%	30.8%	0.0%	0.0%	33.3%
	All 9 PMA Crab group	45.0%	42.1%	42.9%	41.2%	37.5%	35.7%	25.0%	35.3%	36.8%	35.0%	38.0%
	Non-Qualified PMA Crab	25.0%	33.3%	50.0%	50.0%	50.0%	40.0%	50.0%	57.1%	66.7%	60.0%	50.0%
	"Overlap" Vessels	0.0%		0.0%	0.0%	40.0%	40.0%	50.0%	25.0%	0.0%	0.0%	28.0%
Total Oregon	All Fisheries other than PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bristol Bay Red King Crab	100.0%	100.0%	100.0%			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bering Sea Opilio Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bering Sea Tanner Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%					100.0%
	BBR/BSO/BST group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Other 6 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	All 9 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Non-Qualified PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	"Overlap" Vessels	100.0%		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Shaded cells values cannot be disclosed in analogous volume or value tables.
PMA crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
PMA crab fishery and group vessel counts include all landings (qualified and non-qualified).
Average vessel counts for individual fisheries are computed using years open during 1991-2000.
Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community.
Vessels fishing multiple fisheries have been counted only once in combined categories.
Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns.
Overlap vessels have both qualified and non-qualified PMA landings, but are counted only once in combined groups.
Data from vessels owned by residents of states other than AK, WA, and OR are deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-12. PMA Crab Vessels from Oregon by Fishery Category and Year (1991-2000) as Percentage of Total Vessels (all States) in each Fishery Category

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
Newport	All Fisheries other than PMA Crab	4.4%	5.7%	3.0%	3.5%	3.7%	3.8%	5.2%	5.5%	4.8%	5.6%	4.5%	
	Bristol Bay Red King Crab	3.4%	2.5%	3.5%			4.2%	4.0%	3.4%	4.4%	3.8%	3.6%	
	Bering Sea Opilio Crab	3.2%	3.3%	3.2%	3.0%	2.8%	3.5%	4.1%	4.0%		3.8%	5.0%	3.6%
	Bering Sea Tanner Crab	3.6%	3.0%	3.5%	3.9%	3.2%	4.2%						3.5%
	BBR/BSO/BST group	3.2%	3.2%	3.4%	3.2%	3.0%	3.6%	4.4%	3.7%		4.4%	5.1%	3.7%
	Other 6 PMA Crab group	2.2%	2.7%	2.9%	3.5%	4.1%	3.6%	5.3%	4.6%	12.5%	11.8%		3.9%
	All 9 PMA Crab group	3.5%	3.5%	3.6%	3.4%	3.4%	3.5%	4.3%	3.9%	4.3%	5.1%		3.8%
	Non-Qualified PMA Crab	4.1%	3.2%	2.7%	1.7%	3.7%	4.6%	3.3%	4.3%	5.1%	5.7%		3.7%
"Overlap" Vessels	10.0%	0.0%	12.5%	10.0%	8.8%	6.7%	5.7%	8.1%	25.0%	25.0%		9.1%	
Other Oregon	All Fisheries other than PMA Crab	3.7%	4.0%	4.9%	4.2%	1.4%	1.9%	1.7%	2.7%	3.0%	2.3%	2.9%	
	Bristol Bay Red King Crab	2.7%	2.5%	2.8%			2.1%	1.6%	2.2%	2.8%	2.9%	2.5%	
	Bering Sea Opilio Crab	2.3%	2.4%	2.0%	2.6%	2.0%	2.2%	1.8%	1.8%	2.1%	3.2%	2.2%	
	Bering Sea Tanner Crab	2.8%	2.6%	2.8%	3.4%	2.6%	2.1%					2.7%	
	BBR/BSO/BST group	2.9%	2.6%	2.8%	2.5%	2.3%	2.0%	1.5%	2.2%	2.5%	2.8%	2.4%	
	Other 6 PMA Crab group	2.2%	1.6%	2.4%	2.0%	2.3%	1.5%	1.8%	2.1%	0.0%	0.0%	1.9%	
	All 9 PMA Crab group	2.8%	2.5%	2.7%	2.3%	2.0%	1.9%	1.4%	2.2%	2.5%	2.7%	2.3%	
	Non-Qualified PMA Crab	1.4%	1.6%	2.7%	1.7%	3.7%	3.1%	3.3%	5.7%	10.3%	8.6%	3.7%	
"Overlap" Vessels	0.0%	0.0%	0.0%	0.0%	5.9%	4.4%	5.7%	2.7%	0.0%	0.0%		3.5%	
Total Oregon	All Fisheries other than PMA Crab	8.1%	9.7%	7.9%	7.6%	5.1%	5.7%	6.9%	8.2%	7.8%	7.9%	7.4%	
	Bristol Bay Red King Crab	6.1%	5.1%	6.3%			6.3%	5.6%	5.6%	7.2%	6.7%	6.1%	
	Bering Sea Opilio Crab	5.5%	5.7%	5.2%	5.6%	4.9%	5.7%	5.9%	5.8%	6.0%	8.1%	5.8%	
	Bering Sea Tanner Crab	6.4%	5.6%	6.3%	7.3%	5.8%	6.3%					6.2%	
	BBR/BSO/BST group	6.1%	5.8%	6.2%	5.7%	5.3%	5.7%	5.9%	5.9%	6.9%	7.9%	6.1%	
	Other 6 PMA Crab group	4.5%	4.3%	5.2%	5.5%	6.5%	5.1%	7.1%	6.7%	12.5%	11.8%	5.8%	
	All 9 PMA Crab group	6.3%	6.0%	6.2%	5.7%	5.4%	5.4%	5.7%	6.1%	6.9%	7.8%	6.2%	
	Non-Qualified PMA Crab	5.5%	4.8%	5.3%	3.4%	7.3%	7.7%	6.6%	10.0%	15.4%	14.3%	7.4%	
"Overlap" Vessels	10.0%	0.0%	12.5%	10.0%	14.7%	11.1%	11.4%	10.8%	25.0%	25.0%		12.6%	

Notes: Shaded cells values cannot be disclosed in analogous volume or value tables.
PMA crab fishery and group vessel counts are not mutually exclusive and therefore do not sum to column totals, as some vessels fish several fisheries.
PMA crab fishery and group vessel counts include all landings (qualified and non-qualified).
Average vessel counts for individual fisheries are computed using years open during 1991-2000.
Average vessel counts for grouped fishery categories used all 10 years (unweighted), except for years with zero participation in all fisheries in the group for a given community.
Vessels fishing multiple fisheries have been counted only once in combined categories.
Non-qualified and "overlap" vessels do not appear in subsequent harvest or value tables due to confidentiality concerns.
Overlap vessels have both qualified and non-qualified PMA landings, but are counted only once in combined groups.
Data from vessels owned by residents of states other than AK, WA, and OR are deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Series 3: Harvest Value Data

The following group of tables provides harvest value information for harvester vessels by fishery category by year (1991-2000), and residence of vessel owner. As discussed above, all vessels with PMA crab landings are included, whether these landings fall into the proposed qualification periods or not. However, only vessels from the States of Alaska, Washington, or Oregon are considered, as discussed above. There are relatively few vessels from other states and their inclusion results in too many confidentiality concerns to be useful for this analysis. Further, their exclusion does not significantly change the characterization of the fisheries. Fishery categories are the same three individual PMA crab fisheries and groups of fisheries as for Table A3-1, as well as a grouping of all combined non-PMA fisheries.

Series 3: Harvest Value Data, Subset 1 - Overall Fisheries Tables

The following tables consist of overall fishery tables that aggregate vessels at the level of state of residence of the owner of the vessel. Tables are:

- Table A3-13 provides the value of the harvest for harvest vessels participating in the fisheries categories for each year (1991-2000) by state (Alaska, Washington, Oregon).
- Table A3-14 calculates the percentage of harvest value in each fishery category for vessels from each state for each year, as well as the overall average percentage for the entire 10-year period, as a percentage of the total value of each fishery category.
- Table A3-15 calculates the percentage of harvest value in each fishery category for vessels from each state for each year, as well as the overall average percentage for the entire 10-year period, as a percentage of the total value of all combined fisheries for that state.
- Table A3-16 calculates the percentage of harvest value in each fishery category for vessels from each state for each year, as well as the overall average percentage for the entire 10-year period, as a percentage of the total value of all combined fisheries for all states.

Table A3-13. Value of Harvest (in Dollars) for PMA Crab Vessels by Fishery Category, State of Vessel Owner, and Year (1991-2000)

State	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Alaska	All fisheries other than PMA Crab	\$16,026,271	\$16,713,066	\$16,505,738	\$11,642,341	\$17,115,492	\$10,913,751	\$13,793,036	\$10,721,807	\$13,801,828	\$10,864,745	\$13,809,807
	Bristol Bay Red King Crab	\$14,987,657	\$13,066,334	\$13,798,354	\$0	\$0	\$9,634,642	\$7,230,020	\$9,315,501	\$17,697,596	\$10,338,422	\$9,606,852
	Bering Sea Opilio Crab	\$39,041,894	\$37,383,017	\$38,980,829	\$48,507,766	\$39,803,495	\$22,760,824	\$24,864,675	\$38,648,218	\$47,505,618	\$14,598,810	\$35,209,515
	Bering Sea Tanner Crab	\$13,942,613	\$15,864,673	\$11,890,330	\$9,061,768	\$2,970,713	\$1,666,375	\$0	\$0	\$0	\$0	\$5,539,647
	BBR/BSO/BST Crab group	\$67,972,164	\$66,314,024	\$64,669,513	\$57,569,534	\$42,774,208	\$34,061,840	\$32,094,694	\$47,963,719	*	*	\$50,356,014
	Other 6 PMA Crab group	\$6,988,742	\$6,505,767	\$8,843,686	\$11,893,984	\$10,027,854	\$6,922,279	\$8,664,919	\$6,646,011	*	*	\$7,723,213
	All 9 PMA Crab group	\$74,960,906	\$72,819,791	\$73,513,198	\$69,463,519	\$52,802,061	\$40,984,119	\$40,759,613	\$54,609,730	\$70,283,642	\$30,595,693	\$58,079,227
	Total All Fisheries	\$90,987,177	\$89,532,856	\$90,018,936	\$81,105,860	\$69,917,554	\$51,897,870	\$54,552,649	\$65,331,537	\$84,085,470	\$41,460,438	\$71,889,035
Washington	All fisheries other than PMA Crab	\$25,634,192	\$29,682,401	\$24,551,684	\$25,763,647	\$46,448,169	\$19,118,767	\$46,178,453	\$27,195,365	\$46,118,240	\$35,957,313	\$32,664,823
	Bristol Bay Red King Crab	\$36,524,795	\$26,750,667	\$38,603,154	\$0	\$0	\$21,255,510	\$19,484,841	\$24,163,921	\$44,654,217	\$22,717,190	\$23,415,430
	Bering Sea Opilio Crab	\$118,065,741	\$114,068,885	\$121,583,219	\$134,542,853	\$118,610,668	\$59,052,283	\$59,308,202	\$86,570,702	\$116,828,274	\$35,336,157	\$96,396,698
	Bering Sea Tanner Crab	\$39,351,210	\$39,949,016	\$26,774,328	\$22,659,677	\$7,929,070	\$2,622,403	\$0	\$0	\$0	\$0	\$13,928,570
	BBR/BSO/BST Crab group	\$193,941,746	\$180,768,568	\$186,960,701	\$157,202,530	\$126,539,737	\$82,930,196	\$78,793,044	\$110,734,623	\$161,482,491	\$58,053,347	\$133,740,698
	Other 6 PMA Crab group	\$19,601,382	\$19,875,580	\$19,578,902	\$30,883,908	\$22,214,418	\$17,242,878	\$15,089,959	\$9,055,510	\$7,458,718	\$8,994,392	\$16,999,565
	All 9 PMA Crab group	\$213,543,128	\$200,644,147	\$206,539,603	\$188,086,438	\$148,754,155	\$100,173,074	\$93,883,003	\$119,790,133	\$168,941,209	\$67,047,739	\$150,740,263
	Total All Fisheries	\$239,177,320	\$230,326,549	\$231,091,287	\$213,850,085	\$195,202,324	\$119,291,841	\$140,061,456	\$146,985,498	\$215,059,449	\$103,005,052	\$183,405,086
Oregon	All fisheries other than PMA Crab	\$5,543,233	\$9,577,244	\$6,252,869	\$3,653,273	\$5,263,391	\$4,749,124	\$6,765,619	\$4,801,917	\$8,374,494	\$6,126,044	\$6,110,721
	Bristol Bay Red King Crab	\$3,286,560	\$1,728,439	\$4,156,648	\$0	\$0	\$1,941,609	\$1,366,445	\$3,063,619	\$4,546,002	\$2,327,582	\$2,241,690
	Bering Sea Opilio Crab	\$6,227,087	\$7,135,280	\$10,800,660	\$10,247,246	\$10,109,120	\$4,427,961	\$6,097,966	\$7,533,765	\$10,775,200	\$4,519,935	\$7,787,422
	Bering Sea Tanner Crab	\$2,461,629	\$3,054,269	\$2,834,933	\$3,162,681	\$804,368	\$216,695	\$0	\$0	\$0	\$0	\$1,253,457
	BBR/BSO/BST Crab group	\$11,975,276	\$11,917,988	\$17,792,241	\$13,409,927	\$10,913,488	\$6,586,264	\$7,464,411	\$10,597,384	*	*	\$11,282,569
	Other 6 PMA Crab group	\$3,335,862	\$2,177,364	\$3,845,939	\$9,236,016	\$4,445,049	\$3,422,971	\$2,938,478	\$2,134,739	*	*	\$4,003,742
	All 9 PMA Crab group	\$15,311,138	\$14,095,352	\$21,638,179	\$22,645,942	\$15,358,537	\$10,009,235	\$10,402,889	\$12,732,123	\$18,600,607	\$12,069,113	\$15,286,312
	Total All Fisheries	\$20,854,370	\$23,672,596	\$27,891,049	\$26,299,215	\$20,621,929	\$14,758,359	\$17,168,508	\$17,534,040	\$26,975,102	\$18,195,158	\$21,397,033
Total AK/WA/OR	All fisheries other than PMA Crab	\$47,203,695	\$55,972,711	\$47,310,292	\$41,059,260	\$68,827,053	\$34,781,642	\$66,737,109	\$42,719,089	\$68,294,562	\$52,948,103	\$52,585,352
	Bristol Bay Red King Crab	\$54,799,012	\$41,545,440	\$56,558,156	\$0	\$0	\$32,831,761	\$28,081,306	\$36,543,041	\$66,897,815	\$35,383,194	\$35,263,972
	Bering Sea Opilio Crab	\$163,334,723	\$158,587,181	\$171,364,707	\$193,297,865	\$168,523,283	\$86,241,067	\$90,270,843	\$132,752,685	\$175,109,092	\$54,454,901	\$139,393,635
	Bering Sea Tanner Crab	\$55,755,452	\$58,867,958	\$41,499,591	\$34,884,126	\$11,704,150	\$4,505,473	\$0	\$0	\$0	\$0	\$20,721,675
	BBR/BSO/BST Crab group	\$273,889,186	\$259,000,580	\$269,422,454	\$228,181,991	\$180,227,433	\$123,578,300	\$118,352,149	\$169,295,725	\$242,006,907	\$89,838,096	\$195,379,282
	Other 6 PMA Crab group	\$29,925,986	\$28,558,710	\$32,268,526	\$52,013,908	\$36,687,321	\$27,588,128	\$26,693,356	\$17,836,260	\$15,818,551	\$19,874,449	\$28,726,520
	All 9 PMA Crab group	\$303,815,173	\$287,559,290	\$301,690,980	\$280,195,899	\$216,914,754	\$151,166,428	\$145,045,505	\$187,131,986	\$257,825,458	\$109,712,545	\$224,105,802
	Total All Fisheries	\$351,018,868	\$343,532,001	\$349,001,272	\$321,255,160	\$285,741,806	\$185,948,071	\$211,782,613	\$229,851,075	\$326,120,020	\$162,660,648	\$276,691,153

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-14. Value of Harvest for PMA Crab Vessels by Fishery Category, State of Vessel Owner, and Year (1991-2000) as Percentage of Grand Total of Value (all States) of Harvest of Vessels Fishing PMA Crab

State	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Alaska	All fisheries other than PMA Crab	34.0%	29.9%	34.9%	28.4%	24.9%	31.4%	20.7%	25.1%	20.2%	20.5%	26.3%
	Bristol Bay Red King Crab	27.4%	31.5%	24.4%			29.3%	25.7%	25.5%	26.5%	29.2%	27.2%
	Bering Sea Opilio Crab	23.9%	23.6%	22.7%	25.1%	23.6%	26.4%	27.5%	29.1%	27.1%	26.8%	25.3%
	Bering Sea Tanner Crab	25.0%	26.9%	28.7%	26.0%	25.4%	37.0%					26.7%
	BBR/BSO/BST Crab group	24.8%	25.6%	24.0%	25.2%	23.7%	27.6%	27.1%	28.3%	*	*	25.8%
	Other 6 PMA Crab group	23.4%	22.8%	27.4%	22.9%	27.3%	25.1%	32.5%	37.3%	*	*	26.9%
	All 9 PMA Crab group	24.7%	25.3%	24.4%	24.8%	24.3%	27.1%	28.1%	29.2%	27.3%	27.9%	25.9%
Total All Fisheries	25.9%	26.1%	25.8%	25.2%	24.5%	27.9%	25.8%	28.4%	25.8%	25.5%	26.0%	
Washington	All fisheries other than PMA Crab	54.3%	53.0%	51.9%	62.7%	67.5%	55.0%	69.2%	63.7%	67.5%	67.9%	62.1%
	Bristol Bay Red King Crab	66.7%	64.4%	68.3%			64.7%	69.4%	66.1%	66.7%	64.2%	66.4%
	Bering Sea Opilio Crab	72.3%	71.9%	70.9%	69.6%	70.4%	68.5%	65.7%	65.2%	66.7%	64.9%	69.2%
	Bering Sea Tanner Crab	70.6%	67.9%	64.5%	65.0%	67.7%	58.2%					67.2%
	BBR/BSO/BST Crab group	70.8%	69.8%	69.4%	68.9%	70.2%	67.1%	66.6%	65.4%	66.7%	64.6%	68.5%
	Other 6 PMA Crab group	65.5%	69.6%	60.7%	59.4%	60.6%	62.5%	56.5%	50.8%	47.2%	45.3%	59.2%
	All 9 PMA Crab group	70.3%	69.8%	68.5%	67.1%	68.6%	66.3%	64.7%	64.0%	65.5%	61.1%	67.3%
Total All Fisheries	68.1%	67.0%	66.2%	66.6%	68.3%	64.2%	66.1%	63.9%	65.9%	63.3%	66.3%	
Oregon	All fisheries other than PMA Crab	11.7%	17.1%	13.2%	8.9%	7.6%	13.7%	10.1%	11.2%	12.3%	11.6%	11.6%
	Bristol Bay Red King Crab	6.0%	4.2%	7.3%			5.9%	4.9%	8.4%	6.8%	6.6%	6.4%
	Bering Sea Opilio Crab	3.8%	4.5%	6.3%	5.3%	6.0%	5.1%	6.8%	5.7%	6.2%	8.3%	5.6%
	Bering Sea Tanner Crab	4.4%	5.2%	6.8%	9.1%	6.9%	4.8%					6.0%
	BBR/BSO/BST Crab group	4.4%	4.6%	6.6%	5.9%	6.1%	5.3%	6.3%	6.3%	*	*	5.8%
	Other 6 PMA Crab group	11.1%	7.6%	11.9%	17.8%	12.1%	12.4%	11.0%	12.0%	*	*	13.9%
	All 9 PMA Crab group	5.0%	4.9%	7.2%	8.1%	7.1%	6.6%	7.2%	6.8%	7.2%	11.0%	6.8%
Total All Fisheries	5.9%	6.9%	8.0%	8.2%	7.2%	7.9%	8.1%	7.6%	8.3%	11.2%	7.7%	
Total AK/WA/OR	All fisheries other than PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bristol Bay Red King Crab	100.0%	100.0%	100.0%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bering Sea Opilio Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bering Sea Tanner Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	BBR/BSO/BST Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Other 6 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	All 9 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-15. Value of Harvest for PMA Crab Vessels by Fishery Category, State of Vessel Owner, and Year (1991-2000) as Percentage of Total Individual State Value of Harvest from All Alaskan Fisheries for Vessels Fishing PMA Crab Fisheries

State	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Alaska	All fisheries other than PMA Crab	17.6%	18.7%	18.3%	14.4%	24.5%	21.0%	25.3%	16.4%	16.4%	26.2%	19.2%
	Bristol Bay Red King Crab	16.5%	14.6%	15.3%	0.0%	0.0%	18.6%	13.3%	14.3%	21.0%	24.9%	13.4%
	Bering Sea Opilio Crab	42.9%	41.8%	43.3%	59.8%	56.9%	43.9%	45.6%	59.2%	56.5%	35.2%	49.0%
	Bering Sea Tanner Crab	15.3%	17.7%	13.2%	11.2%	4.2%	3.2%	0.0%	0.0%	0.0%	0.0%	7.7%
	BBR/BSO/BST Crab group	74.7%	74.1%	71.8%	71.0%	61.2%	65.6%	58.8%	73.4%	*	*	70.0%
	Other 6 PMA Crab group	7.7%	7.3%	9.8%	14.7%	14.3%	13.3%	15.9%	10.2%	*	*	10.7%
	All 9 PMA Crab group	82.4%	81.3%	81.7%	85.6%	75.5%	79.0%	74.7%	83.6%	83.6%	73.8%	80.8%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Washington	All fisheries other than PMA Crab	10.7%	12.9%	10.6%	12.0%	23.8%	16.0%	33.0%	18.5%	21.4%	34.9%	17.8%
	Bristol Bay Red King Crab	15.3%	11.6%	16.7%	0.0%	0.0%	17.8%	13.9%	16.4%	20.8%	22.1%	12.8%
	Bering Sea Opilio Crab	49.4%	49.5%	52.6%	62.9%	60.8%	49.5%	42.3%	58.9%	54.3%	34.3%	52.6%
	Bering Sea Tanner Crab	16.5%	17.3%	11.6%	10.6%	4.1%	2.2%	0.0%	0.0%	0.0%	0.0%	7.6%
	BBR/BSO/BST Crab group	81.1%	78.5%	80.9%	73.5%	64.8%	69.5%	56.3%	75.3%	75.1%	56.4%	72.9%
	Other 6 PMA Crab group	8.2%	8.6%	8.5%	14.4%	11.4%	14.5%	10.8%	6.2%	3.5%	8.7%	9.3%
	All 9 PMA Crab group	89.3%	87.1%	89.4%	88.0%	76.2%	84.0%	67.0%	81.5%	78.6%	65.1%	82.2%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Oregon	All fisheries other than PMA Crab	26.6%	40.5%	22.4%	13.9%	25.5%	32.2%	39.4%	27.4%	31.0%	33.7%	28.6%
	Bristol Bay Red King Crab	15.8%	7.3%	14.9%	0.0%	0.0%	13.2%	8.0%	17.5%	16.9%	12.8%	10.5%
	Bering Sea Opilio Crab	29.9%	30.1%	38.7%	39.0%	49.0%	30.0%	35.5%	43.0%	39.9%	24.8%	36.4%
	Bering Sea Tanner Crab	11.8%	12.9%	10.2%	12.0%	3.9%	1.5%	0.0%	0.0%	0.0%	0.0%	5.9%
	BBR/BSO/BST Crab group	57.4%	50.3%	63.8%	51.0%	52.9%	44.6%	43.5%	60.4%	*	*	52.7%
	Other 6 PMA Crab group	16.0%	9.2%	13.8%	35.1%	21.6%	23.2%	17.1%	12.2%	*	*	18.7%
	All 9 PMA Crab group	73.4%	59.5%	77.6%	86.1%	74.5%	67.8%	60.6%	72.6%	69.0%	66.3%	71.4%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total AK/WA/OR	All fisheries other than PMA Crab	13.4%	16.3%	13.6%	12.8%	24.1%	18.7%	31.5%	18.6%	20.9%	32.6%	19.0%
	Bristol Bay Red King Crab	15.6%	12.1%	16.2%	0.0%	0.0%	17.7%	13.3%	15.9%	20.5%	21.8%	12.7%
	Bering Sea Opilio Crab	46.5%	46.2%	49.1%	60.2%	59.0%	46.4%	42.6%	57.8%	53.7%	33.5%	50.4%
	Bering Sea Tanner Crab	15.9%	17.1%	11.9%	10.9%	4.1%	2.4%	0.0%	0.0%	0.0%	0.0%	7.5%
	BBR/BSO/BST Crab group	78.0%	75.4%	77.2%	71.0%	63.1%	66.5%	55.9%	73.7%	74.2%	55.2%	70.6%
	Other 6 PMA Crab group	8.5%	8.3%	9.2%	16.2%	12.8%	14.8%	12.6%	7.8%	4.9%	12.2%	10.4%
	All 9 PMA Crab group	86.6%	83.7%	86.4%	87.2%	75.9%	81.3%	68.5%	81.4%	79.1%	67.4%	81.0%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-16. Value of Harvest for PMA Crab Vessels by Fishery Category, State of Vessel Owner, and Year (1991-2000) as Percentage of Grand Total of Value (all States) of Harvest from All Alaskan Fisheries for Vessels Fishing PMA Crab Fisheries

State	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Alaska	All fisheries other than PMA Crab	4.6%	4.9%	4.7%	3.6%	6.0%	5.9%	6.5%	4.7%	4.2%	6.7%	5.0%
	Bristol Bay Red King Crab	4.3%	3.8%	4.0%	0.0%	0.0%	5.2%	3.4%	4.1%	5.4%	6.4%	3.5%
	Bering Sea Opilio Crab	11.1%	10.9%	11.2%	15.1%	13.9%	12.2%	11.7%	16.8%	14.6%	9.0%	12.7%
	Bering Sea Tanner Crab	4.0%	4.6%	3.4%	2.8%	1.0%	0.9%	0.0%	0.0%	0.0%	0.0%	2.0%
	BBR/BSO/BST Crab group	19.4%	19.3%	18.5%	17.9%	15.0%	18.3%	15.2%	20.9%	*	*	18.2%
	Other 6 PMA Crab group	2.0%	1.9%	2.5%	3.7%	3.5%	3.7%	4.1%	2.9%	*	*	2.8%
	All 9 PMA Crab group	21.4%	21.2%	21.1%	21.6%	18.5%	22.0%	19.2%	23.8%	21.6%	18.8%	21.0%
	Total All Fisheries	25.9%	26.1%	25.8%	25.2%	24.5%	27.9%	25.8%	28.4%	25.8%	25.5%	26.0%
Washington	All fisheries other than PMA Crab	7.3%	8.6%	7.0%	8.0%	16.3%	10.3%	21.8%	11.8%	14.1%	22.1%	11.8%
	Bristol Bay Red King Crab	10.4%	7.8%	11.1%	0.0%	0.0%	11.4%	9.2%	10.5%	13.7%	14.0%	8.5%
	Bering Sea Opilio Crab	33.6%	33.2%	34.8%	41.9%	41.5%	31.8%	28.0%	37.7%	35.8%	21.7%	34.8%
	Bering Sea Tanner Crab	11.2%	11.6%	7.7%	7.1%	2.8%	1.4%	0.0%	0.0%	0.0%	0.0%	5.0%
	BBR/BSO/BST Crab group	55.3%	52.6%	53.6%	48.9%	44.3%	44.6%	37.2%	48.2%	49.5%	35.7%	48.3%
	Other 6 PMA Crab group	5.6%	5.8%	5.6%	9.6%	7.8%	9.3%	7.1%	3.9%	2.3%	5.5%	6.1%
	All 9 PMA Crab group	60.8%	58.4%	59.2%	58.5%	52.1%	53.9%	44.3%	52.1%	51.8%	41.2%	54.5%
	Total All Fisheries	68.1%	67.0%	66.2%	66.6%	68.3%	64.2%	66.1%	63.9%	65.9%	63.3%	66.3%
Oregon	All fisheries other than PMA Crab	1.6%	2.8%	1.8%	1.1%	1.8%	2.6%	3.2%	2.1%	2.6%	3.8%	2.2%
	Bristol Bay Red King Crab	0.9%	0.5%	1.2%	0.0%	0.0%	1.0%	0.6%	1.3%	1.4%	1.4%	0.8%
	Bering Sea Opilio Crab	1.8%	2.1%	3.1%	3.2%	3.5%	2.4%	2.9%	3.3%	3.3%	2.8%	2.8%
	Bering Sea Tanner Crab	0.7%	0.9%	0.8%	1.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.5%
	BBR/BSO/BST Crab group	3.4%	3.5%	5.1%	4.2%	3.8%	3.5%	3.5%	4.6%	*	*	4.1%
	Other 6 PMA Crab group	1.0%	0.6%	1.1%	2.9%	1.6%	1.8%	1.4%	0.9%	*	*	1.4%
	All 9 PMA Crab group	4.4%	4.1%	6.2%	7.0%	5.4%	5.4%	4.9%	5.5%	5.7%	7.4%	5.5%
	Total All Fisheries	5.9%	6.9%	8.0%	8.2%	7.2%	7.9%	8.1%	7.6%	8.3%	11.2%	7.7%
Total AK/WA/OR	All fisheries other than PMA Crab	13.4%	16.3%	13.6%	12.8%	24.1%	18.7%	31.5%	18.6%	20.9%	32.6%	19.0%
	Bristol Bay Red King Crab	15.6%	12.1%	16.2%	0.0%	0.0%	17.7%	13.3%	15.9%	20.5%	21.8%	12.7%
	Bering Sea Opilio Crab	46.5%	46.2%	49.1%	60.2%	59.0%	46.4%	42.6%	57.8%	53.7%	33.5%	50.4%
	Bering Sea Tanner Crab	15.9%	17.1%	11.9%	10.9%	4.1%	2.4%	0.0%	0.0%	0.0%	0.0%	7.5%
	BBR/BSO/BST Crab group	78.0%	75.4%	77.2%	71.0%	63.1%	66.5%	55.9%	73.7%	74.2%	55.2%	70.6%
	Other 6 PMA Crab group	8.5%	8.3%	9.2%	16.2%	12.8%	14.8%	12.6%	7.8%	4.9%	12.2%	10.4%
	All 9 PMA Crab group	86.6%	83.7%	86.4%	87.2%	75.9%	81.3%	68.5%	81.4%	79.1%	67.4%	81.0%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Series 3: Harvest Value Data, Subset 2 - State of Alaska Tables

The following group of tables consist of State of Alaska tables that aggregate harvest value at the level of the named community of residence of the owner of the vessel, for those communities for which harvest information is potentially nonconfidential, by fishery category and year. Named communities for Alaska tables are Anchorage, Homer, Kodiak, King Cove and Sand Point combined, and all other Alaska communities combined.

- Table A3-17 provides the value of the harvest for fisheries categories for each year for vessels owned by the residents of named communities as well as for the state as a whole, then for each fishery as a whole (all states combined).
- Table A3-18 displays the value of the harvest for fisheries categories for each year (and the 10-year period as a whole) for vessels owned by residents of named communities, as a percent of the harvest value of all fisheries for those vessels from that named community (as a measure of community fleet dependence on PMA crab).
- Table A3-19 displays the value of the harvest for fisheries categories for each year (and the 10-year period as a whole) for vessels owned by residents of named communities, as a percent of the harvest value of each individual fishery category for the total state fishery category.
- Table A3-20 displays the value of the harvest for fisheries categories for each year (and the 10-year period as a whole) for vessels owned by residents of named communities, as a percent of the harvest value of each individual fishery category for the total fishery category (all states combined).
- Table A3-21 displays the value of the harvest for fisheries categories for each year (and the 10-year period as a whole) for vessels owned by residents of named communities, as a percent of the harvest value of all fisheries categories combined for all states.

Table A3-17. Value of Harvest (in Dollars) for PMA Crab Vessels from Alaska by Fishery Category, Community of Vessel Owner, and Year (1991-2000)

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Anchorage	All fisheries other than PMA Crab	\$230,795	\$191,116	\$195,938	*	\$604,625	\$470,443	*	*	*	*	\$260,445
	Bristol Bay Red King Crab	\$1,351,809	\$570,279	\$1,276,529	\$0	\$0	\$1,373,721	\$436,289	\$603,162	\$1,739,047	\$922,275	\$827,311
	Bering Sea Opilio Crab	*	*	\$2,008,504	\$3,148,255	\$4,507,726	\$2,504,145	\$2,108,969	\$2,858,039	\$4,038,668	\$1,341,335	\$2,539,097
	Bering Sea Tanner Crab	*	\$511,326	\$431,484	*	\$356,789	\$122,825	\$0	\$0	\$0	\$0	\$216,299
	BBR/BSO/BST Crab group	*	*	\$3,716,517	*	\$4,864,514	\$4,000,692	\$2,545,257	\$3,461,201	\$5,777,715	\$2,263,610	\$3,582,707
	Other 6 PMA Crab group	*	*	\$281,562	*	\$1,514,609	\$718,880	*	*	*	*	\$730,890
	All 9 PMA Crab group	\$4,745,712	\$1,902,394	\$3,998,080	\$3,629,142	\$6,379,123	\$4,719,571	*	*	*	*	\$4,313,597
	Total All Fisheries	\$4,976,507	\$2,093,510	\$4,194,018	\$3,822,270	\$6,983,748	\$5,190,014	\$4,114,085	\$4,790,573	\$6,429,905	\$3,145,782	\$4,574,041
Homer	All fisheries other than PMA Crab	\$1,039,186	\$897,462	\$1,042,015	\$353,255	\$766,168	\$559,357	\$752,032	\$477,683	\$725,556	\$816,418	\$742,913
	Bristol Bay Red King Crab	\$1,488,406	\$1,540,771	\$1,496,735	\$0	\$0	\$1,270,757	\$707,232	\$1,043,878	\$2,253,348	\$1,869,203	\$1,167,033
	Bering Sea Opilio Crab	\$4,097,792	\$3,094,072	\$3,076,189	\$4,998,331	\$4,688,637	\$2,883,550	\$2,373,239	\$4,441,302	\$5,417,840	\$2,185,266	\$3,725,622
	Bering Sea Tanner Crab	\$1,125,748	\$1,419,800	\$1,684,705	\$1,340,922	\$383,590	\$196,821	\$0	\$0	\$0	\$0	\$615,159
	BBR/BSO/BST Crab group	*	*	\$6,257,628	\$6,339,253	\$5,072,227	\$4,351,128	*	*	*	*	\$5,507,813
	Other 6 PMA Crab group	*	*	\$430,530	\$666,038	\$358,937	\$360,035	*	*	*	*	\$302,773
	All 9 PMA Crab group	\$6,817,439	\$6,160,095	\$6,688,159	\$7,005,291	\$5,431,163	\$4,711,163	\$3,680,188	\$5,886,708	\$7,671,187	\$4,054,469	\$5,810,586
	Total All Fisheries	\$7,856,625	\$7,057,557	\$7,730,173	\$7,358,545	\$6,197,332	\$5,270,520	\$4,432,219	\$6,364,391	\$8,396,743	\$4,870,887	\$6,553,499
King Cove/ Sand Point	All fisheries other than PMA Crab	*	*	\$1,481,962	\$1,797,290	\$6,454,571	\$2,333,691	\$1,962,773	\$1,832,118	\$1,288,267	\$2,338,251	\$2,064,507
	Bristol Bay Red King Crab	\$1,025,348	\$800,913	\$771,459	\$0	\$0	\$1,008,821	\$1,216,493	\$612,732	\$1,548,836	\$836,521	\$782,112
	Bering Sea Opilio Crab	*	*	\$2,825,583	\$3,579,619	\$3,617,025	\$2,290,358	\$2,456,576	\$3,293,595	\$3,292,402	\$442,247	\$2,705,133
	Bering Sea Tanner Crab	*	\$1,229,674	\$629,394	\$1,053,599	\$292,115	\$157,726	\$0	\$0	\$0	\$0	\$429,111
	BBR/BSO/BST Crab group	*	*	\$4,226,436	\$4,633,217	\$3,909,140	\$3,456,904	\$3,673,069	\$3,906,328	\$4,841,238	\$1,278,767	\$3,916,357
	Other 6 PMA Crab group	*	*	\$422,558	\$1,282,770	\$1,642,558	\$799,089	\$554,412	\$331,448	\$0	\$0	\$537,166
	All 9 PMA Crab group	\$4,825,135	\$4,752,159	\$4,648,994	\$5,915,987	\$5,551,698	\$4,255,993	\$4,227,481	\$4,237,776	\$4,841,238	\$1,278,767	\$4,453,523
	Total All Fisheries	\$5,461,796	\$5,271,648	\$6,130,956	\$7,713,277	\$12,006,269	\$6,589,684	\$6,190,255	\$6,069,894	\$6,129,506	\$3,617,018	\$6,518,030
Kodiak	All fisheries other than PMA Crab	\$10,313,693	\$10,784,683	\$9,913,350	\$7,777,466	\$7,825,399	\$6,832,846	\$9,270,520	\$7,144,134	\$10,598,657	\$6,651,486	\$8,711,223
	Bristol Bay Red King Crab	\$8,882,784	\$8,444,153	\$8,652,484	\$0	\$0	\$4,638,544	\$3,252,436	\$4,671,189	\$9,008,396	\$4,856,236	\$5,240,622
	Bering Sea Opilio Crab	\$24,519,162	\$26,044,103	\$26,060,171	\$30,524,979	\$19,571,530	\$10,923,040	\$12,524,443	\$17,866,069	\$24,899,947	\$7,880,261	\$20,081,371
	Bering Sea Tanner Crab	\$10,181,941	\$10,131,806	\$7,660,327	\$5,307,890	\$1,662,701	\$1,000,401	\$0	\$0	\$0	\$0	\$3,593,507
	BBR/BSO/BST Crab group	\$43,583,886	\$44,620,062	\$42,362,983	\$35,832,870	\$21,234,231	\$16,561,985	\$15,776,879	\$22,537,259	*	*	\$28,915,500
	Other 6 PMA Crab group	\$6,028,032	\$5,696,801	\$6,409,791	\$7,767,442	\$5,030,488	\$3,868,607	\$5,419,982	\$4,144,564	*	*	\$5,390,614
	All 9 PMA Crab group	\$49,611,918	\$50,316,863	\$48,772,774	\$43,600,312	\$26,264,720	\$20,430,592	\$21,196,861	\$26,681,823	\$38,546,739	\$17,638,530	\$34,306,113
	Total All Fisheries	\$59,925,611	\$61,101,546	\$58,686,124	\$51,377,778	\$34,090,119	\$27,263,438	\$30,467,380	\$33,825,957	\$49,145,396	\$24,290,016	\$43,017,337
Other Alaska	All fisheries other than PMA Crab	\$3,805,936	\$4,320,316	\$3,872,474	*	\$1,464,729	\$717,414	*	*	*	*	\$2,030,719
	Bristol Bay Red King Crab	\$2,239,310	\$1,710,218	\$1,601,146	\$0	\$0	\$1,342,798	\$1,617,569	\$2,384,539	\$3,147,969	\$1,854,187	\$1,589,774
	Bering Sea Opilio Crab	\$5,355,095	\$5,185,429	\$5,010,382	\$6,256,582	\$7,418,577	\$4,159,731	\$5,401,449	\$10,189,212	\$9,856,760	\$2,749,701	\$6,158,292
	Bering Sea Tanner Crab	\$1,288,358	\$2,572,067	\$1,494,420	*	\$275,518	\$188,602	\$0	\$0	\$0	\$0	\$685,572
	BBR/BSO/BST Crab group	*	*	\$8,105,948	*	\$7,694,095	\$5,691,131	*	*	\$13,004,730	\$4,603,889	\$8,433,638
	Other 6 PMA Crab group	*	*	\$1,299,244	*	\$1,481,262	\$1,175,668	*	*	\$0	\$0	\$761,770
	All 9 PMA Crab group	\$8,960,702	\$9,688,280	\$9,405,192	\$9,312,787	\$9,175,357	\$6,866,800	\$7,773,208	\$13,163,141	\$13,004,730	\$4,603,889	\$9,195,408
	Total All Fisheries	\$12,766,638	\$14,008,595	\$13,277,665	\$10,833,990	\$10,640,086	\$7,584,214	\$9,348,709	\$14,280,722	\$13,983,919	\$5,536,735	\$11,226,127
Total AK	All fisheries other than PMA Crab	\$16,026,271	\$16,713,066	\$16,505,738	\$11,642,341	\$17,115,492	\$10,913,751	\$13,793,036	\$10,721,807	\$13,801,828	\$10,864,745	\$13,809,807
	Bristol Bay Red King Crab	\$14,987,657	\$13,066,334	\$13,798,354	\$0	\$0	\$9,634,642	\$7,230,020	\$9,315,501	\$17,697,596	\$10,338,422	\$9,606,852
	Bering Sea Opilio Crab	\$39,041,894	\$37,383,017	\$38,980,829	\$48,507,766	\$39,803,495	\$22,760,824	\$24,864,675	\$38,648,218	\$47,505,618	\$14,598,810	\$35,209,515
	Bering Sea Tanner Crab	\$13,942,613	\$15,864,673	\$11,890,330	\$9,061,768	\$2,970,713	\$1,666,375	\$0	\$0	\$0	\$0	\$5,539,647
	BBR/BSO/BST Crab group	\$67,972,164	\$66,314,024	\$64,669,513	\$57,569,534	\$42,774,208	\$34,061,840	\$32,094,694	\$47,963,719	\$65,203,215	\$24,937,232	\$50,356,014
	Other 6 PMA Crab group	\$6,988,742	\$6,505,767	\$8,843,686	\$11,893,984	\$10,027,854	\$6,922,279	\$8,664,919	\$6,646,011	\$5,080,427	\$5,658,460	\$7,723,213
	All 9 PMA Crab group	\$74,960,906	\$72,819,791	\$73,513,198	\$69,463,519	\$52,802,061	\$40,984,119	\$40,759,613	\$54,609,730	\$70,283,642	\$30,595,693	\$58,079,227
	Total All Fisheries	\$90,987,177	\$89,532,856	\$90,018,936	\$81,105,860	\$69,917,554	\$51,897,870	\$54,552,649	\$65,331,537	\$84,085,470	\$41,460,438	\$71,889,035

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Total AK/WA/OR	All fisheries other than PMA Crab	\$47,203,695	\$55,972,711	\$47,310,292	\$41,059,260	\$68,827,053	\$34,781,642	\$66,737,109	\$42,719,089	\$68,294,562	\$52,948,103	\$52,585,352
	Bristol Bay Red King Crab	\$54,799,012	\$41,545,440	\$56,558,156	\$0	\$0	\$32,831,761	\$28,081,306	\$36,543,041	\$66,897,815	\$35,383,194	\$35,263,972
	Bering Sea Opilio Crab	\$163,334,723	\$158,587,181	\$171,364,707	\$193,297,865	\$168,523,283	\$86,241,067	\$90,270,843	\$132,752,685	\$175,109,092	\$54,454,901	\$139,393,635
	Bering Sea Tanner Crab	\$55,755,452	\$58,867,958	\$41,499,591	\$34,884,126	\$11,704,150	\$4,505,473	\$0	\$0	\$0	\$0	\$20,721,675
	BBR/BSO/BST Crab group	\$273,889,186	\$259,000,580	\$269,422,454	\$228,181,991	\$180,227,433	\$123,578,300	\$118,352,149	\$169,295,725	\$242,006,907	\$89,838,096	\$195,379,282
	Other 6 PMA Crab group	\$29,925,986	\$28,558,710	\$32,268,526	\$52,013,908	\$36,687,321	\$27,588,128	\$26,693,356	\$17,836,260	\$15,818,551	\$19,874,449	\$28,726,520
	All 9 PMA Crab group	\$303,815,173	\$287,559,290	\$301,690,980	\$280,195,899	\$216,914,754	\$151,166,428	\$145,045,505	\$187,131,986	\$257,825,458	\$109,712,545	\$224,105,802
	Total All Fisheries	\$351,018,868	\$343,532,001	\$349,001,272	\$321,255,160	\$285,741,806	\$185,948,071	\$211,782,613	\$229,851,075	\$326,120,020	\$162,660,648	\$276,691,153

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-18. Value of Harvest for PMA Crab Vessels from Alaska by Fishery Category, Community of Vessel Owner, and Year (1991-2000) as Percentage of Total Community Harvest Value for Fisheries in Which PMA Crab Vessels Participate

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Anchorage	All fisheries other than PMA Crab	4.6%	9.1%	4.7%	*	8.7%	9.1%	*	*	*	*	5.7%
	Bristol Bay Red King Crab	27.2%	27.2%	30.4%	0.0%	0.0%	26.5%	10.6%	12.6%	27.0%	29.3%	18.1%
	Bering Sea Opilio Crab	*	*	47.9%	82.4%	64.5%	48.2%	51.3%	59.7%	62.8%	42.6%	55.5%
	Bering Sea Tanner Crab	*	24.4%	10.3%	*	5.1%	2.4%	0.0%	0.0%	0.0%	0.0%	4.7%
	BBR/BSO/BST Crab group	*	*	88.6%	*	69.7%	77.1%	61.9%	72.3%	89.9%	72.0%	78.3%
	Other 6 PMA Crab group	*	*	6.7%	*	21.7%	13.9%	*	*	*	*	16.0%
	All 9 PMA Crab group	95.4%	90.9%	95.3%	94.9%	91.3%	90.9%	*	*	*	*	94.3%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Homer	All fisheries other than PMA Crab	13.2%	12.7%	13.5%	4.8%	12.4%	10.6%	17.0%	7.5%	8.6%	16.8%	11.3%
	Bristol Bay Red King Crab	18.9%	21.8%	19.4%	0.0%	0.0%	24.1%	16.0%	16.4%	26.8%	38.4%	17.8%
	Bering Sea Opilio Crab	52.2%	43.8%	39.8%	67.9%	75.7%	54.7%	53.5%	69.8%	64.5%	44.9%	56.8%
	Bering Sea Tanner Crab	14.3%	20.1%	21.8%	18.2%	6.2%	3.7%	0.0%	0.0%	0.0%	0.0%	9.4%
	BBR/BSO/BST Crab group	*	*	81.0%	86.1%	81.8%	82.6%	*	*	*	*	84.0%
	Other 6 PMA Crab group	*	*	5.6%	9.1%	5.8%	6.8%	*	*	*	*	4.6%
	All 9 PMA Crab group	86.8%	87.3%	86.5%	95.2%	87.6%	89.4%	83.0%	92.5%	91.4%	83.2%	88.7%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
King Cove/Sand Point	All fisheries other than PMA Crab	*	*	24.2%	23.3%	53.8%	35.4%	31.7%	30.2%	21.0%	64.6%	31.7%
	Bristol Bay Red King Crab	18.8%	15.2%	12.6%	0.0%	0.0%	15.3%	19.7%	10.1%	25.3%	23.1%	12.0%
	Bering Sea Opilio Crab	*	*	46.1%	46.4%	30.1%	34.8%	39.7%	54.3%	53.7%	12.2%	41.5%
	Bering Sea Tanner Crab	*	23.3%	10.3%	13.7%	2.4%	2.4%	0.0%	0.0%	0.0%	0.0%	6.6%
	BBR/BSO/BST Crab group	*	*	68.9%	60.1%	32.6%	52.5%	59.3%	64.4%	79.0%	35.4%	60.1%
	Other 6 PMA Crab group	*	*	6.9%	16.6%	13.7%	12.1%	9.0%	5.5%	0.0%	0.0%	8.2%
	All 9 PMA Crab group	88.3%	90.1%	75.8%	76.7%	46.2%	64.6%	68.3%	69.8%	79.0%	35.4%	68.3%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Kodiak	All fisheries other than PMA Crab	17.2%	17.7%	16.9%	15.1%	23.0%	25.1%	30.4%	21.1%	21.6%	27.4%	20.3%
	Bristol Bay Red King Crab	14.8%	13.8%	14.7%	0.0%	0.0%	17.0%	10.7%	13.8%	18.3%	20.0%	12.2%
	Bering Sea Opilio Crab	40.9%	42.6%	44.4%	59.4%	57.4%	40.1%	41.1%	52.8%	50.7%	32.4%	46.7%
	Bering Sea Tanner Crab	17.0%	16.6%	13.0%	10.3%	4.9%	3.7%	0.0%	0.0%	0.0%	0.0%	8.4%
	BBR/BSO/BST Crab group	72.7%	73.0%	72.2%	69.7%	62.3%	60.7%	51.8%	66.6%	*	*	67.2%
	Other 6 PMA Crab group	10.1%	9.3%	10.9%	15.1%	14.8%	14.2%	17.8%	12.3%	*	*	12.5%
	All 9 PMA Crab group	82.8%	82.3%	83.1%	84.9%	77.0%	74.9%	69.6%	78.9%	78.4%	72.6%	79.7%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Other Alaska	All fisheries other than PMA Crab	29.8%	30.8%	29.2%	*	13.8%	9.5%	*	*	*	*	18.1%
	Bristol Bay Red King Crab	17.5%	12.2%	12.1%	0.0%	0.0%	17.7%	17.3%	16.7%	22.5%	33.5%	14.2%
	Bering Sea Opilio Crab	41.9%	37.0%	37.7%	57.7%	69.7%	54.8%	57.8%	71.3%	70.5%	49.7%	54.9%
	Bering Sea Tanner Crab	10.1%	18.4%	11.3%	*	2.6%	2.5%	0.0%	0.0%	0.0%	0.0%	6.1%
	BBR/BSO/BST Crab group	*	*	61.0%	*	72.3%	75.0%	*	*	93.0%	83.2%	75.1%
	Other 6 PMA Crab group	*	*	9.8%	*	13.9%	15.5%	*	*	0.0%	0.0%	6.8%
	All 9 PMA Crab group	70.2%	69.2%	70.8%	86.0%	86.2%	90.5%	83.1%	92.2%	93.0%	83.2%	81.9%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Total AK	All fisheries other than PMA Crab	17.6%	18.7%	18.3%	14.4%	24.5%	21.0%	25.3%	16.4%	16.4%	26.2%	19.2%
	Bristol Bay Red King Crab	16.5%	14.6%	15.3%	0.0%	0.0%	18.6%	13.3%	14.3%	21.0%	24.9%	13.4%
	Bering Sea Opilio Crab	42.9%	41.8%	43.3%	59.8%	56.9%	43.9%	45.6%	59.2%	56.5%	35.2%	49.0%
	Bering Sea Tanner Crab	15.3%	17.7%	13.2%	11.2%	4.2%	3.2%	0.0%	0.0%	0.0%	0.0%	7.7%
	BBR/BSO/BST Crab group	74.7%	74.1%	71.8%	71.0%	61.2%	65.6%	58.8%	73.4%	77.5%	60.1%	70.0%
	Other 6 PMA Crab group	7.7%	7.3%	9.8%	14.7%	14.3%	13.3%	15.9%	10.2%	6.0%	13.6%	10.7%
	All 9 PMA Crab group	82.4%	81.3%	81.7%	85.6%	75.5%	79.0%	74.7%	83.6%	83.6%	73.8%	80.8%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total AK/WA/OR	All fisheries other than PMA Crab	13.4%	16.3%	13.6%	12.8%	24.1%	18.7%	31.5%	18.6%	20.9%	32.6%	19.0%
	Bristol Bay Red King Crab	15.6%	12.1%	16.2%	0.0%	0.0%	17.7%	13.3%	15.9%	20.5%	21.8%	12.7%
	Bering Sea Opilio Crab	46.5%	46.2%	49.1%	60.2%	59.0%	46.4%	42.6%	57.8%	53.7%	33.5%	50.4%
	Bering Sea Tanner Crab	15.9%	17.1%	11.9%	10.9%	4.1%	2.4%	0.0%	0.0%	0.0%	0.0%	7.5%
	BBR/BSO/BST Crab group	78.0%	75.4%	77.2%	71.0%	63.1%	66.5%	55.9%	73.7%	74.2%	55.2%	70.6%
	Other 6 PMA Crab group	8.5%	8.3%	9.2%	16.2%	12.8%	14.8%	12.6%	7.8%	4.9%	12.2%	10.4%
	All 9 PMA Crab group	86.6%	83.7%	86.4%	87.2%	75.9%	81.3%	68.5%	81.4%	79.1%	67.4%	81.0%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-19. Value of Harvest for PMA Crab Vessels from Alaska by Fishery Category, Community of Vessel Owner, and Year (1991-2000) as Percentage of Total Value of Alaskan Harvest by Alaskan Vessels Fishing PMA Crab Fisheries

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Anchorage	All fisheries other than PMA Crab	1.4%	1.1%	1.2%	*	3.5%	4.3%	*	*	*	*	1.9%
	Bristol Bay Red King Crab	9.0%	4.4%	9.3%			14.3%	6.0%	6.5%	9.8%	8.9%	8.6%
	Bering Sea Opilio Crab	*	*	5.2%	6.5%	11.3%	11.0%	8.5%	7.4%	8.5%	9.2%	7.2%
	Bering Sea Tanner Crab	*	3.2%	3.6%	*	12.0%	7.4%					3.9%
	BBR/BSO/BST Crab group	*	*	5.7%	*	11.4%	11.7%	7.9%	7.2%	8.9%	9.1%	7.1%
	Other 6 PMA Crab group	*	*	3.2%	*	15.1%	10.4%	*	*	*	*	9.5%
	All 9 PMA Crab group	6.3%	2.6%	5.4%	5.2%	12.1%	11.5%	*	*	*	*	7.4%
	Total All Fisheries	5.5%	2.3%	4.7%	4.7%	10.0%	10.0%	7.5%	7.3%	7.6%	7.6%	6.4%
Homer	All fisheries other than PMA Crab	6.5%	5.4%	6.3%	3.0%	4.5%	5.1%	5.5%	4.5%	5.3%	7.5%	5.4%
	Bristol Bay Red King Crab	9.9%	11.8%	10.8%			13.2%	9.8%	11.2%	12.7%	18.1%	12.1%
	Bering Sea Opilio Crab	10.5%	8.3%	7.9%	10.3%	11.8%	12.7%	9.5%	11.5%	11.4%	15.0%	10.6%
	Bering Sea Tanner Crab	8.1%	8.9%	14.2%	14.8%	12.9%	11.8%					11.1%
	BBR/BSO/BST Crab group	*	*	9.7%	11.0%	11.9%	12.8%	*	*	*	*	10.9%
	Other 6 PMA Crab group	*	*	4.9%	5.6%	3.6%	5.2%	*	*	*	*	3.9%
	All 9 PMA Crab group	9.1%	8.5%	9.1%	10.1%	10.3%	11.5%	9.0%	10.8%	10.9%	13.3%	10.0%
	Total All Fisheries	8.6%	7.9%	8.6%	9.1%	8.9%	10.2%	8.1%	9.7%	10.0%	11.7%	9.1%
King Cove/Sand Point	All fisheries other than PMA Crab	*	*	9.0%	15.4%	37.7%	21.4%	14.2%	17.1%	9.3%	21.5%	14.9%
	Bristol Bay Red King Crab	6.8%	6.1%	5.6%			10.5%	16.8%	6.6%	8.8%	8.1%	8.1%
	Bering Sea Opilio Crab	*	*	7.2%	7.4%	9.1%	10.1%	9.9%	8.5%	6.9%	3.0%	7.7%
	Bering Sea Tanner Crab	*	7.8%	5.3%	11.6%	9.8%	9.5%					7.7%
	BBR/BSO/BST Crab group	*	*	6.5%	8.0%	9.1%	10.1%	11.4%	8.1%	7.4%	5.1%	7.8%
	Other 6 PMA Crab group	*	*	4.8%	10.8%	16.4%	11.5%	6.4%	5.0%	0.0%	0.0%	7.0%
	All 9 PMA Crab group	6.4%	6.5%	6.3%	8.5%	10.5%	10.4%	10.4%	7.8%	6.9%	4.2%	7.7%
	Total All Fisheries	6.0%	5.9%	6.8%	9.5%	17.2%	12.7%	11.3%	9.3%	7.3%	8.7%	9.1%
Kodiak	All fisheries other than PMA Crab	64.4%	64.5%	60.1%	66.8%	45.7%	62.6%	67.2%	66.6%	76.8%	61.2%	63.1%
	Bristol Bay Red King Crab	59.3%	64.6%	62.7%			48.1%	45.0%	50.1%	50.9%	47.0%	54.6%
	Bering Sea Opilio Crab	62.8%	69.7%	66.9%	62.9%	49.2%	48.0%	50.4%	46.2%	52.4%	54.0%	57.0%
	Bering Sea Tanner Crab	73.0%	63.9%	64.3%	58.6%	56.0%	60.0%					64.9%
	BBR/BSO/BST Crab group	64.1%	67.3%	65.5%	62.2%	49.6%	48.6%	49.2%	47.0%	*	*	57.4%
	Other 6 PMA Crab group	86.3%	87.6%	72.5%	65.3%	50.2%	55.9%	62.6%	62.4%	*	*	69.8%
	All 9 PMA Crab group	66.2%	69.1%	66.3%	62.8%	49.7%	49.9%	52.0%	48.9%	54.8%	57.7%	59.1%
	Total All Fisheries	65.9%	68.2%	65.2%	63.3%	48.8%	52.5%	55.8%	51.8%	58.4%	58.6%	59.8%
Other Alaska	All fisheries other than PMA Crab	23.7%	25.8%	23.5%	*	8.6%	6.6%	*	*	*	*	14.7%
	Bristol Bay Red King Crab	14.9%	13.1%	11.6%			13.9%	22.4%	25.6%	17.8%	17.9%	16.5%
	Bering Sea Opilio Crab	13.7%	13.9%	12.9%	12.9%	18.6%	18.3%	21.7%	26.4%	20.7%	18.8%	17.5%
	Bering Sea Tanner Crab	9.2%	16.2%	12.6%	*	9.3%	11.3%					12.4%
	BBR/BSO/BST Crab group	*	*	12.5%	*	18.0%	16.7%	*	*	19.9%	18.5%	16.7%
	Other 6 PMA Crab group	*	*	14.7%	*	14.8%	17.0%	*	*	0.0%	0.0%	9.9%
	All 9 PMA Crab group	12.0%	13.3%	12.8%	13.4%	17.4%	16.8%	19.1%	24.1%	18.5%	15.0%	15.8%
	Total All Fisheries	14.0%	15.6%	14.7%	13.4%	15.2%	14.6%	17.1%	21.9%	16.6%	13.4%	15.6%

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Total AK	All fisheries other than PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bristol Bay Red King Crab	100.0%	100.0%	100.0%			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bering Sea Opilio Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bering Sea Tanner Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%					100.0%
	BBR/BSO/BST Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Other 6 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	All 9 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total All Fisheries		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-20. Value of Harvest for PMA Crab Vessels from Alaska by Fishery Category, Community of Vessel Owner, and Year (1991-2000) as Percentage of Individual Fishery Grand Total of Value (all States) of Harvest Vessels Fishing PMA Crab Fisheries

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Anchorage	All fisheries other than PMA Crab	0.5%	0.3%	0.4%	*	0.9%	1.4%	*	*	*	*	0.5%
	Bristol Bay Red King Crab	2.5%	1.4%	2.3%			4.2%	1.6%	1.7%	2.6%	2.6%	2.3%
	Bering Sea Opilio Crab	*	*	1.2%	1.6%	2.7%	2.9%	2.3%	2.2%	2.3%	2.5%	1.8%
	Bering Sea Tanner Crab	*	0.9%	1.0%	*	3.0%	2.7%					1.0%
	BBR/BSO/BST Crab group	*	*	1.4%	*	2.7%	3.2%	2.2%	2.0%	2.4%	2.5%	1.8%
	Other 6 PMA Crab group	*	*	0.9%	*	4.1%	2.6%	*	*	*	*	2.5%
	All 9 PMA Crab group	1.6%	0.7%	1.3%	1.3%	2.9%	3.1%	*	*	*	*	1.9%
	Total All Fisheries	1.4%	0.6%	1.2%	1.2%	2.4%	2.8%	1.9%	2.1%	2.0%	1.9%	1.7%
Homer	All fisheries other than PMA Crab	2.2%	1.6%	2.2%	0.9%	1.1%	1.6%	1.1%	1.1%	1.1%	1.5%	1.4%
	Bristol Bay Red King Crab	2.7%	3.7%	2.6%			3.9%	2.5%	2.9%	3.4%	5.3%	3.3%
	Bering Sea Opilio Crab	2.5%	2.0%	1.8%	2.6%	2.8%	3.3%	2.6%	3.3%	3.1%	4.0%	2.7%
	Bering Sea Tanner Crab	2.0%	2.4%	4.1%	3.8%	3.3%	4.4%					3.0%
	BBR/BSO/BST Crab group	*	*	2.3%	2.8%	2.8%	3.5%	*	*	*	*	2.8%
	Other 6 PMA Crab group	*	*	1.3%	1.3%	1.0%	1.3%	*	*	*	*	1.1%
	All 9 PMA Crab group	2.2%	2.1%	2.2%	2.5%	2.5%	3.1%	2.5%	3.1%	3.0%	3.7%	2.6%
	Total All Fisheries	2.2%	2.1%	2.2%	2.3%	2.2%	2.8%	2.1%	2.8%	2.6%	3.0%	2.4%
King Cove/Sand Point	All fisheries other than PMA Crab	*	*	3.1%	4.4%	9.4%	6.7%	2.9%	4.3%	1.9%	4.4%	3.9%
	Bristol Bay Red King Crab	1.9%	1.9%	1.4%			3.1%	4.3%	1.7%	2.3%	2.4%	2.2%
	Bering Sea Opilio Crab	*	*	1.6%	1.9%	2.1%	2.7%	2.7%	2.5%	1.9%	0.8%	1.9%
	Bering Sea Tanner Crab	*	2.1%	1.5%	3.0%	2.5%	3.5%					2.1%
	BBR/BSO/BST Crab group	*	*	1.6%	2.0%	2.2%	2.8%	3.1%	2.3%	2.0%	1.4%	2.0%
	Other 6 PMA Crab group	*	*	1.3%	2.5%	4.5%	2.9%	2.1%	1.9%	0.0%	0.0%	1.9%
	All 9 PMA Crab group	1.6%	1.7%	1.5%	2.1%	2.6%	2.8%	2.9%	2.3%	1.9%	1.2%	2.0%
	Total All Fisheries	1.6%	1.5%	1.8%	2.4%	4.2%	3.5%	2.9%	2.6%	1.9%	2.2%	2.4%
Kodiak	All fisheries other than PMA Crab	21.8%	19.3%	21.0%	18.9%	11.4%	19.6%	13.9%	16.7%	15.5%	12.6%	16.6%
	Bristol Bay Red King Crab	16.2%	20.3%	15.3%	#DIV/0!	#DIV/0!	14.1%	11.6%	12.8%	13.5%	13.7%	14.9%
	Bering Sea Opilio Crab	15.0%	16.4%	15.2%	15.8%	11.6%	12.7%	13.9%	13.5%	14.2%	14.5%	14.4%
	Bering Sea Tanner Crab	18.3%	17.2%	18.4%	15.2%	14.2%	22.2%					17.3%
	BBR/BSO/BST Crab group	15.9%	17.2%	15.7%	15.7%	11.8%	13.4%	13.3%	13.3%	*	*	14.8%
	Other 6 PMA Crab group	20.1%	19.9%	19.9%	14.9%	13.7%	14.0%	20.3%	23.2%	*	*	18.8%
	All 9 PMA Crab group	16.3%	17.5%	16.2%	15.6%	12.1%	13.5%	14.6%	14.3%	15.0%	16.1%	15.3%
	Total All Fisheries	17.1%	17.8%	16.8%	16.0%	11.9%	14.7%	14.4%	14.7%	15.1%	14.9%	15.5%
Other Alaska	All fisheries other than PMA Crab	8.1%	7.7%	8.2%	*	2.1%	2.1%	*	*	*	*	3.9%
	Bristol Bay Red King Crab	4.1%	4.1%	2.8%			4.1%	5.8%	6.5%	4.7%	5.2%	4.5%
	Bering Sea Opilio Crab	3.3%	3.3%	2.9%	3.2%	4.4%	4.8%	6.0%	7.7%	5.6%	5.0%	4.4%
	Bering Sea Tanner Crab	2.3%	4.4%	3.6%	*	2.4%	4.2%					3.3%
	BBR/BSO/BST Crab group	*	*	3.0%	*	4.3%	4.6%	*	*	5.4%	5.1%	4.3%
	Other 6 PMA Crab group	*	*	4.0%	*	4.0%	4.3%	*	*	0.0%	0.0%	2.7%
	All 9 PMA Crab group	2.9%	3.4%	3.1%	3.3%	4.2%	4.5%	5.4%	7.0%	5.0%	4.2%	4.1%
	Total All Fisheries	3.6%	4.1%	3.8%	3.4%	3.7%	4.1%	4.4%	6.2%	4.3%	3.4%	4.1%

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
Total AK	All fisheries other than PMA Crab	34.0%	29.9%	34.9%	28.4%	24.9%	31.4%	20.7%	25.1%	20.2%	20.5%	26.3%	
	Bristol Bay Red King Crab	27.4%	31.5%	24.4%			29.3%	25.7%	25.5%	26.5%	29.2%	27.2%	
	Bering Sea Opilio Crab	23.9%	23.6%	22.7%	25.1%	23.6%	26.4%	27.5%	29.1%	27.1%	26.8%	25.3%	
	Bering Sea Tanner Crab	25.0%	26.9%	28.7%	26.0%	25.4%	37.0%						26.7%
	BBR/BSO/BST Crab group	24.8%	25.6%	24.0%	25.2%	23.7%	27.6%	27.1%	28.3%	26.9%	27.8%	25.8%	
	Other 6 PMA Crab group	23.4%	22.8%	27.4%	22.9%	27.3%	25.1%	32.5%	37.3%	32.1%	28.5%	26.9%	
	All 9 PMA Crab group	24.7%	25.3%	24.4%	24.8%	24.3%	27.1%	28.1%	29.2%	27.3%	27.9%	25.9%	
Total All Fisheries	25.9%	26.1%	25.8%	25.2%	24.5%	27.9%	25.8%	28.4%	25.8%	25.5%	26.0%		

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-21. Value of Harvest for PMA Crab Vessels from Alaska by Fishery Category, Community of Vessel Owner, and Year (1991-2000) as Percentage of Grand Total of Value of Harvest from All Alaskan Fisheries for Vessels Fishing PMA Crab Fisheries

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Anchorage	All fisheries other than PMA Crab	0.1%	0.1%	0.1%	*	0.2%	0.3%	*	*	*	*	0.1%
	Bristol Bay Red King Crab	0.4%	0.2%	0.4%	0.0%	0.0%	0.7%	0.2%	0.3%	0.5%	0.6%	0.3%
	Bering Sea Opilio Crab	*	*	0.6%	1.0%	1.6%	1.3%	1.0%	1.2%	1.2%	0.8%	0.9%
	Bering Sea Tanner Crab	*	0.1%	0.1%	*	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.1%
	BBR/BSO/BST Crab group	*	*	1.1%	*	1.7%	2.2%	1.2%	1.5%	1.8%	1.4%	1.3%
	Other 6 PMA Crab group	*	*	0.1%	*	0.5%	0.4%	*	*	*	*	0.3%
	All 9 PMA Crab group	1.4%	0.6%	1.1%	1.1%	2.2%	2.5%	*	*	*	*	1.6%
	Total All Fisheries	1.4%	0.6%	1.2%	1.2%	2.4%	2.8%	1.9%	2.1%	2.0%	1.9%	1.7%
Homer	All fisheries other than PMA Crab	0.3%	0.3%	0.3%	0.1%	0.3%	0.3%	0.4%	0.2%	0.2%	0.5%	0.3%
	Bristol Bay Red King Crab	0.4%	0.4%	0.4%	0.0%	0.0%	0.7%	0.3%	0.5%	0.7%	1.1%	0.4%
	Bering Sea Opilio Crab	1.2%	0.9%	0.9%	1.6%	1.6%	1.6%	1.1%	1.9%	1.7%	1.3%	1.3%
	Bering Sea Tanner Crab	0.3%	0.4%	0.5%	0.4%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.2%
	BBR/BSO/BST Crab group	*	*	1.8%	2.0%	1.8%	2.3%	*	*	*	*	2.0%
	Other 6 PMA Crab group	*	*	0.1%	0.2%	0.1%	0.2%	*	*	*	*	0.1%
	All 9 PMA Crab group	1.9%	1.8%	1.9%	2.2%	1.9%	2.5%	1.7%	2.6%	2.4%	2.5%	2.1%
	Total All Fisheries	2.2%	2.1%	2.2%	2.3%	2.2%	2.8%	2.1%	2.8%	2.6%	3.0%	2.4%
King Cove/Sand Point	All fisheries other than PMA Crab	*	*	0.4%	0.6%	2.3%	1.3%	0.9%	0.8%	0.4%	1.4%	0.7%
	Bristol Bay Red King Crab	0.3%	0.2%	0.2%	0.0%	0.0%	0.5%	0.6%	0.3%	0.5%	0.5%	0.3%
	Bering Sea Opilio Crab	*	*	0.8%	1.1%	1.3%	1.2%	1.2%	1.4%	1.0%	0.3%	1.0%
	Bering Sea Tanner Crab	*	0.4%	0.2%	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.2%
	BBR/BSO/BST Crab group	*	*	1.2%	1.4%	1.4%	1.9%	1.7%	1.7%	1.5%	0.8%	1.4%
	Other 6 PMA Crab group	*	*	0.1%	0.4%	0.6%	0.4%	0.3%	0.1%	0.0%	0.0%	0.2%
	All 9 PMA Crab group	1.4%	1.4%	1.3%	1.8%	1.9%	2.3%	2.0%	1.8%	1.5%	0.8%	1.6%
	Total All Fisheries	1.6%	1.5%	1.8%	2.4%	4.2%	3.5%	2.9%	2.6%	1.9%	2.2%	2.4%
Kodiak	All fisheries other than PMA Crab	2.9%	3.1%	2.8%	2.4%	2.7%	3.7%	4.4%	3.1%	3.2%	4.1%	3.1%
	Bristol Bay Red King Crab	2.5%	2.5%	2.5%	0.0%	0.0%	2.5%	1.5%	2.0%	2.8%	3.0%	1.9%
	Bering Sea Opilio Crab	7.0%	7.6%	7.5%	9.5%	6.8%	5.9%	5.9%	7.8%	7.6%	4.8%	7.3%
	Bering Sea Tanner Crab	2.9%	2.9%	2.2%	1.7%	0.6%	0.5%	0.0%	0.0%	0.0%	0.0%	1.3%
	BBR/BSO/BST Crab group	12.4%	13.0%	12.1%	11.2%	7.4%	8.9%	7.4%	9.8%	*	*	10.5%
	Other 6 PMA Crab group	1.7%	1.7%	1.8%	2.4%	1.8%	2.1%	2.6%	1.8%	*	*	1.9%
	All 9 PMA Crab group	14.1%	14.6%	14.0%	13.6%	9.2%	11.0%	10.0%	11.6%	11.8%	10.8%	12.4%
	Total All Fisheries	17.1%	17.8%	16.8%	16.0%	11.9%	14.7%	14.4%	14.7%	15.1%	14.9%	15.5%
Other Alaska	All fisheries other than PMA Crab	1.1%	1.3%	1.1%	*	0.5%	0.4%	*	*	*	*	0.7%
	Bristol Bay Red King Crab	0.6%	0.5%	0.5%	0.0%	0.0%	0.7%	0.8%	1.0%	1.0%	1.1%	0.6%
	Bering Sea Opilio Crab	1.5%	1.5%	1.4%	1.9%	2.6%	2.2%	2.6%	4.4%	3.0%	1.7%	2.2%
	Bering Sea Tanner Crab	0.4%	0.7%	0.4%	*	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.2%
	BBR/BSO/BST Crab group	*	*	2.3%	*	2.7%	3.1%	*	*	4.0%	2.8%	3.0%
	Other 6 PMA Crab group	*	*	0.4%	*	0.5%	0.6%	*	*	0.0%	0.0%	0.3%
	All 9 PMA Crab group	2.6%	2.8%	2.7%	2.9%	3.2%	3.7%	3.7%	5.7%	4.0%	2.8%	3.3%
	Total All Fisheries	3.6%	4.1%	3.8%	3.4%	3.7%	4.1%	4.4%	6.2%	4.3%	3.4%	4.1%

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Total AK	All fisheries other than PMA Crab	4.6%	4.9%	4.7%	3.6%	6.0%	5.9%	6.5%	4.7%	4.2%	6.7%	5.0%
	Bristol Bay Red King Crab	4.3%	3.8%	4.0%	0.0%	0.0%	5.2%	3.4%	4.1%	5.4%	6.4%	3.5%
	Bering Sea Opilio Crab	11.1%	10.9%	11.2%	15.1%	13.9%	12.2%	11.7%	16.8%	14.6%	9.0%	12.7%
	Bering Sea Tanner Crab	4.0%	4.6%	3.4%	2.8%	1.0%	0.9%	0.0%	0.0%	0.0%	0.0%	2.0%
	BBR/BSO/BST Crab group	19.4%	19.3%	18.5%	17.9%	15.0%	18.3%	15.2%	20.9%	20.0%	15.3%	18.2%
	Other 6 PMA Crab group	2.0%	1.9%	2.5%	3.7%	3.5%	3.7%	4.1%	2.9%	1.6%	3.5%	2.8%
	All 9 PMA Crab group	21.4%	21.2%	21.1%	21.6%	18.5%	22.0%	19.2%	23.8%	21.6%	18.8%	21.0%
Total AK/WA/OR	Total All Fisheries	25.9%	26.1%	25.8%	25.2%	24.5%	27.9%	25.8%	28.4%	25.8%	25.5%	26.0%
	All fisheries other than PMA Crab	13.4%	16.3%	13.6%	12.8%	24.1%	18.7%	31.5%	18.6%	20.9%	32.6%	19.0%
	Bristol Bay Red King Crab	15.6%	12.1%	16.2%	0.0%	0.0%	17.7%	13.3%	15.9%	20.5%	21.8%	12.7%
	Bering Sea Opilio Crab	46.5%	46.2%	49.1%	60.2%	59.0%	46.4%	42.6%	57.8%	53.7%	33.5%	50.4%
	Bering Sea Tanner Crab	15.9%	17.1%	11.9%	10.9%	4.1%	2.4%	0.0%	0.0%	0.0%	0.0%	7.5%
	BBR/BSO/BST Crab group	78.0%	75.4%	77.2%	71.0%	63.1%	66.5%	55.9%	73.7%	74.2%	55.2%	70.6%
	Other 6 PMA Crab group	8.5%	8.3%	9.2%	16.2%	12.8%	14.8%	12.6%	7.8%	4.9%	12.2%	10.4%
All 9 PMA Crab group	86.6%	83.7%	86.4%	87.2%	75.9%	81.3%	68.5%	81.4%	79.1%	67.4%	81.0%	
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Series 3: Harvest Value Data, Subset 3 - State of Washington Tables

The following tables consist of State of Washington tables that aggregate harvest value at the level of the named community of residence of the owner of the vessel, for those communities for which harvest information is potentially nonconfidential, by fishery category and year. Named communities for Washington tables are S-T CMSA and "Other Washington."

- Table A3-22 provides the value of the harvest for fisheries categories for each year for vessels owned by the residents of named communities as well as total for the state as a whole, and overall totals for fisheries as a whole.
- Table A3-23 displays the value of the harvest for fisheries categories for each year (and the 10-year period as a whole) for vessels owned by residents of named communities, as a percent of the harvest value of all fisheries for those vessels from that named community (as a measure of community fleet dependence on PMA crab).
- Table A3-24 displays the value of the harvest for fisheries categories for each year (and the 10-year period as a whole) for vessels owned by residents of named communities, as a percent of the harvest value of each individual fishery category for the total state fishery category.
- Table A3-25 displays the value of the harvest for fisheries categories for each year (and the 10-year period as a whole) for vessels owned by residents of named communities, as a percent of the harvest value of each individual fishery category for the total fishery category (all states combined).
- Table A3-26 displays the value of the harvest for fisheries categories for each year (and the 10-year period as a whole) for vessels owned by residents of named communities, as a percent of the harvest value of all fisheries categories combined for all states.

Table A3-22. Value of Harvest (in Dollars) for PMA Crab Vessels from Washington by Fishery Category, Community of Vessel Owner, and Year (1991-2000)

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
S-T CMSA	All fisheries other than PMA Crab	\$25,126,651	\$27,983,989	\$23,409,467	\$25,104,446	\$44,273,623	\$19,010,703	\$45,474,688	\$26,754,742	\$44,549,113	\$34,637,813	\$31,632,523
	Bristol Bay Red King Crab	\$34,419,234	\$25,634,921	\$36,167,295	\$0	\$0	\$19,588,607	\$17,860,719	\$22,385,110	\$41,347,912	\$21,175,679	\$21,857,948
	Bering Sea Opilio Crab	\$113,119,906	\$108,079,046	\$114,982,384	\$125,409,383	\$109,216,188	\$55,095,664	\$54,594,196	\$80,094,379	\$106,619,910	\$32,488,718	\$89,969,977
	Bering Sea Tanner Crab	\$37,707,814	\$37,644,647	\$24,927,204	\$21,350,530	\$7,554,556	\$2,446,332	\$0	\$0	\$0	\$0	\$13,163,108
	BBR/BSO/BST Crab group	*	\$171,358,615	*	\$146,759,913	\$116,770,744	\$77,130,603	\$72,454,915	\$102,479,489	\$147,967,822	\$53,664,397	\$124,991,034
	Other 6 PMA Crab group	*	\$17,826,109	*	\$29,777,498	\$20,668,191	\$16,588,258	\$14,481,518	\$8,569,601	\$7,458,718	\$8,994,392	\$16,168,524
	All 9 PMA Crab group	\$204,437,204	\$189,184,724	\$194,207,588	\$176,537,411	\$137,438,935	\$93,718,861	\$86,936,433	\$111,049,090	\$155,426,540	\$62,658,789	\$141,159,558
	Total All Fisheries	\$229,563,855	\$217,168,712	\$217,617,055	\$201,641,857	\$181,712,558	\$112,729,563	\$132,411,121	\$137,803,832	\$199,975,654	\$97,296,602	\$172,792,081
Other Washington	All fisheries other than PMA Crab	\$507,541	\$1,698,413	\$1,142,217	\$659,200	\$2,174,546	\$108,065	\$703,765	\$440,623	\$1,569,126	\$1,319,501	\$1,032,300
	Bristol Bay Red King Crab	\$2,105,562	\$1,115,746	\$2,435,860	\$0	\$0	\$1,666,903	\$1,624,122	\$1,778,811	\$3,306,305	\$1,541,511	\$1,557,482
	Bering Sea Opilio Crab	\$4,945,835	\$5,989,838	\$6,600,835	\$9,133,471	\$9,394,480	\$3,956,619	\$4,714,007	\$6,476,322	\$10,208,364	\$2,847,438	\$6,426,721
	Bering Sea Tanner Crab	\$1,643,395	\$2,304,369	\$1,847,124	\$1,309,147	\$374,513	\$176,071	\$0	\$0	\$0	\$0	\$765,462
	BBR/BSO/BST Crab group	\$8,694,792	\$9,409,953	\$10,883,818	\$10,442,617	\$9,768,993	\$5,799,593	\$6,338,129	\$8,255,133	\$13,514,669	\$4,388,950	\$8,749,665
	Other 6 PMA Crab group	\$411,132	\$2,049,471	\$1,448,197	\$1,106,410	\$1,546,227	\$654,621	\$608,441	\$485,909	\$0	\$0	\$831,041
	All 9 PMA Crab group	\$9,105,924	\$11,459,424	\$12,332,015	\$11,549,027	\$11,315,220	\$6,454,214	\$6,946,570	\$8,741,042	\$13,514,669	\$4,388,950	\$9,580,705
	Total All Fisheries	\$9,613,465	\$13,157,836	\$13,474,232	\$12,208,228	\$13,489,766	\$6,562,278	\$7,650,335	\$9,181,665	\$15,083,795	\$5,708,450	\$10,613,005
Total WA	All fisheries other than PMA Crab	\$25,634,192	\$29,682,401	\$24,551,684	\$25,763,647	\$46,448,169	\$19,118,767	\$46,178,453	\$27,195,365	\$46,118,240	\$35,957,313	\$32,664,823
	Bristol Bay Red King Crab	\$36,524,795	\$26,750,667	\$38,603,154	\$0	\$0	\$21,255,510	\$19,484,841	\$24,163,921	\$44,654,217	\$22,717,190	\$23,415,430
	Bering Sea Opilio Crab	\$118,065,741	\$114,068,885	\$121,583,219	\$134,542,853	\$118,610,668	\$59,052,283	\$59,308,202	\$86,570,702	\$116,828,274	\$35,336,157	\$96,396,698
	Bering Sea Tanner Crab	\$39,351,210	\$39,949,016	\$26,774,328	\$22,659,677	\$7,929,070	\$2,622,403	\$0	\$0	\$0	\$0	\$13,928,570
	BBR/BSO/BST Crab group	\$193,941,746	\$180,768,568	\$186,960,701	\$157,202,530	\$126,539,737	\$82,930,196	\$78,793,044	\$110,734,623	\$161,482,491	\$58,053,347	\$133,740,698
	Other 6 PMA Crab group	\$19,601,382	\$19,875,580	\$19,578,902	\$30,883,908	\$22,214,418	\$17,242,878	\$15,089,959	\$9,055,510	\$7,458,718	\$8,994,392	\$16,999,565
	All 9 PMA Crab group	\$213,543,128	\$200,644,147	\$206,539,603	\$188,086,438	\$148,754,155	\$100,173,074	\$93,883,003	\$119,790,133	\$168,941,209	\$67,047,739	\$150,740,263
	Total All Fisheries	\$239,177,320	\$230,326,549	\$231,091,287	\$213,850,085	\$195,202,324	\$119,291,841	\$140,061,456	\$146,985,498	\$215,059,449	\$103,005,052	\$183,405,086
Total AK/WA/OR	All fisheries other than PMA Crab	\$47,203,695	\$55,972,711	\$47,310,292	\$41,059,260	\$68,827,053	\$34,781,642	\$66,737,109	\$42,719,089	\$68,294,562	\$52,948,103	\$52,585,352
	Bristol Bay Red King Crab	\$54,799,012	\$41,545,440	\$56,558,156	\$0	\$0	\$32,831,761	\$28,081,306	\$36,543,041	\$66,897,815	\$35,383,194	\$35,263,972
	Bering Sea Opilio Crab	\$163,334,723	\$158,587,181	\$171,364,707	\$193,297,865	\$168,523,283	\$86,241,067	\$90,270,843	\$132,752,685	\$175,109,092	\$54,454,901	\$139,393,635
	Bering Sea Tanner Crab	\$55,755,452	\$58,867,958	\$41,499,591	\$34,884,126	\$11,704,150	\$4,505,473	\$0	\$0	\$0	\$0	\$20,721,675
	BBR/BSO/BST Crab group	\$273,889,186	\$259,000,580	\$269,422,454	\$228,181,991	\$180,227,433	\$123,578,300	\$118,352,149	\$169,295,725	\$242,006,907	\$89,838,096	\$195,379,282
	Other 6 PMA Crab group	\$29,925,986	\$28,558,710	\$32,268,526	\$52,013,908	\$36,687,321	\$27,588,128	\$26,693,356	\$17,836,260	\$15,818,551	\$19,874,449	\$28,726,520
	All 9 PMA Crab group	\$303,815,173	\$287,559,290	\$301,690,980	\$280,195,899	\$216,914,754	\$151,166,428	\$145,045,505	\$187,131,986	\$257,825,458	\$109,712,545	\$224,105,802
	Total All Fisheries	\$351,018,868	\$343,532,001	\$349,001,272	\$321,255,160	\$285,741,806	\$185,948,071	\$211,782,613	\$229,851,075	\$326,120,020	\$162,660,648	\$276,691,153

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-23. Value of Harvest for PMA Crab Vessels from Washington by Fishery Category, Community of Vessel Owner, and Year (1991-2000) as Percentage of Total Community Harvest Value for Fisheries in Which PMA Crab Vessels Participate

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
S-T CMSA	All fisheries other than PMA Crab	10.9%	12.9%	10.8%	12.5%	24.4%	16.9%	34.3%	19.4%	22.3%	35.6%	18.3%
	Bristol Bay Red King Crab	15.0%	11.8%	16.6%	0.0%	0.0%	17.4%	13.5%	16.2%	20.7%	21.8%	12.6%
	Bering Sea Opilio Crab	49.3%	49.8%	52.8%	62.2%	60.1%	48.9%	41.2%	58.1%	53.3%	33.4%	52.1%
	Bering Sea Tanner Crab	16.4%	17.3%	11.5%	10.6%	4.2%	2.2%	0.0%	0.0%	0.0%	0.0%	7.6%
	BBR/BSO/BST Crab group	*	78.9%	*	72.8%	64.3%	68.4%	54.7%	74.4%	74.0%	55.2%	72.3%
	Other 6 PMA Crab group	*	8.2%	*	14.8%	11.4%	14.7%	10.9%	6.2%	3.7%	9.2%	9.4%
	All 9 PMA Crab group	89.1%	87.1%	89.2%	87.5%	75.6%	83.1%	65.7%	80.6%	77.7%	64.4%	81.7%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Other Washington	All fisheries other than PMA Crab	5.3%	12.9%	8.5%	5.4%	16.1%	1.6%	9.2%	4.8%	10.4%	23.1%	9.7%
	Bristol Bay Red King Crab	21.9%	8.5%	18.1%	0.0%	0.0%	25.4%	21.2%	19.4%	21.9%	27.0%	14.7%
	Bering Sea Opilio Crab	51.4%	45.5%	49.0%	74.8%	69.6%	60.3%	61.6%	70.5%	67.7%	49.9%	60.6%
	Bering Sea Tanner Crab	17.1%	17.5%	13.7%	10.7%	2.8%	2.7%	0.0%	0.0%	0.0%	0.0%	7.2%
	BBR/BSO/BST Crab group	90.4%	71.5%	80.8%	85.5%	72.4%	88.4%	82.8%	89.9%	89.6%	76.9%	82.4%
	Other 6 PMA Crab group	4.3%	15.6%	10.7%	9.1%	11.5%	10.0%	8.0%	5.3%	0.0%	0.0%	7.8%
	All 9 PMA Crab group	94.7%	87.1%	91.5%	94.6%	83.9%	98.4%	90.8%	95.2%	89.6%	76.9%	90.3%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total WA	All fisheries other than PMA Crab	10.7%	12.9%	10.6%	12.0%	23.8%	16.0%	33.0%	18.5%	21.4%	34.9%	17.8%
	Bristol Bay Red King Crab	15.3%	11.6%	16.7%	0.0%	0.0%	17.8%	13.9%	16.4%	20.8%	22.1%	12.8%
	Bering Sea Opilio Crab	49.4%	49.5%	52.6%	62.9%	60.8%	49.5%	42.3%	58.9%	54.3%	34.3%	52.6%
	Bering Sea Tanner Crab	16.5%	17.3%	11.6%	10.6%	4.1%	2.2%	0.0%	0.0%	0.0%	0.0%	7.6%
	BBR/BSO/BST Crab group	81.1%	78.5%	80.9%	73.5%	64.8%	69.5%	56.3%	75.3%	75.1%	56.4%	72.9%
	Other 6 PMA Crab group	8.2%	8.6%	8.5%	14.4%	11.4%	14.5%	10.8%	6.2%	3.5%	8.7%	9.3%
	All 9 PMA Crab group	89.3%	87.1%	89.4%	88.0%	76.2%	84.0%	67.0%	81.5%	78.6%	65.1%	82.2%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total AK/WA/OR	All fisheries other than PMA Crab	13.4%	16.3%	13.6%	12.8%	24.1%	18.7%	31.5%	18.6%	20.9%	32.6%	19.0%
	Bristol Bay Red King Crab	15.6%	12.1%	16.2%	0.0%	0.0%	17.7%	13.3%	15.9%	20.5%	21.8%	12.7%
	Bering Sea Opilio Crab	46.5%	46.2%	49.1%	60.2%	59.0%	46.4%	42.6%	57.8%	53.7%	33.5%	50.4%
	Bering Sea Tanner Crab	15.9%	17.1%	11.9%	10.9%	4.1%	2.4%	0.0%	0.0%	0.0%	0.0%	7.5%
	BBR/BSO/BST Crab group	78.0%	75.4%	77.2%	71.0%	63.1%	66.5%	55.9%	73.7%	74.2%	55.2%	70.6%
	Other 6 PMA Crab group	8.5%	8.3%	9.2%	16.2%	12.8%	14.8%	12.6%	7.8%	4.9%	12.2%	10.4%
	All 9 PMA Crab group	86.6%	83.7%	86.4%	87.2%	75.9%	81.3%	68.5%	81.4%	79.1%	67.4%	81.0%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-24. Value of Harvest for PMA Crab Vessels from Washington by Fishery Category, Community of Vessel Owner, and Year (1991-2000) as Percentage of Total Value of Alaskan Harvest by Washington Vessels Fishing PMA Crab Fisheries

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
S-T CMSA	All fisheries other than PMA Crab	98.0%	94.3%	95.3%	97.4%	95.3%	99.4%	98.5%	98.4%	96.6%	96.3%	96.8%
	Bristol Bay Red King Crab	94.2%	95.8%	93.7%			92.2%	91.7%	92.6%	92.6%	93.2%	93.3%
	Bering Sea Opilio Crab	95.8%	94.7%	94.6%	93.2%	92.1%	93.3%	92.1%	92.5%	91.3%	91.9%	93.3%
	Bering Sea Tanner Crab	95.8%	94.2%	93.1%	94.2%	95.3%	93.3%					94.5%
	BBR/BSO/BST Crab group	*	94.8%	*	93.4%	92.3%	93.0%	92.0%	92.5%	91.6%	92.4%	93.5%
	Other 6 PMA Crab group	*	89.7%	*	96.4%	93.0%	96.2%	96.0%	94.6%	100.0%	100.0%	95.1%
	All 9 PMA Crab group	95.7%	94.3%	94.0%	93.9%	92.4%	93.6%	92.6%	92.7%	92.0%	93.5%	93.6%
	Total All Fisheries	96.0%	94.3%	94.2%	94.3%	93.1%	94.5%	94.5%	93.8%	93.0%	94.5%	94.2%
Other Washington	All fisheries other than PMA Crab	2.0%	5.7%	4.7%	2.6%	4.7%	0.6%	1.5%	1.6%	3.4%	3.7%	3.2%
	Bristol Bay Red King Crab	5.8%	4.2%	6.3%			7.8%	8.3%	7.4%	7.4%	6.8%	6.7%
	Bering Sea Opilio Crab	4.2%	5.3%	5.4%	6.8%	7.9%	6.7%	7.9%	7.5%	8.7%	8.1%	6.7%
	Bering Sea Tanner Crab	4.2%	5.8%	6.9%	5.8%	4.7%	6.7%					5.5%
	BBR/BSO/BST Crab group	4.5%	5.2%	5.8%	6.6%	7.7%	7.0%	8.0%	7.5%	8.4%	7.6%	6.5%
	Other 6 PMA Crab group	2.1%	10.3%	7.4%	3.6%	7.0%	3.8%	4.0%	5.4%	0.0%	0.0%	4.9%
	All 9 PMA Crab group	4.3%	5.7%	6.0%	6.1%	7.6%	6.4%	7.4%	7.3%	8.0%	6.5%	6.4%
	Total All Fisheries	4.0%	5.7%	5.8%	5.7%	6.9%	5.5%	5.5%	6.2%	7.0%	5.5%	5.8%
Total WA	All fisheries other than PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bristol Bay Red King Crab	100.0%	100.0%	100.0%			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bering Sea Opilio Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Bering Sea Tanner Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%					100.0%
	BBR/BSO/BST Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Other 6 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	All 9 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-25. Value of Harvest for PMA Crab Vessels from Washington by Fishery Category, Community of Vessel Owner, and Year (1991-2000) as Percentage of Individual Fishery Grand Total of Value (all States) of Harvest by all Vessels Fishing PMA Crab Fisheries

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
S-T CMSA	All fisheries other than PMA Crab	53.2%	50.0%	49.5%	61.1%	64.3%	54.7%	68.1%	62.6%	65.2%	65.4%	60.2%
	Bristol Bay Red King Crab	62.8%	61.7%	63.9%			59.7%	63.6%	61.3%	61.8%	59.8%	62.0%
	Bering Sea Opilio Crab	69.3%	68.2%	67.1%	64.9%	64.8%	63.9%	60.5%	60.3%	60.9%	59.7%	64.5%
	Bering Sea Tanner Crab	67.6%	63.9%	60.1%	61.2%	64.5%	54.3%					63.5%
	BBR/BSO/BST Crab group	*	66.2%	*	64.3%	64.8%	62.4%	61.2%	60.5%	61.1%	59.7%	64.0%
	Other 6 PMA Crab group	*	62.4%	*	57.2%	56.3%	60.1%	54.3%	48.0%	47.2%	45.3%	56.3%
	All 9 PMA Crab group	67.3%	65.8%	64.4%	63.0%	63.4%	62.0%	59.9%	59.3%	60.3%	57.1%	63.0%
	Total All Fisheries	65.4%	63.2%	62.4%	62.8%	63.6%	60.6%	62.5%	60.0%	61.3%	59.8%	62.4%
Other Washington	All fisheries other than PMA Crab	1.1%	3.0%	2.4%	1.6%	3.2%	0.3%	1.1%	1.0%	2.3%	2.5%	2.0%
	Bristol Bay Red King Crab	3.8%	2.7%	4.3%			5.1%	5.8%	4.9%	4.9%	4.4%	4.4%
	Bering Sea Opilio Crab	3.0%	3.8%	3.9%	4.7%	5.6%	4.6%	5.2%	4.9%	5.8%	5.2%	4.6%
	Bering Sea Tanner Crab	2.9%	3.9%	4.5%	3.8%	3.2%	3.9%					3.7%
	BBR/BSO/BST Crab group	3.2%	3.6%	4.0%	4.6%	5.4%	4.7%	5.4%	4.9%	5.6%	4.9%	4.5%
	Other 6 PMA Crab group	1.4%	7.2%	4.5%	2.1%	4.2%	2.4%	2.3%	2.7%	0.0%	0.0%	2.9%
	All 9 PMA Crab group	3.0%	4.0%	4.1%	4.1%	5.2%	4.3%	4.8%	4.7%	5.2%	4.0%	4.3%
	Total All Fisheries	2.7%	3.8%	3.9%	3.8%	4.7%	3.5%	3.6%	4.0%	4.6%	3.5%	3.8%
Total WA	All fisheries other than PMA Crab	54.3%	53.0%	51.9%	62.7%	67.5%	55.0%	69.2%	63.7%	67.5%	67.9%	62.1%
	Bristol Bay Red King Crab	66.7%	64.4%	68.3%			64.7%	69.4%	66.1%	66.7%	64.2%	66.4%
	Bering Sea Opilio Crab	72.3%	71.9%	70.9%	69.6%	70.4%	68.5%	65.7%	65.2%	66.7%	64.9%	69.2%
	Bering Sea Tanner Crab	70.6%	67.9%	64.5%	65.0%	67.7%	58.2%					67.2%
	BBR/BSO/BST Crab group	70.8%	69.8%	69.4%	68.9%	70.2%	67.1%	66.6%	65.4%	66.7%	64.6%	68.5%
	Other 6 PMA Crab group	65.5%	69.6%	60.7%	59.4%	60.6%	62.5%	56.5%	50.8%	47.2%	45.3%	59.2%
	All 9 PMA Crab group	70.3%	69.8%	68.5%	67.1%	68.6%	66.3%	64.7%	64.0%	65.5%	61.1%	67.3%
	Total All Fisheries	68.1%	67.0%	66.2%	66.6%	68.3%	64.2%	66.1%	63.9%	65.9%	63.3%	66.3%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-26. Value of Harvest for PMA Crab Vessels from Washington by Fishery Category, Community of Vessel Owner, and Year (1991-2000) as Percentage of Grand Total of Value of Harvest from All Alaskan Fisheries for Vessels Fishing PMA Crab Fisheries

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
S-T CMSA	All fisheries other than PMA Crab	7.2%	8.1%	6.7%	7.8%	15.5%	10.2%	21.5%	11.6%	13.7%	21.3%	11.4%
	Bristol Bay Red King Crab	9.8%	7.5%	10.4%	0.0%	0.0%	10.5%	8.4%	9.7%	12.7%	13.0%	7.9%
	Bering Sea Opilio Crab	32.2%	31.5%	32.9%	39.0%	38.2%	29.6%	25.8%	34.8%	32.7%	20.0%	32.5%
	Bering Sea Tanner Crab	10.7%	11.0%	7.1%	6.6%	2.6%	1.3%	0.0%	0.0%	0.0%	0.0%	4.8%
	BBR/BSO/BST Crab group	*	49.9%	*	45.7%	40.9%	41.5%	34.2%	44.6%	45.4%	33.0%	45.2%
	Other 6 PMA Crab group	*	5.2%	*	9.3%	7.2%	8.9%	6.8%	3.7%	2.3%	5.5%	5.8%
	All 9 PMA Crab group	58.2%	55.1%	55.6%	55.0%	48.1%	50.4%	41.0%	48.3%	47.7%	38.5%	51.0%
	Total All Fisheries	65.4%	63.2%	62.4%	62.8%	63.6%	60.6%	62.5%	60.0%	61.3%	59.8%	62.4%
Other Washington	All fisheries other than PMA Crab	0.1%	0.5%	0.3%	0.2%	0.8%	0.1%	0.3%	0.2%	0.5%	0.8%	0.4%
	Bristol Bay Red King Crab	0.6%	0.3%	0.7%	0.0%	0.0%	0.9%	0.8%	0.8%	1.0%	0.9%	0.6%
	Bering Sea Opilio Crab	1.4%	1.7%	1.9%	2.8%	3.3%	2.1%	2.2%	2.8%	3.1%	1.8%	2.3%
	Bering Sea Tanner Crab	0.5%	0.7%	0.5%	0.4%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.3%
	BBR/BSO/BST Crab group	2.5%	2.7%	3.1%	3.3%	3.4%	3.1%	3.0%	3.6%	4.1%	2.7%	3.2%
	Other 6 PMA Crab group	0.1%	0.6%	0.4%	0.3%	0.5%	0.4%	0.3%	0.2%	0.0%	0.0%	0.3%
	All 9 PMA Crab group	2.6%	3.3%	3.5%	3.6%	4.0%	3.5%	3.3%	3.8%	4.1%	2.7%	3.5%
	Total All Fisheries	2.7%	3.8%	3.9%	3.8%	4.7%	3.5%	3.6%	4.0%	4.6%	3.5%	3.8%
Total WA	All fisheries other than PMA Crab	7.3%	8.6%	7.0%	8.0%	16.3%	10.3%	21.8%	11.8%	14.1%	22.1%	11.8%
	Bristol Bay Red King Crab	10.4%	7.8%	11.1%	0.0%	0.0%	11.4%	9.2%	10.5%	13.7%	14.0%	8.5%
	Bering Sea Opilio Crab	33.6%	33.2%	34.8%	41.9%	41.5%	31.8%	28.0%	37.7%	35.8%	21.7%	34.8%
	Bering Sea Tanner Crab	11.2%	11.6%	7.7%	7.1%	2.8%	1.4%	0.0%	0.0%	0.0%	0.0%	5.0%
	BBR/BSO/BST Crab group	55.3%	52.6%	53.6%	48.9%	44.3%	44.6%	37.2%	48.2%	49.5%	35.7%	48.3%
	Other 6 PMA Crab group	5.6%	5.8%	5.6%	9.6%	7.8%	9.3%	7.1%	3.9%	2.3%	5.5%	6.1%
	All 9 PMA Crab group	60.8%	58.4%	59.2%	58.5%	52.1%	53.9%	44.3%	52.1%	51.8%	41.2%	54.5%
	Total All Fisheries	68.1%	67.0%	66.2%	66.6%	68.3%	64.2%	66.1%	63.9%	65.9%	63.3%	66.3%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Series 3: Harvest Value Data, Subset 4 - State of Oregon Tables

The final subset in this series consists of State of Oregon tables that aggregate harvest value at the level of the named community of residence of the owner of the vessel, for those communities for which harvest information is potentially nonconfidential, by fishery category and year. Named communities for Oregon tables are Newport and "Other Oregon."

- Table A3-27 provides the value of the harvest for fisheries categories for each year for vessels owned by the residents of named communities as well as total for the state as a whole, and overall totals for fisheries as a whole.
- Table A3-28 displays the value of the harvest for fisheries categories for each year (and the 10-year period as a whole) for vessels owned by residents of named communities, as a percent of the harvest value of all fisheries for those vessels from that named community (as a measure of community fleet dependence on PMA crab).
- Table A3-29 displays the value of the harvest for fisheries categories for each year (and the 10-year period as a whole) for vessels owned by residents of named communities, as a percent of the harvest value of each individual fishery category for the total state fishery category.
- Table A3-30 displays the value of the harvest for fisheries categories for each year (and the 10-year period as a whole) for vessels owned by residents of named communities, as a percent of the harvest value of each individual fishery category for the total fishery category (all states combined).
- Table A3-31 displays the value of the harvest for fisheries categories for each year (and the 10-year period as a whole) for vessels owned by residents of named communities, as a percent of the harvest value of all fisheries categories combined for all states.

Table A3-27. Value of harvest (in Dollars) for PMA Crab Vessels from Oregon by Fishery Category, Community of Vessel Owner, and Year (1991-2000)

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
Newport	All fisheries other than PMA Crab	4,543,029	6,766,065	3,016,248	2,719,683	*	*	*	3,550,036	6,319,484	5,187,321	\$4,529,452	
	Bristol Bay Red King Crab	2,104,190	870,937	2,848,856	0	0	1,397,784	1,112,337	2,211,830	2,705,132	1,409,051	\$1,466,012	
	Bering Sea Opilio Crab	4,324,527	4,148,148	7,269,651	6,387,786	6,737,215	2,956,327	4,601,864	5,645,076	7,009,415	2,431,502	\$5,151,151	
	Bering Sea Tanner Crab	1,318,812	1,637,545	1,667,064	2,102,747	534,141	144,722	0	0	0	0	\$740,503	
	BBR/BSO/BST Crab group	7,747,529	6,656,630	11,785,572	8,490,534	7,271,356	4,498,833	5,714,201	7,856,906	*	*	\$7,357,666	
	Other 6 PMA Crab group	*	*	3,501,615	8,860,387	*	*	*	1,984,701	*	*	*	\$3,798,493
	All 9 PMA Crab group	*	*	15,287,187	17,350,921	*	*	*	9,841,607	12,993,953	9,062,150	\$11,156,159	
	Total All Fisheries	15,207,718	15,511,952	18,303,435	20,070,604	15,607,791	11,255,078	13,944,982	13,391,643	19,313,437	14,249,471	\$15,685,611	
Other Oregon	All fisheries other than PMA Crab	1,000,203	2,811,180	3,236,621	933,590	*	*	*	1,251,882	2,055,011	938,724	\$1,581,269	
	Bristol Bay Red King Crab	1,182,370	857,502	1,307,792	0	0	543,824	254,108	851,789	1,840,869	918,530	\$775,679	
	Bering Sea Opilio Crab	1,902,560	2,987,131	3,531,008	3,859,459	3,371,905	1,471,633	1,496,102	1,888,689	3,765,785	2,088,433	\$2,636,270	
	Bering Sea Tanner Crab	1,142,817	1,416,724	1,167,869	1,059,934	270,227	71,973	0	0	0	0	\$512,954	
	BBR/BSO/BST Crab group	4,227,747	5,261,357	6,006,669	4,919,393	3,642,132	2,087,431	1,750,210	2,740,478	5,606,654	3,006,963	\$3,924,903	
	Other 6 PMA Crab group	*	*	344,324	375,629	*	*	*	150,038	0	0	\$205,249	
	All 9 PMA Crab group	*	*	6,350,993	5,295,022	*	*	*	2,890,516	5,606,654	3,006,963	\$4,130,153	
	Total All Fisheries	5,646,653	8,160,643	9,587,614	6,228,611	5,014,137	3,503,281	3,223,526	4,142,397	7,661,665	3,945,687	\$5,711,421	
Total OR	All fisheries other than PMA Crab	5,543,233	9,577,244	6,252,869	3,653,273	5,263,391	4,749,124	6,765,619	4,801,917	8,374,494	6,126,044	\$6,110,721	
	Bristol Bay Red King Crab	3,286,560	1,728,439	4,156,648	0	0	1,941,609	1,366,445	3,063,619	4,546,002	2,327,582	\$2,241,690	
	Bering Sea Opilio Crab	6,227,087	7,135,280	10,800,660	10,247,246	10,109,120	4,427,961	6,097,966	7,533,765	10,775,200	4,519,935	\$7,787,422	
	Bering Sea Tanner Crab	2,461,629	3,054,269	2,834,933	3,162,681	804,368	216,695	0	0	0	0	\$1,253,457	
	BBR/BSO/BST Crab group	11,975,276	11,917,988	17,792,241	13,409,927	10,913,488	6,586,264	7,464,411	10,597,384	15,321,202	6,847,516	\$11,282,569	
	Other 6 PMA Crab group	3,335,862	2,177,364	3,845,939	9,236,016	4,445,049	3,422,971	2,938,478	2,134,739	3,279,406	5,221,597	\$4,003,742	
	All 9 PMA Crab group	15,311,138	14,095,352	21,638,179	22,645,942	15,358,537	10,009,235	10,402,889	12,732,123	18,600,607	12,069,113	\$15,286,312	
	Total All Fisheries	20,854,370	23,672,596	27,891,049	26,299,215	20,621,929	14,758,359	17,168,508	17,534,040	26,975,102	18,195,158	\$21,397,033	
Total AK/WA/OR	All fisheries other than PMA Crab	47,203,695	55,972,711	47,310,292	41,059,260	68,827,053	34,781,642	66,737,109	42,719,089	68,294,562	52,948,103	\$52,585,352	
	Bristol Bay Red King Crab	54,799,012	41,545,440	56,558,156	0	0	32,831,761	28,081,306	36,543,041	66,897,815	35,383,194	\$35,263,972	
	Bering Sea Opilio Crab	163,334,723	158,587,181	171,364,707	193,297,865	168,523,283	86,241,067	90,270,843	132,752,685	175,109,092	54,454,901	\$139,393,635	
	Bering Sea Tanner Crab	55,755,452	58,867,958	41,499,591	34,884,126	11,704,150	4,505,473	0	0	0	0	\$20,721,675	
	BBR/BSO/BST Crab group	273,889,186	259,000,580	269,422,454	228,181,991	180,227,433	123,578,300	118,352,149	169,295,725	242,006,907	89,838,096	\$195,379,282	
	Other 6 PMA Crab group	29,925,986	28,558,710	32,268,526	52,013,908	36,687,321	27,588,128	26,693,356	17,836,260	15,818,551	19,874,449	\$28,726,520	
	All 9 PMA Crab group	303,815,173	287,559,290	301,690,980	280,195,899	216,914,754	151,166,428	145,045,505	187,131,986	257,825,458	109,712,545	\$224,105,802	
	Total All Fisheries	351,018,868	343,532,001	349,001,272	321,255,160	285,741,806	185,948,071	211,782,613	229,851,075	326,120,020	162,660,648	\$276,691,153	

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries. PMA crab fishery and group harvest values include all landings (qualified and non-qualified). Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed). Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-28. Value of Harvest for PMA Crab Vessels from Oregon by Fishery Category, Community of Vessel Owner, and Year (1991-2000) as Percentage of Total Community Harvest Value for Fisheries in Which PMA Crab Vessels Participate

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Newport	All fisheries other than PMA Crab	29.9%	43.6%	16.5%	13.6%	*	*	*	26.5%	32.7%	36.4%	28.9%
	Bristol Bay Red King Crab	13.8%	5.6%	15.6%	0.0%	0.0%	12.4%	8.0%	16.5%	14.0%	9.9%	9.3%
	Bering Sea Opilio Crab	28.4%	26.7%	39.7%	31.8%	43.2%	26.3%	33.0%	42.2%	36.3%	17.1%	32.8%
	Bering Sea Tanner Crab	8.7%	10.6%	9.1%	10.5%	3.4%	1.3%	0.0%	0.0%	0.0%	0.0%	4.7%
	BBR/BSO/BST Crab group	50.9%	42.9%	64.4%	42.3%	46.6%	40.0%	41.0%	58.7%	*	*	46.9%
	Other 6 PMA Crab group	*	*	19.1%	44.1%	*	*	*	14.8%	*	*	24.2%
	All 9 PMA Crab group	*	*	83.5%	86.4%	*	*	*	73.5%	67.3%	63.6%	71.1%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Other Oregon	All fisheries other than PMA Crab	17.7%	34.4%	33.8%	15.0%	*	*	*	30.2%	26.8%	23.8%	27.7%
	Bristol Bay Red King Crab	20.9%	10.5%	13.6%	0.0%	0.0%	15.5%	7.9%	20.6%	24.0%	23.3%	13.6%
	Bering Sea Opilio Crab	33.7%	36.6%	36.8%	62.0%	67.2%	42.0%	46.4%	45.6%	49.2%	52.9%	46.2%
	Bering Sea Tanner Crab	20.2%	17.4%	12.2%	17.0%	5.4%	2.1%	0.0%	0.0%	0.0%	0.0%	9.0%
	BBR/BSO/BST Crab group	74.9%	64.5%	62.7%	79.0%	72.6%	59.6%	54.3%	66.2%	73.2%	76.2%	68.7%
	Other 6 PMA Crab group	*	*	3.6%	6.0%	*	*	*	3.6%	0.0%	0.0%	3.6%
	All 9 PMA Crab group	*	*	66.2%	85.0%	*	*	*	69.8%	73.2%	76.2%	72.3%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total OR	All fisheries other than PMA Crab	26.6%	40.5%	22.4%	13.9%	25.5%	32.2%	39.4%	27.4%	31.0%	33.7%	28.6%
	Bristol Bay Red King Crab	15.8%	7.3%	14.9%	0.0%	0.0%	13.2%	8.0%	17.5%	16.9%	12.8%	10.5%
	Bering Sea Opilio Crab	29.9%	30.1%	38.7%	39.0%	49.0%	30.0%	35.5%	43.0%	39.9%	24.8%	36.4%
	Bering Sea Tanner Crab	11.8%	12.9%	10.2%	12.0%	3.9%	1.5%	0.0%	0.0%	0.0%	0.0%	5.9%
	BBR/BSO/BST Crab group	57.4%	50.3%	63.8%	51.0%	52.9%	44.6%	43.5%	60.4%	56.8%	37.6%	52.7%
	Other 6 PMA Crab group	16.0%	9.2%	13.8%	35.1%	21.6%	23.2%	17.1%	12.2%	12.2%	28.7%	18.7%
	All 9 PMA Crab group	73.4%	59.5%	77.6%	86.1%	74.5%	67.8%	60.6%	72.6%	69.0%	66.3%	71.4%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total AK/WA/OR	All fisheries other than PMA Crab	13.4%	16.3%	13.6%	12.8%	24.1%	18.7%	31.5%	18.6%	20.9%	32.6%	19.0%
	Bristol Bay Red King Crab	15.6%	12.1%	16.2%	0.0%	0.0%	17.7%	13.3%	15.9%	20.5%	21.8%	15.9%
	Bering Sea Opilio Crab	46.5%	46.2%	49.1%	60.2%	59.0%	46.4%	42.6%	57.8%	53.7%	33.5%	50.4%
	Bering Sea Tanner Crab	15.9%	17.1%	11.9%	10.9%	4.1%	2.4%	0.0%	0.0%	0.0%	0.0%	12.5%
	BBR/BSO/BST Crab group	78.0%	75.4%	77.2%	71.0%	63.1%	66.5%	55.9%	73.7%	74.2%	55.2%	70.6%
	Other 6 PMA Crab group	8.5%	8.3%	9.2%	16.2%	12.8%	14.8%	12.6%	7.8%	4.9%	12.2%	10.4%
	All 9 PMA Crab group	86.6%	83.7%	86.4%	87.2%	75.9%	81.3%	68.5%	81.4%	79.1%	67.4%	81.0%
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-29. Value of Harvest for PMA Crab Vessels from Oregon by Fishery Category, Community of Vessel Owner, and Year (1991-2000) as Percentage of Total Value of Alaskan Harvest by Oregon Vessels Fishing PMA Crab Fisheries

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
Newport	All fisheries other than PMA Crab	82.0%	70.6%	48.2%	74.4%	*	*	*	73.9%	75.5%	84.7%	74.1%	
	Bristol Bay Red King Crab	64.0%	50.4%	68.5%			72.0%	81.4%	72.2%	59.5%	60.5%	65.4%	
	Bering Sea Opilio Crab	69.4%	58.1%	67.3%	62.3%	66.6%	66.8%	75.5%	74.9%	65.1%	53.8%	66.1%	
	Bering Sea Tanner Crab	53.6%	53.6%	58.8%	66.5%	66.4%	66.8%						59.1%
	BBR/BSO/BST Crab group	64.7%	55.9%	66.2%	63.3%	66.6%	68.3%	76.6%	74.1%	*	*		65.2%
	Other 6 PMA Crab group	*	*	91.0%	95.9%	*	*	*	93.0%	*	*		94.9%
	All 9 PMA Crab group	*	*	70.6%	76.6%	*	*	*	77.3%	69.9%	75.1%		73.0%
	Total All Fisheries	72.9%	65.5%	65.6%	76.3%	75.7%	76.3%	81.2%	76.4%	71.6%	78.3%		73.3%
Other Oregon	All fisheries other than PMA Crab	18.0%	29.4%	51.8%	25.6%	*	*	*	26.1%	24.5%	15.3%	25.9%	
	Bristol Bay Red King Crab	36.0%	49.6%	31.5%			28.0%	18.6%	27.8%	40.5%	39.5%	34.6%	
	Bering Sea Opilio Crab	30.6%	41.9%	32.7%	37.7%	33.4%	33.2%	24.5%	25.1%	34.9%	46.2%	33.9%	
	Bering Sea Tanner Crab	46.4%	46.4%	41.2%	33.5%	33.6%	33.2%						40.9%
	BBR/BSO/BST Crab group	35.3%	44.1%	33.8%	36.7%	33.4%	31.7%	23.4%	25.9%	36.6%	43.9%	34.8%	
	Other 6 PMA Crab group	*	*	9.0%	4.1%	*	*	*	7.0%	0.0%	0.0%		5.1%
	All 9 PMA Crab group	*	*	29.4%	23.4%	*	*	*	22.7%	30.1%	24.9%		27.0%
	Total All Fisheries	27.1%	34.5%	34.4%	23.7%	24.3%	23.7%	18.8%	23.6%	28.4%	21.7%		26.7%
Total OR	All fisheries other than PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	Bristol Bay Red King Crab	100.0%	100.0%	100.0%			100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	Bering Sea Opilio Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	Bering Sea Tanner Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%					100.0%	
	BBR/BSO/BST Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	Other 6 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	All 9 PMA Crab group	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	Total All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Note: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-30. Value of Harvest for PMA Crab Vessels from Oregon by Fishery Category, Community of Vessel Owner, and Year (1991-2000) as Percentage of Individual Fishery Grand Total of Value (all States) of Harvest by all Vessels Fishing PMA Crab Fisheries

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Newport	All fisheries other than PMA Crab	9.6%	12.1%	6.4%	6.6%	*	*	*	8.3%	9.3%	9.8%	86.1%
	Bristol Bay Red King Crab	3.8%	2.1%	5.0%			4.3%	4.0%	6.1%	4.0%	4.0%	33.3%
	Bering Sea Opilio Crab	2.6%	2.6%	4.2%	3.3%	4.0%	3.4%	5.1%	4.3%	4.0%	4.5%	37.0%
	Bering Sea Tanner Crab	2.4%	2.8%	4.0%	6.0%	4.6%	3.2%					21.4%
	BBR/BSO/BST Crab group	2.8%	2.6%	4.4%	3.7%	4.0%	3.6%	4.8%	4.6%	*	*	37.7%
	Other 6 PMA Crab group	*	*	10.9%	17.0%	*	*	*	11.1%	*	*	132.2%
	All 9 PMA Crab group	*	*	5.1%	6.2%	*	*	*	5.3%	5.0%	8.3%	49.8%
	Total All Fisheries	4.3%	4.5%	5.2%	6.2%	5.5%	6.1%	6.6%	5.8%	5.9%	8.8%	56.7%
Other Oregon	All fisheries other than PMA Crab	2.1%	5.0%	6.8%	2.3%	*	*	*	2.9%	3.0%	1.8%	30.1%
	Bristol Bay Red King Crab	2.2%	2.1%	2.3%			1.7%	0.9%	2.3%	2.8%	2.6%	17.6%
	Bering Sea Opilio Crab	1.2%	1.9%	2.1%	2.0%	2.0%	1.7%	1.7%	1.4%	2.2%	3.8%	18.9%
	Bering Sea Tanner Crab	2.0%	2.4%	2.8%	3.0%	2.3%	1.6%					14.9%
	BBR/BSO/BST Crab group	1.5%	2.0%	2.2%	2.2%	2.0%	1.7%	1.5%	1.6%	2.3%	3.3%	20.1%
	Other 6 PMA Crab group	*	*	1.1%	0.7%	*	*	*	0.8%	0.0%	0.0%	7.1%
	All 9 PMA Crab group	*	*	2.1%	1.9%	*	*	*	1.5%	2.2%	2.7%	18.4%
	Total All Fisheries	1.6%	2.4%	2.7%	1.9%	1.8%	1.9%	1.5%	1.8%	2.3%	2.4%	20.6%
Total OR	All fisheries other than PMA Crab	11.7%	17.1%	13.2%	8.9%	7.6%	13.7%	10.1%	11.2%	12.3%	11.6%	116.2%
	Bristol Bay Red King Crab	6.0%	4.2%	7.3%			5.9%	4.9%	8.4%	6.8%	6.6%	50.9%
	Bering Sea Opilio Crab	3.8%	4.5%	6.3%	5.3%	6.0%	5.1%	6.8%	5.7%	6.2%	8.3%	55.9%
	Bering Sea Tanner Crab	4.4%	5.2%	6.8%	9.1%	6.9%	4.8%					36.3%
	BBR/BSO/BST Crab group	4.4%	4.6%	6.6%	5.9%	6.1%	5.3%	6.3%	6.3%	6.3%	7.6%	57.7%
	Other 6 PMA Crab group	11.1%	7.6%	11.9%	17.8%	12.1%	12.4%	11.0%	12.0%	20.7%	26.3%	139.4%
	All 9 PMA Crab group	5.0%	4.9%	7.2%	8.1%	7.1%	6.6%	7.2%	6.8%	7.2%	11.0%	68.2%
	Total All Fisheries	5.9%	6.9%	8.0%	8.2%	7.2%	7.9%	8.1%	7.6%	8.3%	11.2%	77.3%

Note: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-31. Value of Harvest for PMA Crab Vessels from Oregon by Fishery Category, Community of Vessel Owner, and Year (1991-2000) as Percentage of Grand Total of Value of Harvest from All Alaskan Fisheries for Vessels Fishing PMA Crab Fisheries

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Newport	All fisheries other than PMA Crab	1.3%	2.0%	0.9%	0.8%	*	*	*	1.5%	1.9%	3.2%	16.4%
	Bristol Bay Red King Crab	0.6%	0.3%	0.8%	0.0%	0.0%	0.8%	0.5%	1.0%	0.8%	0.9%	5.3%
	Bering Sea Opilio Crab	1.2%	1.2%	2.1%	2.0%	2.4%	1.6%	2.2%	2.5%	2.1%	1.5%	18.6%
	Bering Sea Tanner Crab	0.4%	0.5%	0.5%	0.7%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	2.7%
	BBR/BSO/BST Crab group	2.2%	1.9%	3.4%	2.6%	2.5%	2.4%	2.7%	3.4%	*	*	26.6%
	Other 6 PMA Crab group	*	*	1.0%	2.8%	*	*	*	0.9%	*	*	13.7%
	All 9 PMA Crab group	*	*	4.4%	5.4%	*	*	*	4.3%	4.0%	5.6%	40.3%
	Total All Fisheries	4.3%	4.5%	5.2%	6.2%	5.5%	6.1%	6.6%	5.8%	5.9%	8.8%	56.7%
Other Oregon	All fisheries other than PMA Crab	0.3%	0.8%	0.9%	0.3%	*	*	*	0.5%	0.6%	0.6%	5.7%
	Bristol Bay Red King Crab	0.3%	0.2%	0.4%	0.0%	0.0%	0.3%	0.1%	0.4%	0.6%	0.6%	2.8%
	Bering Sea Opilio Crab	0.5%	0.9%	1.0%	1.2%	1.2%	0.8%	0.7%	0.8%	1.2%	1.3%	9.5%
	Bering Sea Tanner Crab	0.3%	0.4%	0.3%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%
	BBR/BSO/BST Crab group	1.2%	1.5%	1.7%	1.5%	1.3%	1.1%	0.8%	1.2%	1.7%	1.8%	14.2%
	Other 6 PMA Crab group	*	*	0.1%	0.1%	*	*	*	0.1%	0.0%	0.0%	0.7%
	All 9 PMA Crab group	*	*	1.8%	1.6%	*	*	*	1.3%	1.7%	1.8%	14.9%
	Total All Fisheries	1.6%	2.4%	2.7%	1.9%	1.8%	1.9%	1.5%	1.8%	2.3%	2.4%	20.6%
Total OR	All fisheries other than PMA Crab	1.6%	2.8%	1.8%	1.1%	1.8%	2.6%	3.2%	2.1%	2.6%	3.8%	22.1%
	Bristol Bay Red King Crab	0.9%	0.5%	1.2%	0.0%	0.0%	1.0%	0.6%	1.3%	1.4%	1.4%	8.1%
	Bering Sea Opilio Crab	1.8%	2.1%	3.1%	3.2%	3.5%	2.4%	2.9%	3.3%	3.3%	2.8%	28.1%
	Bering Sea Tanner Crab	0.7%	0.9%	0.8%	1.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	4.5%
	BBR/BSO/BST Crab group	3.4%	3.5%	5.1%	4.2%	3.8%	3.5%	3.5%	4.6%	4.7%	4.2%	40.8%
	Other 6 PMA Crab group	1.0%	0.6%	1.1%	2.9%	1.6%	1.8%	1.4%	0.9%	1.0%	3.2%	14.5%
	All 9 PMA Crab group	4.4%	4.1%	6.2%	7.0%	5.4%	5.4%	4.9%	5.5%	5.7%	7.4%	55.2%
	Total All Fisheries	5.9%	6.9%	8.0%	8.2%	7.2%	7.9%	8.1%	7.6%	8.3%	11.2%	77.3%

Note: "Fisheries other than PMA crab" includes both Alaska EEZ (federal) and Alaska state waters fisheries.
PMA crab fishery and group harvest values include all landings (qualified and non-qualified).
Average annual community harvest values are computed using 1991-2000 (that is, including years various fisheries were closed).
Other States have been deleted due to confidentiality concerns.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Series 4: Community Fleet Dependency Data

The next set of tables presents information designed to measure the dependency on PMA crab fisheries of the total fleet of harvest vessels from each of the named communities. These tables contain information on all vessels owned by residents of the named communities, whether they fish for PMA crab or not. They present information by a different set of fisheries categories, to indicate which fisheries are more significant for each named community, for each year 1991-2000 as well as for that period of time overall. To reduce confidentiality problems and because the purpose of these tables is to determine the overall economic significance of large fisheries categories to communities, all PMA fisheries are combined while "other" fisheries are broken out in more detail.

- Table A3-32 enumerates the number of vessels in each fishery category owned by residents of each named place, by year. This table serves to identify confidentiality concerns on the following harvest tables.
- Table A3-33 presents the numerical value in dollars of the harvest in each fishery category of the vessels owned by residents of each named place for the vessels enumerated in the table above.
- Table A3-34 presents the value in dollars of the harvest in each fishery category of the vessels owned by residents of each named place, as a percent of the total value of all fisheries for all vessels owned for each respective named place.
- Table A3-35 presents the value in dollars of the harvest in each fishery category of the vessels owned by residents of each named place, as a percent of the total value of each respective individual fishery for the state to which the named community belongs.
- Table A3-36 presents the value in dollars of the harvest in each fishery category of the vessels owned by residents of each named place, as a percent of the total overall value of each respective individual fishery (total for all states).
- Table A3-37 presents the value in dollars of the harvest in each fishery category of the vessels owned by residents of each named place, as a percent of the total overall value of all combined fisheries (grand totals for all states).

Table A3-32. Vessels Participating in Alaskan Fisheries, by Vessel Owners, State, Community and Fishery (1991-2000)

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average		
Number of Oregon Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000															
Oregon	Newport	PMA Crab Fisheries	11	11	12	10	10	9	12	11	12	13	11.1		
		Non-PMA Crab Fisheries	4	5	2	1	3	0	1	1	1	1	1	1.9	
		Pollock	13	15	13	13	18	15	17	20	20	18	18	16.2	
		Pacific Cod	21	19	15	16	23	21	22	22	24	25	25	20.8	
		Other Groundfish	14	16	12	14	22	17	19	20	24	23	23	18.1	
		Other Fisheries	23	11	7	10	13	12	10	9	9	0	9	10.4	
		Salmon	1	2	4	3	6	3	4	5	3	3	3	3.4	
		"Non-Vessel" Fisheries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		TOTAL HARVEST VESSELS	30	27	29	26	33	29	32	32	33	31	31	30.2	
		Other Oregon	PMA Crab Fisheries	9	8	9	7	6	5	4	6	7	7	7	6.8
	Non-PMA Crab Fisheries	11	6	7	7	4	2	4	0	0	0	0	4.1		
	Pollock	6	12	12	8	7	9	10	14	15	14	14	10.7		
	Pacific Cod	33	43	22	13	21	16	20	25	30	33	33	25.6		
	Other Groundfish	43	59	58	67	31	38	34	38	46	43	43	45.7		
	Other Fisheries	135	117	114	101	74	90	76	64	59	14	14	84.4		
	Salmon	224	229	226	209	224	215	212	222	211	222	222	219.4		
	"Non-Vessel" Fisheries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	TOTAL HARVEST VESSELS	285	274	273	254	266	253	250	257	256	261	261	262.9		
	Total Oregon	PMA Crab Fisheries	20	19	21	17	16	14	16	17	19	20	20	17.9	
		Non-PMA Crab Fisheries	15	11	9	8	7	2	5	1	1	1	1	6	
Pollock		19	27	25	21	25	24	27	34	35	32	32	26.9		
Pacific Cod		54	62	37	29	44	37	42	47	54	58	58	46.4		
Other Groundfish		57	75	70	81	53	55	53	58	70	66	66	63.8		
Other Fisheries		158	128	121	111	87	102	86	73	68	14	14	94.8		
Salmon		225	231	230	212	230	218	216	227	214	225	225	222.8		
"Non-Vessel" Fisheries		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
TOTAL HARVEST VESSELS		315	301	302	280	299	282	282	289	289	292	292	293.1		
Number of "Other States" Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000															
Total Other States	PMA Crab Fisheries	3	7	4	4	7	7	6	7	7	7	7	5.9		
	Non-PMA Crab Fisheries	20	23	20	16	24	11	18	14	5	12	12	16.3		
	Pollock	7	5	4	4	4	4	3	5	4	10	10	5		
	Pacific Cod	24	26	13	10	18	16	16	21	17	32	32	19.3		
	Other Groundfish	33	37	24	21	21	21	17	19	19	29	29	24.1		
	Other Fisheries	180	154	151	111	113	110	161	103	104	84	84	127.1		
	Salmon	1234	1142	1244	1143	1229	831	840	1001	966	920	920	1055		
	"Non-Vessel" Fisheries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	TOTAL HARVEST VESSELS	1394	1268	1363	1229	1324	905	966	1079	1054	1019	1019	1160.1		
	Number of Washington Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000														
Washington	Other Washington	PMA Crab Fisheries	16	14	18	16	16	12	14	14	15	13	14.8		
		Non-PMA Crab Fisheries	46	46	37	38	41	27	35	38	21	22	22	35.1	
		Pollock	8	17	11	12	14	13	19	18	20	21	21	15.3	
		Pacific Cod	56	61	46	34	46	32	55	62	62	66	66	52	
		Other Groundfish	111	118	94	115	84	90	92	99	105	98	98	100.6	
		Other Fisheries	426	394	328	345	344	380	345	211	217	133	133	312.3	
		Salmon	822	823	807	779	828	806	816	812	772	749	749	801.4	
		"Non-Vessel" Fisheries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
		TOTAL HARVEST VESSELS	1014	977	974	962	993	983	981	928	886	862	862	956	
		S-T CMSA	PMA Crab Fisheries	171	175	186	165	163	142	159	159	165	147	163.2	
	Non-PMA Crab Fisheries	21	35	41	37	43	40	27	25	16	25	25	31		
	Pollock	43	60	45	55	67	72	77	78	88	113	113	69.8		
	Pacific Cod	133	143	102	102	159	140	146	124	168	185	185	140.2		
	Other Groundfish	155	168	154	178	144	154	153	149	168	171	171	159.4		
	Other Fisheries	373	308	264	250	214	258	234	164	161	91	91	231.7		
	Salmon	700	678	670	657	656	611	628	586	572	527	527	628.5		
	"Non-Vessel" Fisheries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
	TOTAL HARVEST VESSELS	1035	994	981	962	934	900	912	851	843	787	787	919.9		
	Total Washington	PMA Crab Fisheries	187	189	204	181	179	154	173	173	180	160	160	178	
		Non-PMA Crab Fisheries	67	81	78	75	84	67	62	63	37	47	47	66.1	
Pollock		51	77	56	67	81	85	96	96	108	134	134	85.1		
Pacific Cod		189	204	148	136	205	172	201	186	230	251	251	192.2		
Other Groundfish		266	286	248	293	228	244	245	248	273	269	269	260		
Other Fisheries		799	702	592	595	558	638	579	375	378	224	224	544		
Salmon		1522	1501	1477	1436	1484	1417	1444	1398	1344	1276	1276	1429.9		
"Non-Vessel" Fisheries		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
TOTAL HARVEST VESSELS		2049	1971	1955	1924	1927	1883	1893	1779	1729	1649	1649	1875.9		

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
Number of Alaska Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000														
Alaska	Anchorage	PMA Crab Fisheries	7	5	7	7	8	8	7	6	6	6	6.7	
		Non-PMA Crab Fisheries	6	9	11	6	4	3	1	1	0	0	4.1	
		Pollock	2	3	3	1	1	1	1	0	3	5	2	
		Pacific Cod	31	39	23	18	42	19	25	18	35	34	28.4	
		Other Groundfish	46	50	45	48	43	39	34	29	34	37	40.5	
		Other Fisheries	280	241	169	162	125	136	96	58	69	28	136.4	
		Salmon	332	308	314	273	281	259	254	234	255	261	277.1	
		"Non-Vessel" Fisheries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL HARVEST VESSELS	499	446	429	370	353	342	307	268	297	300	361.1		
	Homer	PMA Crab Fisheries	11	12	12	10	9	9	9	8	8	8	8	9.6
		Non-PMA Crab Fisheries	56	77	84	74	5	3	1	2	2	1	30.5	
		Pollock	0	9	4	3	1	8	18	11	16	23	9.3	
		Pacific Cod	112	119	75	45	129	80	109	89	91	95	94.4	
		Other Groundfish	100	129	115	150	106	104	102	82	85	83	105.6	
		Other Fisheries	350	296	263	269	197	197	194	139	146	29	208	
		Salmon	281	273	268	248	289	266	270	265	264	251	267.5	
		"Non-Vessel" Fisheries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL HARVEST VESSELS	435	392	374	352	368	348	348	314	317	293	354.1		
	King Cove/ Sand Point	PMA Crab Fisheries	6	6	11	12	26	17	12	12	6	8	11.6	
		Non-PMA Crab Fisheries	1	1	1	2	0	3	0	0	0	0	0.8	
		Pollock	4	11	7	10	11	13	24	23	18	25	14.6	
		Pacific Cod	55	67	46	60	66	54	80	69	62	64	62.3	
		Other Groundfish	14	37	19	17	13	36	36	23	22	22	23.9	
		Other Fisheries	134	126	107	124	56	65	68	52	51	12	79.5	
		Salmon	145	141	144	152	156	140	127	130	121	129	138.5	
		"Non-Vessel" Fisheries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL HARVEST VESSELS	180	171	163	179	174	160	157	150	138	142	161.4		
	Kodiak	PMA Crab Fisheries	64	65	63	53	39	37	39	42	40	39	48.1	
		Non-PMA Crab Fisheries	116	126	112	106	25	22	18	10	12	11	55.8	
		Pollock	44	57	37	43	45	47	72	65	59	61	53	
		Pacific Cod	154	159	121	101	161	128	186	181	201	227	161.9	
		Other Groundfish	123	168	104	156	120	121	154	136	130	136	134.8	
		Other Fisheries	418	395	346	371	229	250	239	174	180	37	263.9	
		Salmon	259	236	245	208	223	195	200	176	178	175	209.5	
		"Non-Vessel" Fisheries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL HARVEST VESSELS	531	509	476	462	395	375	390	343	358	334	417.3		
	Other Alaska	PMA Crab Fisheries	22	20	19	18	17	18	23	21	17	14	18.9	
		Non-PMA Crab Fisheries	431	392	406	389	389	375	386	360	338	341	380.7	
		Pollock	19	28	19	6	20	22	45	40	30	27	25.6	
		Pacific Cod	571	682	497	397	449	389	443	374	434	424	466	
		Other Groundfish	996	1068	967	991	776	784	782	681	704	687	843.6	
		Other Fisheries	3841	3670	3155	3202	2836	2973	2779	2119	2182	1042	2779.9	
		Salmon	3765	3663	3514	3466	3389	3111	3113	2936	2995	2955	3290.7	
		"Non-Vessel" Fisheries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	TOTAL HARVEST VESSELS	5688	5504	5159	5187	4934	4843	4716	4155	4252	3726	4816.4		
	Total Alaska	PMA Crab Fisheries	110	108	112	100	99	89	90	89	77	75	94.9	
		Non-PMA Crab Fisheries	610	605	614	577	423	406	406	373	352	353	471.9	
		Pollock	69	108	70	63	78	91	160	139	126	141	104.5	
		Pacific Cod	923	1066	762	621	847	670	843	731	823	844	813	
		Other Groundfish	1279	1452	1250	1362	1058	1084	1108	951	975	965	1148.4	
Other Fisheries		5023	4728	4040	4128	3443	3621	3376	2542	2628	1148	3467.7		
Salmon		4782	4621	4485	4347	4338	3971	3964	3741	3813	3771	4183.3		
"Non-Vessel" Fisheries		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TOTAL HARVEST VESSELS	7333	7022	6601	6550	6224	6068	5918	5230	5362	4795	6110.3			
GRAND TOTALS	PMA Crab Fisheries	320	323	341	302	301	264	285	286	283	262	296.7		
	Non-PMA Crab Fisheries	712	720	721	676	538	486	491	451	395	413	560.3		
	Pollock	146	217	155	155	188	204	286	274	273	317	221.5		
	Pacific Cod	1190	1358	960	796	1114	895	1102	985	1124	1185	1070.9		
	Other Groundfish	1635	1850	1592	1757	1360	1404	1423	1276	1337	1329	1496.3		
	Other Fisheries	6160	5712	4904	4945	4201	4471	4202	3093	3178	1470	4233.6		
	Salmon	7763	7495	7436	7138	7281	6437	6464	6367	6337	6192	6891		
	"Non-Vessel" Fisheries	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
TOTAL HARVEST VESSELS	11091	10562	10221	9983	9774	9138	9059	8377	8434	7755	9439.4			

Notes: Shaded cells are suppressed in later harvest tables as confidential
"Non-Vessel" Fisheries are fish ticket harvests not associated with a licensed vessel
Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-33. Total Value of Fish Harvested by Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery (1991-2000)

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Grand Total		
Total Value of Fish Harvested by Oregon Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000															
Oregon	Newport	PMA Crab Fisheries	\$10,664,688	\$8,745,888	\$15,287,187	\$17,350,921	\$11,465,168	\$7,722,521	\$8,427,505	\$9,841,607	\$12,993,953	\$9,062,150	\$111,561,588		
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	*	
		Pollock	\$6,371,543	\$10,768,553	\$5,614,111	\$6,649,169	\$7,458,689	\$5,214,357	\$6,294,222	\$4,717,098	\$7,893,090	\$6,476,214	\$67,457,046		
		Pacific Cod	\$3,453,318	\$3,643,783	\$3,432,688	\$2,564,323	\$5,575,498	\$4,816,989	\$6,721,307	\$5,677,832	\$7,811,032	\$6,320,620	\$50,017,390		
		Other Groundfish	\$527,879	\$135,332	\$104,963	\$258,782	\$864,648	\$779,773	\$828,855	\$604,710	\$600,877	\$606,925	\$5,312,744		
		Other Fisheries	\$1,124,448	\$273,463	\$247,572	\$603,270	\$1,462,857	\$1,326,439	\$1,984,115	\$1,033,473	\$2,120,293	\$0	\$10,175,928		
		Salmon	*	*	*	*	*	*	*	*	*	*	*	*	
		"Non-Vessel" Fisheries		\$8,564					\$101,442						\$110,006
		TOTAL HARVEST VALUE	\$22,426,028	\$23,928,692	\$24,866,823	\$27,426,464	\$27,065,657	\$19,961,521	\$24,373,981	\$22,018,038	\$31,419,245	\$22,465,909	\$244,634,702		
		Other Oregon	PMA Crab Fisheries	\$4,646,450	\$5,349,464	\$6,350,993	\$5,295,022	\$3,893,369	\$2,286,714	\$1,975,384	\$2,890,516	\$5,606,654	\$3,006,963	\$41,301,528	
	Non-PMA Crab Fisheries	\$382,170	\$389,382	\$342,337	\$346,760	*	*	\$52,374	\$0	\$0	\$0	\$0	\$1,566,017		
	Pollock	\$1,604,876	\$4,311,033	\$2,781,630	\$3,293,361	\$2,219,223	\$3,254,665	\$3,447,513	\$3,825,428	\$3,860,029	\$3,824,095	\$32,421,852			
	Pacific Cod	\$1,531,980	\$2,804,243	\$2,286,031	\$1,130,820	\$1,598,553	\$1,853,675	\$2,334,993	\$2,512,063	\$4,540,577	\$3,714,289	\$24,307,224			
	Other Groundfish	\$1,784,869	\$2,652,866	\$2,747,486	\$2,436,264	\$2,943,166	\$3,049,399	\$3,516,130	\$2,359,425	\$2,100,145	\$3,413,157	\$27,002,906			
	Other Fisheries	\$4,332,290	\$2,267,049	\$2,455,865	\$3,061,350	\$2,718,022	\$3,169,613	\$4,002,307	\$2,966,303	\$5,277,861	\$223,541	\$30,474,202			
	Salmon	\$8,494,502	\$21,432,286	\$12,667,735	\$13,869,716	*	*	\$6,879,064	\$6,132,791	\$10,112,383	\$6,679,523	\$109,214,121			
	"Non-Vessel" Fisheries	\$643,962	\$1,664,651	\$1,286,219	\$1,702,309	\$1,549,452	\$5,354,256	\$1,421,976	\$1,126,042	\$1,451,004	\$935,166	\$17,135,038			
	TOTAL HARVEST VALUE	\$23,421,099	\$40,870,974	\$30,918,295	\$31,135,602	\$29,011,169	\$27,846,554	\$23,629,740	\$21,812,567	\$32,948,653	\$21,796,734	\$283,422,887			
	Total Oregon	PMA Crab Fisheries	\$15,311,138	\$14,095,352	\$21,638,179	\$22,645,942	\$15,358,537	\$10,009,235	\$10,402,889	\$12,732,123	\$18,600,607	\$12,069,113	\$152,863,115		
	Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	*		
Pollock	\$7,976,418	\$15,079,587	\$8,395,740	\$9,942,530	\$9,677,912	\$8,469,022	\$9,741,735	\$8,542,526	\$11,753,118	\$10,300,309	\$99,878,898				
Pacific Cod	\$4,985,298	\$6,448,027	\$5,718,719	\$3,695,142	\$7,174,052	\$6,670,664	\$9,056,300	\$8,189,894	\$12,351,609	\$10,034,910	\$74,324,614				
Other Groundfish	\$2,312,748	\$2,788,198	\$2,852,448	\$2,695,046	\$3,807,814	\$3,829,172	\$4,344,985	\$2,964,135	\$2,701,022	\$4,020,082	\$32,315,650				
Other Fisheries	\$5,456,737	\$2,540,512	\$2,703,437	\$3,664,621	\$4,180,879	\$4,496,052	\$5,986,421	\$3,999,777	\$7,398,154	\$223,541	\$40,650,130				
Salmon	*	*	*	*	*	*	*	*	*	*	*	*			
"Non-Vessel" Fisheries	\$643,962	\$1,673,215	\$1,286,219	\$1,702,309	\$1,549,452	\$5,455,698	\$1,421,976	\$1,126,042	\$1,451,004	\$935,166	\$17,245,045				
TOTAL HARVEST VALUE	\$45,866,780	\$64,811,935	\$56,071,620	\$59,279,272	\$56,208,073	\$47,951,478	\$48,042,103	\$43,830,605	\$64,572,181	\$44,386,662	\$528,022,238				
Total Value of Fish Harvested by "Other States" Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000															
Total Other States	PMA Crab Fisheries	\$1,880,757	\$2,294,440	\$2,847,239	\$3,292,675	\$4,194,927	\$2,907,714	\$2,775,005	\$3,892,774	\$6,177,865	\$1,977,678	\$32,241,074			
	Non-PMA Crab Fisheries	\$367,187	\$502,736	\$159,017	\$208,269	\$401,708	*	*	\$195,768	\$355,621	\$216,927	\$2,876,432			
	Pollock	\$4,336,960	\$8,989,779	\$5,372,048	\$5,746,616	\$5,412,763	*	*	\$1,824,373	\$3,793,374	\$3,496,872	\$44,533,115			
	Pacific Cod	\$1,901,752	\$743,088	\$133,111	\$429,465	\$1,104,828	\$1,358,551	\$522,433	\$917,070	\$581,764	\$1,520,351	\$9,212,412			
	Other Groundfish	\$2,435,702	\$1,491,957	\$849,771	\$743,623	\$2,443,661	\$1,865,655	\$1,632,435	\$1,194,701	\$1,837,095	\$2,501,218	\$16,995,819			
	Other Fisheries	\$3,947,204	\$4,632,605	\$4,798,589	\$5,418,879	\$3,326,646	\$5,342,412	\$4,222,602	\$3,141,182	\$5,290,824	\$2,438,248	\$42,559,191			
	Salmon	\$17,470,852	\$35,212,010	\$26,849,581	\$32,906,954	\$33,109,899	\$17,060,229	\$13,283,698	\$14,582,610	\$21,887,716	\$16,573,448	\$228,936,997			
	"Non-Vessel" Fisheries	\$3,241,979	\$6,435,958	\$4,301,703	\$5,221,997	\$4,672,381	\$13,930,502	\$3,771,566	\$2,959,103	\$4,684,305	\$2,930,859	\$52,150,353			
	TOTAL HARVEST VALUE	\$35,582,392	\$60,302,573	\$45,311,059	\$53,968,477	\$54,666,814	\$45,232,654	\$26,572,116	\$28,707,581	\$44,608,564	\$31,655,600	\$429,505,393			

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Grand Total	
Total Value of Fish Harvested by Washington Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000														
Washington	Other Washington	PMA Crab Fisheries	\$9,105,924	\$11,459,424	\$12,332,015	\$11,549,027	\$11,315,220	\$6,454,214	\$6,946,570	\$8,741,042	\$13,514,669	\$4,388,950	\$95,807,055	
		Non-PMA Crab Fisheries	\$3,625,115	\$1,491,757	\$1,239,110	\$1,380,923	\$2,367,522	\$693,672	\$1,493,853	\$736,388	\$978,760	\$376,317	\$14,383,419	
		Pollock	\$8,521,570	\$16,847,389	\$6,328,332	\$11,089,305	\$12,935,578	\$9,382,670	\$10,638,932	\$8,179,075	\$11,323,167	\$11,410,428	\$106,656,447	
		Pacific Cod	\$4,667,933	\$3,047,927	\$2,079,487	\$1,734,407	\$2,674,388	\$2,624,222	\$3,163,471	\$1,713,842	\$3,888,196	\$4,908,491	\$30,502,363	
		Other Groundfish	\$5,971,925	\$4,850,575	\$2,920,421	\$6,238,507	\$9,645,416	\$8,891,370	\$9,163,135	\$5,705,446	\$6,757,956	\$8,690,412	\$68,835,163	
		Other Fisheries	\$11,324,436	\$7,186,081	\$6,465,435	\$8,203,299	\$11,323,919	\$13,554,630	\$11,084,361	\$6,910,448	\$12,448,134	\$3,062,155	\$91,562,896	
		Salmon	\$45,511,766	\$79,495,060	\$59,863,417	\$68,559,328	\$73,204,938	\$39,518,302	\$37,433,197	\$38,629,260	\$49,899,557	\$33,458,563	\$525,573,389	
		"Non-Vessel" Fisheries	\$2,507,864	\$4,370,703	\$3,391,603	\$3,671,690	\$3,524,712	\$16,366,842	\$2,657,942	\$2,390,710	\$3,055,649	\$2,094,524	\$44,032,238	
		TOTAL HARVEST VALUE	\$91,236,533	\$128,748,915	\$94,619,821	\$112,426,486	\$126,991,693	\$97,485,923	\$82,581,461	\$73,006,211	\$101,866,088	\$68,389,840	\$977,352,969	
		S-T CMSA	PMA Crab Fisheries	\$204,437,204	\$189,184,724	\$194,207,588	\$176,537,411	\$137,438,935	\$93,718,861	\$86,936,433	\$111,049,090	\$155,426,540	\$62,658,789	\$1,411,595,575
	Non-PMA Crab Fisheries		\$972,006	\$2,580,111	\$4,413,597	\$7,829,025	\$9,482,461	\$3,981,663	\$2,129,304	\$682,614	\$1,164,192	\$4,284,022		
	Pollock		\$32,376,784	\$67,156,118	\$40,110,349	\$45,191,272	\$54,250,972	\$45,939,740	\$65,915,643	\$46,862,112	\$74,017,902	\$68,129,415	\$539,950,308	
	Pacific Cod		\$15,819,140	\$8,832,216	\$6,964,187	\$8,207,420	\$11,118,867	\$14,681,162	\$17,665,887	\$8,941,232	\$15,832,601	\$26,129,255	\$134,191,967	
	Other Groundfish		\$15,206,052	\$12,921,462	\$9,255,186	\$12,981,188	\$22,881,781	\$18,794,852	\$20,392,026	\$12,108,269	\$12,173,377	\$15,960,681	\$152,674,873	
	Other Fisheries		\$12,782,986	\$9,113,827	\$8,497,528	\$10,985,371	\$12,165,352	\$16,063,138	\$15,521,797	\$10,427,046	\$19,065,936	\$2,196,645	\$116,819,628	
	Salmon		\$41,502,702	\$73,356,434	\$57,556,592	\$65,079,801	\$64,785,156	\$36,266,110	\$34,218,581	\$33,268,131	\$44,305,746	\$26,021,106	\$476,360,358	
	"Non-Vessel" Fisheries		\$1,426,464	\$3,230,343	\$1,751,123	\$1,765,301	\$1,986,570	\$11,243,955	\$1,460,834	\$1,250,776	\$1,629,044	\$1,222,829	\$26,967,238	
	TOTAL HARVEST VALUE		\$324,523,338	\$366,375,235	\$322,756,149	\$328,576,789	\$314,110,094	\$240,689,482	\$244,240,505	\$224,589,271	\$323,615,339	\$203,367,769	\$2,892,843,970	
	Total Washington		PMA Crab Fisheries	\$213,543,128	\$200,644,147	\$206,539,603	\$188,086,438	\$148,754,155	\$100,173,074	\$93,883,003	\$119,790,133	\$168,941,209	\$67,047,739	\$1,507,402,630
	Non-PMA Crab Fisheries	\$4,597,121	\$4,071,868	\$5,652,707	\$9,209,949	\$11,849,983	\$4,675,335	\$3,623,157	\$1,419,002	\$2,142,953	\$1,425,366	\$48,667,442		
Pollock	\$40,898,353	\$84,003,507	\$46,438,682	\$56,280,577	\$67,186,549	\$55,322,411	\$76,554,575	\$55,041,187	\$85,341,069	\$79,539,843	\$646,606,754			
Pacific Cod	\$20,487,072	\$11,880,143	\$9,043,674	\$9,941,826	\$13,793,256	\$17,305,385	\$20,829,358	\$10,655,074	\$19,720,796	\$31,037,746	\$164,694,330			
Other Groundfish	\$21,177,977	\$17,772,036	\$12,175,607	\$19,219,695	\$32,527,197	\$27,686,222	\$29,555,161	\$17,813,714	\$18,931,333	\$24,651,093	\$221,510,036			
Other Fisheries	\$24,107,422	\$16,299,908	\$14,962,962	\$19,188,670	\$23,489,271	\$29,617,768	\$26,606,158	\$17,337,494	\$31,514,070	\$5,258,800	\$208,382,524			
Salmon	\$87,014,468	\$152,851,494	\$117,420,009	\$133,639,129	\$137,990,093	\$75,784,412	\$71,651,778	\$71,897,392	\$94,205,303	\$59,479,668	\$1,001,933,747			
"Non-Vessel" Fisheries	\$3,934,328	\$7,601,046	\$5,142,726	\$5,436,991	\$5,511,282	\$27,610,797	\$4,118,776	\$3,641,486	\$4,684,693	\$3,317,353	\$70,999,476			
TOTAL HARVEST VALUE	\$415,759,871	\$495,124,150	\$417,375,970	\$441,003,274	\$441,101,787	\$338,175,405	\$326,821,966	\$297,595,482	\$425,481,427	\$271,757,609	\$3,870,196,939			
Total Value of Fish Harvested by Alaska Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000														
Alaska	Anchorage	PMA Crab Fisheries	\$4,745,712	\$1,902,394	\$3,998,080	\$3,629,142	\$6,379,123	\$4,719,571	\$3,881,875	\$4,640,282	\$6,219,747	\$3,020,038	\$43,135,965	
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	
		Pollock	*	*	*	*	*	*	*	*	*	*	*	
		Pacific Cod	\$295,586	\$633,279	\$247,279	\$154,494	\$408,811	\$181,443	\$62,118	\$274,994	\$399,610	\$748,143	\$3,405,755	
		Other Groundfish	\$756,616	\$1,053,269	\$974,756	\$837,258	\$993,426	\$840,471	\$1,145,963	\$441,757	\$674,861	\$971,126	\$8,689,502	
		Other Fisheries	\$4,142,568	\$3,126,493	\$1,967,714	\$2,743,325	\$3,137,779	\$4,159,182	\$2,983,002	\$1,611,522	\$2,435,825	\$621,120	\$26,928,527	
		Salmon	\$14,210,240	\$25,715,263	\$16,732,481	\$17,890,983	\$18,830,963	\$11,018,715	\$8,734,647	\$8,188,678	\$15,289,641	\$10,661,843	\$147,273,453	
		"Non-Vessel" Fisheries	\$4,555,803	\$10,569,463	\$6,491,769	\$7,805,793	\$6,051,531	\$9,662,720	\$5,607,614	\$3,208,351	\$5,781,694	\$3,553,106	\$63,287,845	
		TOTAL HARVEST VALUE	\$28,783,946	\$43,223,415	\$30,562,939	\$33,219,970	\$35,823,173	\$30,671,796	\$22,453,695	\$18,407,956	\$30,801,377	\$20,041,068	\$293,523,645	
		Homer	PMA Crab Fisheries	\$6,817,439	\$6,160,095	\$6,688,159	\$7,005,291	\$5,431,163	\$4,711,163	\$3,680,188	\$5,886,708	\$7,671,187	\$4,054,469	\$58,105,861
			Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*
			Pollock	*	*	*	*	*	*	*	*	*	*	*
	Pacific Cod		\$1,774,861	\$1,293,339	\$783,547	\$559,926	\$1,378,087	\$1,730,378	\$2,333,415	\$1,829,690	\$2,660,986	\$3,930,911	\$18,275,139	
	Other Groundfish		\$1,603,190	\$2,412,175	\$3,095,280	\$3,065,587	\$2,658,723	\$1,822,022	\$1,893,447	\$1,170,735	\$1,279,652	\$1,569,453	\$20,570,264	
	Other Fisheries		\$10,187,206	\$7,254,411	\$7,407,968	\$9,079,123	\$9,194,520	\$12,376,314	\$8,833,394	\$6,221,173	\$10,648,933	\$1,079,730	\$82,282,772	
	Salmon		\$10,892,679	\$26,896,870	\$13,903,319	\$15,019,127	\$17,959,394	\$12,063,976	\$12,591,877	\$10,529,530	\$16,013,196	\$11,368,386	\$147,238,356	
	"Non-Vessel" Fisheries		\$1,049,235	\$1,978,388	\$1,094,718	\$1,959,344	\$892,254	\$2,600,185	\$1,079,857	\$546,224	\$912,908	\$668,196	\$12,781,309	
	TOTAL HARVEST VALUE		\$32,980,283	\$46,592,474	\$33,582,552	\$37,170,440	\$37,623,868	\$35,486,734	\$30,553,067	\$26,295,516	\$39,358,954	\$22,786,473	\$343,091,144	
	King Cove/Sand Point		PMA Crab Fisheries	\$4,825,135	\$4,752,159	\$4,825,608	\$5,915,987	\$5,551,698	\$4,255,993	\$4,227,481	\$5,405,189	\$4,841,238	\$1,278,767	\$45,879,256
			Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*
			Pollock	*	*	*	*	*	*	*	*	*	*	*
		Pacific Cod	\$5,276,852	\$4,889,393	\$2,683,571	\$3,035,047	\$2,906,684	\$4,524,065	\$6,111,281	\$5,256,636	\$7,112,600	\$8,026,777	\$49,822,907	

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Grand Total
Alaska	Kodiak	Other Groundfish	\$298,172	\$320,208	\$182,673	\$155,496	\$28,278	\$1,184,095	\$112,947	\$36,224	\$9,374	\$25,241	\$2,352,707
		Other Fisheries	\$4,043,078	\$2,234,451	\$1,745,908	\$3,005,275	\$691,912	\$1,339,938	\$1,746,983	\$995,460	\$1,835,054	\$169,427	\$17,807,486
		Salmon	\$12,060,938	\$24,214,080	\$14,771,907	\$12,674,971	\$17,953,597	\$6,026,036	\$7,527,693	\$10,702,629	\$14,004,041	\$7,140,259	\$12,076,151
		"Non-Vessel" Fisheries	\$755,899	\$1,263,305	\$690,849	\$852,827	\$447,063	\$405,789	\$387,020	\$530,632	\$579,847	\$452,567	\$6,365,798
		TOTAL HARVEST VALUE	\$27,262,043	\$37,701,365	\$25,332,818	\$26,382,108	\$28,461,788	\$19,185,914	\$22,842,406	\$24,472,833	\$30,530,770	\$18,500,649	\$260,672,693
		PMA Crab Fisheries	\$49,611,918	\$50,316,863	\$48,772,774	\$43,600,312	\$26,264,720	\$20,430,592	\$21,196,861	\$26,681,823	\$38,546,739	\$17,638,530	\$343,061,132
		Non-PMA Crab Fisheries	\$3,398,382	\$5,077,492	\$3,013,706	\$2,886,616	\$1,598,478	\$838,888	\$942,793	\$401,245	\$345,063	\$294,155	\$18,796,818
		Pollock	\$4,290,599	\$10,046,745	\$6,906,646	\$7,446,382	\$5,877,308	\$4,644,797	\$6,600,312	\$4,623,511	\$5,249,893	\$4,372,563	\$60,058,756
		Pacific Cod	\$10,393,356	\$6,980,429	\$6,691,169	\$5,826,710	\$11,050,134	\$9,870,887	\$11,774,064	\$9,337,548	\$16,596,725	\$14,561,003	\$103,082,026
		Other Groundfish	\$5,485,469	\$6,978,654	\$6,503,670	\$7,714,484	\$5,916,876	\$10,203,746	\$9,716,886	\$6,117,922	\$5,190,333	\$7,617,447	\$71,445,486
		Other Fisheries	\$20,358,313	\$13,338,696	\$15,377,247	\$17,935,447	\$15,256,936	\$22,905,930	\$24,498,751	\$16,662,742	\$26,358,284	\$1,294,594	\$173,986,939
		Salmon	\$16,933,331	\$21,632,197	\$18,638,007	\$12,945,141	\$23,502,742	\$12,246,905	\$9,475,776	\$15,149,598	\$17,038,737	\$10,590,038	\$58,152,471
	"Non-Vessel" Fisheries	\$4,347,007	\$3,387,825	\$3,297,866	\$3,107,632	\$4,867,033	\$4,433,489	\$2,855,083	\$4,254,491	\$4,780,346	\$2,467,014	\$37,797,786	
	TOTAL HARVEST VALUE	\$114,818,375	\$117,758,900	\$109,201,085	\$101,462,723	\$94,334,227	\$85,575,234	\$87,060,526	\$83,228,879	\$114,106,121	\$58,835,344	\$966,381,414	
	Other Alaska	PMA Crab Fisheries	\$8,960,702	\$9,688,280	\$9,228,578	\$9,312,787	\$9,175,357	\$6,866,800	\$7,773,208	\$11,995,728	\$13,004,730	\$4,603,889	\$90,610,057
	Non-PMA Crab Fisheries	\$12,630,805	\$8,933,647	\$7,542,964	\$11,290,238	\$18,122,589	\$10,850,188	\$13,695,064	\$9,499,711	\$12,799,167	\$9,316,050	\$114,680,423	
	Pollock	\$1,140,504	\$2,870,987	\$1,490,275	\$1,714,167	\$54,700	\$144,984	\$144,879	\$180,507	\$76,422	\$99,864	\$7,917,289	
	Pacific Cod	\$5,221,310	\$4,510,623	\$2,973,460	\$1,918,935	\$3,296,270	\$3,304,217	\$4,149,849	\$2,816,631	\$6,118,089	\$5,014,476	\$39,323,860	
	Other Groundfish	\$27,964,107	\$28,911,757	\$27,155,537	\$38,376,380	\$38,276,367	\$37,080,601	\$38,322,195	\$25,208,935	\$25,292,811	\$33,075,779	\$319,664,468	
	Other Fisheries	\$58,854,637	\$37,412,373	\$38,744,360	\$48,884,787	\$51,126,859	\$61,959,194	\$53,420,362	\$36,868,975	\$53,748,823	\$11,142,490	\$452,162,860	
	Salmon	\$117,120,217	\$190,107,678	\$140,582,756	\$163,805,512	\$143,879,675	\$110,619,475	\$99,273,188	\$91,471,521	\$136,153,220	\$93,173,586	\$1,286,726,829	
	"Non-Vessel" Fisheries	\$32,197,698	\$62,103,996	\$35,637,405	\$40,877,248	\$35,015,103	\$46,321,040	\$26,457,179	\$16,434,016	\$27,294,318	\$15,403,366	\$337,741,37	
	TOTAL HARVEST VALUE	\$264,089,979	\$344,539,341	\$263,355,334	\$316,180,054	\$298,946,922	\$277,146,500	\$243,235,924	\$194,476,023	\$274,487,580	\$172,369,500	\$2,648,827,157	
	Total Alaska	PMA Crab Fisheries	\$74,960,906	\$72,819,791	\$73,513,198	\$69,463,519	\$52,802,061	\$40,984,119	\$40,759,613	\$54,609,730	\$70,283,642	\$30,595,693	\$580,792,272
	Non-PMA Crab Fisheries	\$16,770,085	\$14,883,186	\$11,277,681	\$14,963,985	\$19,852,337	\$11,892,995	\$14,758,260	\$10,022,801	\$13,207,289	\$9,731,950	\$137,290,567	
	Pollock	\$5,907,533	\$12,946,075	\$8,890,839	\$10,015,594	\$7,272,695	\$6,422,614	\$9,615,084	\$6,461,536	\$8,012,242	\$6,461,059	\$82,005,271	
	Pacific Cod	\$22,961,963	\$18,307,062	\$13,379,025	\$11,495,112	\$19,039,986	\$19,610,991	\$24,430,727	\$19,515,499	\$32,888,011	\$32,281,310	\$213,909,686	
	Other Groundfish	\$36,107,554	\$39,676,063	\$37,911,915	\$50,149,205	\$47,873,670	\$51,130,934	\$51,191,439	\$32,975,572	\$32,447,030	\$43,259,045	\$422,722,428	
Other Fisheries	\$97,585,801	\$63,366,424	\$65,243,197	\$81,647,957	\$79,408,005	\$102,740,558	\$91,482,491	\$62,359,871	\$95,026,918	\$14,307,360	\$753,168,583		
Salmon	\$171,217,406	\$288,566,087	\$204,628,470	\$222,335,735	\$222,126,372	\$151,975,107	\$137,603,181	\$136,041,956	\$198,498,836	\$133,474,111	\$1,866,467,260		
"Non-Vessel" Fisheries	\$42,905,642	\$79,302,977	\$47,212,607	\$54,602,844	\$47,272,984	\$63,423,223	\$36,386,753	\$24,973,714	\$39,349,113	\$22,544,249	\$457,974,108		
TOTAL HARVEST VALUE	\$468,416,890	\$589,867,665	\$462,056,933	\$514,673,950	\$495,648,110	\$448,180,541	\$406,227,547	\$346,960,679	\$489,713,080	\$292,654,778	\$4,514,400,176		
GRAND TOTALS	PMA Crab Fisheries	\$305,695,929	\$289,853,730	\$304,538,220	\$283,488,574	\$221,109,681	\$154,074,142	\$147,820,510	\$191,024,760	\$264,003,323	\$111,690,223	\$2,273,299,091	
Non-PMA Crab Fisheries	\$22,400,715	\$20,200,280	\$17,718,244	\$25,099,526	\$32,256,770	\$16,704,653	\$18,836,548	\$11,660,421	\$15,880,802	\$11,442,507	\$192,200,466		
Pollock	\$59,119,264	\$121,018,948	\$69,097,310	\$81,985,317	\$89,549,920	\$72,876,813	\$98,808,957	\$71,869,623	\$108,899,804	\$99,798,083	\$873,024,039		
Pacific Cod	\$50,336,086	\$37,378,319	\$28,274,530	\$25,561,545	\$41,112,121	\$44,945,590	\$54,838,817	\$39,277,537	\$65,542,180	\$74,874,317	\$462,141,043		
Other Groundfish	\$62,033,981	\$61,728,254	\$53,789,741	\$72,807,568	\$86,652,342	\$84,511,983	\$86,724,021	\$54,948,122	\$55,916,481	\$74,431,439	\$693,543,933		
Other Fisheries	\$131,097,164	\$86,839,449	\$87,708,185	\$109,920,126	\$110,404,801	\$142,196,790	\$128,297,672	\$86,838,324	\$139,229,966	\$22,227,950	\$1,044,760,428		
Salmon	\$284,216,881	\$498,074,147	\$361,746,098	\$403,098,175	\$407,533,049	\$253,841,383	\$229,535,699	\$228,798,066	\$324,908,521	\$216,330,768	\$3,208,082,789		
"Non-Vessel" Fisheries	\$50,725,911	\$95,013,196	\$57,943,255	\$66,964,141	\$59,006,099	\$110,420,220	\$45,699,071	\$32,700,345	\$50,169,115	\$29,727,627	\$598,368,984		
TOTAL HARVEST VALUE	\$965,625,932	\$1,210,106,324	\$980,815,582	\$1,068,924,973	\$1,047,624,784	\$879,571,576	\$810,561,295	\$717,117,199	\$1,024,550,191	\$640,522,912	\$9,345,420,772		

Notes: "Non-Vessel" Fisheries are fish ticket harvests not associated with a licensed vessel
Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-34. Total Value of Fish Harvested by Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery (1991-2000) as Percentage of Total Community Alaskan Fisheries Harvest

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
Total Value of Fish Harvested by Oregon Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000 - As % of Total Community Harvest														
As Percent of Total Value of Community Harvest														
Oregon	Newport	PMA Crab Fisheries	47.6%	36.5%	61.5%	63.3%	42.4%	38.7%	34.6%	44.7%	41.4%	40.3%	45.6%	
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	*
		Pollock	28.4%	45.0%	22.6%	24.2%	27.6%	26.1%	25.8%	21.4%	25.1%	28.8%	27.6%	
		Pacific Cod	15.4%	15.2%	13.8%	9.3%	20.6%	24.1%	27.6%	25.8%	24.9%	28.1%	20.4%	
		Other Groundfish	2.4%	0.6%	0.4%	0.9%	3.2%	3.9%	3.4%	2.7%	1.9%	2.7%	2.2%	
		Other Fisheries	5.0%	1.1%	1.0%	2.2%	5.4%	6.6%	8.1%	4.7%	6.7%	0.0%	4.2%	
		Salmon	*	*	*	*	*	*	*	*	*	*	*	*
		"Non-Vessel" Fisheries	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Other Oregon	PMA Crab Fisheries	19.8%	13.1%	20.5%	17.0%	13.4%	8.2%	8.4%	13.3%	17.0%	13.8%	14.6%
	Non-PMA Crab Fisheries		1.6%	1.0%	1.1%	1.1%	*	*	0.2%	0.0%	0.0%	0.0%	0.6%	
	Pollock		6.9%	10.5%	9.0%	10.6%	7.6%	11.7%	14.6%	17.5%	11.7%	17.5%	11.4%	
	Pacific Cod		6.5%	6.9%	7.4%	3.6%	5.5%	6.7%	9.9%	11.5%	13.8%	17.0%	8.6%	
	Other Groundfish		7.6%	6.5%	8.9%	7.8%	10.1%	11.0%	14.9%	10.8%	6.4%	15.7%	9.5%	
	Other Fisheries		18.5%	5.5%	7.9%	9.8%	9.4%	11.4%	16.9%	13.6%	16.0%	1.0%	10.8%	
	Salmon		36.3%	52.4%	41.0%	44.5%	*	*	29.1%	28.1%	30.7%	30.6%	38.5%	
	"Non-Vessel" Fisheries		2.7%	4.1%	4.2%	5.5%	5.3%	19.2%	6.0%	5.2%	4.4%	4.3%	6.0%	
	TOTAL HARVEST VALUE		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
	Total Oregon		PMA Crab Fisheries	33.4%	21.7%	38.6%	38.2%	27.3%	20.9%	21.7%	29.0%	28.8%	27.2%	29.0%
			Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*
		Pollock	17.4%	23.3%	15.0%	16.8%	17.2%	17.7%	20.3%	19.5%	18.2%	23.2%	18.9%	
		Pacific Cod	10.9%	9.9%	10.2%	6.2%	12.8%	13.9%	18.9%	18.7%	19.1%	22.6%	14.1%	
		Other Groundfish	5.0%	4.3%	5.1%	4.5%	6.8%	8.0%	9.0%	6.8%	4.2%	9.1%	6.1%	
		Other Fisheries	11.9%	3.9%	4.8%	6.2%	7.4%	9.4%	12.5%	9.1%	11.5%	0.5%	7.7%	
		Salmon	*	*	*	*	*	*	*	*	*	*	*	
		"Non-Vessel" Fisheries	1.4%	2.6%	2.3%	2.9%	2.8%	11.4%	3.0%	2.6%	2.2%	2.1%	3.3%	
		TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Total Value of Fish Harvested by "Other States" Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000 - As % of Total Community Harvest														
As Percent of Total Value of Community Harvest														
Total Other States		PMA Crab Fisheries	5.3%	3.8%	6.3%	6.1%	7.7%	6.4%	10.4%	13.6%	13.8%	6.2%	7.5%	
		Non-PMA Crab Fisheries	1.0%	0.8%	0.4%	0.4%	0.7%	*	*	0.7%	0.8%	0.7%	0.7%	
		Pollock	12.2%	14.9%	11.9%	10.6%	9.9%	*	*	6.4%	8.5%	11.0%	10.4%	
		Pacific Cod	5.3%	1.2%	0.3%	0.8%	2.0%	3.0%	2.0%	3.2%	1.3%	4.8%	2.1%	
		Other Groundfish	6.8%	2.5%	1.9%	1.4%	4.5%	4.1%	6.1%	4.2%	4.1%	7.9%	4.0%	
		Other Fisheries	11.1%	7.7%	10.6%	10.0%	6.1%	11.8%	15.9%	10.9%	11.9%	7.7%	9.9%	
		Salmon	49.1%	58.4%	59.3%	61.0%	60.6%	37.7%	50.0%	50.8%	49.1%	52.4%	53.3%	
		"Non-Vessel" Fisheries	9.1%	10.7%	9.5%	9.7%	8.5%	30.8%	14.2%	10.3%	10.5%	9.3%	12.1%	
		TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Total Value of Fish Harvested by Washington Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000 - As % of Total Community Harvest													
As Percent of Total Value of Community Harvest													
Washington	Other Washington	PMA Crab Fisheries	10.0%	8.9%	13.0%	10.3%	8.9%	6.6%	8.4%	12.0%	13.3%	6.4%	9.8%
		Non-PMA Crab Fisheries	4.0%	1.2%	1.3%	1.2%	1.9%	0.7%	1.8%	1.0%	1.0%	0.6%	1.5%
		Pollock	9.3%	13.1%	6.7%	9.9%	10.2%	9.6%	12.9%	11.2%	11.1%	16.7%	10.9%
		Pacific Cod	5.1%	2.4%	2.2%	1.5%	2.1%	2.7%	3.8%	2.3%	3.8%	7.2%	3.1%
		Other Groundfish	6.5%	3.8%	3.1%	5.5%	7.6%	9.1%	11.1%	7.8%	6.6%	12.7%	7.0%
		Other Fisheries	12.4%	5.6%	6.8%	7.3%	8.9%	13.9%	13.4%	9.5%	12.2%	4.5%	9.4%
		Salmon	49.9%	61.7%	63.3%	61.0%	57.6%	40.5%	45.3%	52.9%	49.0%	48.9%	53.8%
		"Non-Vessel" Fisheries	2.7%	3.4%	3.6%	3.3%	2.8%	16.8%	3.2%	3.3%	3.0%	3.1%	4.5%
		TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	S-T CMSA	PMA Crab Fisheries	63.0%	51.6%	60.2%	53.7%	43.8%	38.9%	35.6%	49.4%	48.0%	30.8%	48.8%
		Non-PMA Crab Fisheries	0.3%	0.7%	1.4%	2.4%	3.0%	1.7%	0.9%	0.3%	0.4%	0.5%	1.2%
		Pollock	10.0%	18.3%	12.4%	13.8%	17.3%	19.1%	27.0%	20.9%	22.9%	33.5%	18.7%
		Pacific Cod	4.9%	2.4%	2.2%	2.5%	3.5%	6.1%	7.2%	4.0%	4.9%	12.8%	4.6%
		Other Groundfish	4.7%	3.5%	2.9%	4.0%	7.3%	7.8%	8.3%	5.4%	3.8%	7.8%	5.3%
		Other Fisheries	3.9%	2.5%	2.6%	3.3%	3.9%	6.7%	6.4%	4.6%	5.9%	1.1%	4.0%
		Salmon	12.8%	20.0%	17.8%	19.8%	20.6%	15.1%	14.0%	14.8%	13.7%	12.8%	16.5%
		"Non-Vessel" Fisheries	0.4%	0.9%	0.5%	0.5%	0.6%	4.7%	0.6%	0.6%	0.5%	0.6%	0.9%
		TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Total Washington	PMA Crab Fisheries	51.4%	40.5%	49.5%	42.6%	33.7%	29.6%	28.7%	40.3%	39.7%	24.7%	38.9%
Non-PMA Crab Fisheries		1.1%	0.8%	1.4%	2.1%	2.7%	1.4%	1.1%	0.5%	0.5%	0.5%	1.3%	
Pollock		9.8%	17.0%	11.1%	12.8%	15.2%	16.4%	23.4%	18.5%	20.1%	29.3%	16.7%	
Pacific Cod		4.9%	2.4%	2.2%	2.3%	3.1%	5.1%	6.4%	3.6%	4.6%	11.4%	4.3%	
Other Groundfish		5.1%	3.6%	2.9%	4.4%	7.4%	8.2%	9.0%	6.0%	4.4%	9.1%	5.7%	
Other Fisheries		5.8%	3.3%	3.6%	4.4%	5.3%	8.8%	8.1%	5.8%	7.4%	1.9%	5.4%	
Salmon		20.9%	30.9%	28.1%	30.3%	31.3%	22.4%	21.9%	24.2%	22.1%	21.9%	25.9%	
"Non-Vessel" Fisheries		0.9%	1.5%	1.2%	1.2%	1.2%	8.2%	1.3%	1.2%	1.1%	1.2%	1.8%	
TOTAL HARVEST VALUE		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Total Value of Fish Harvested by Alaska Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000 - As % of Total Community Harvest													
As Percent of Total Value of Community Harvest													
Alaska	Anchorage	PMA Crab Fisheries	16.5%	4.4%	13.1%	10.9%	17.8%	15.4%	17.3%	25.2%	20.2%	15.1%	14.7%
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*
		Pollock	*	*	*	*	*	*	*	*	*	*	*
		Pacific Cod	1.0%	1.5%	0.8%	0.5%	1.1%	0.6%	0.3%	1.5%	1.3%	3.7%	1.2%
		Other Groundfish	2.6%	2.4%	3.2%	2.5%	2.8%	2.7%	5.1%	2.4%	2.2%	4.8%	3.0%
		Other Fisheries	14.4%	7.2%	6.4%	8.3%	8.8%	13.6%	13.3%	8.8%	7.9%	3.1%	9.2%
		Salmon	49.4%	59.5%	54.7%	53.9%	52.6%	35.9%	38.9%	44.5%	49.6%	53.2%	50.2%
		"Non-Vessel" Fisheries	15.8%	24.5%	21.2%	23.5%	16.9%	31.5%	25.0%	17.4%	18.8%	17.7%	21.6%
		TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Homer	PMA Crab Fisheries	20.7%	13.2%	19.9%	18.8%	14.4%	13.3%	12.0%	22.4%	19.5%	17.8%	16.9%
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*
		Pollock	*	*	*	*	*	*	*	*	*	*	*
		Pacific Cod	5.4%	2.8%	2.3%	1.5%	3.7%	4.9%	7.6%	7.0%	6.8%	17.3%	5.3%
		Other Groundfish	4.9%	5.2%	9.2%	8.2%	7.1%	5.1%	6.2%	4.5%	3.3%	6.9%	6.0%
		Other Fisheries	30.9%	15.6%	22.1%	24.4%	24.4%	34.9%	28.9%	23.7%	27.1%	4.7%	24.0%
		Salmon	33.0%	57.7%	41.4%	40.4%	47.7%	34.0%	41.2%	40.0%	40.7%	49.9%	42.9%
		"Non-Vessel" Fisheries	3.2%	4.2%	3.3%	5.3%	2.4%	7.3%	3.5%	2.1%	2.3%	2.9%	3.7%
		TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
	King Cove/Sand Point	PMA Crab Fisheries	17.7%	12.6%	19.0%	22.4%	19.5%	22.2%	18.5%	22.1%	15.9%	6.9%	17.6%
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*
		Pollock	*	*	*	*	*	*	*	*	*	*	*
		Pacific Cod	19.4%	13.0%	10.6%	11.5%	10.2%	23.6%	26.8%	21.5%	23.3%	43.4%	19.1%
		Other Groundfish	1.1%	0.8%	0.7%	0.6%	0.1%	6.2%	0.5%	0.1%	0.0%	0.1%	0.9%
		Other Fisheries	14.8%	5.9%	6.9%	11.4%	2.4%	7.0%	7.6%	4.1%	6.0%	0.9%	6.8%
		Salmon	44.2%	64.2%	58.3%	48.0%	63.1%	31.4%	33.0%	43.7%	45.9%	38.6%	48.7%
		"Non-Vessel" Fisheries	2.8%	3.4%	2.7%	3.2%	1.6%	2.1%	1.7%	2.2%	1.9%	2.4%	2.4%
	TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Kodiak	PMA Crab Fisheries	43.2%	42.7%	44.7%	43.0%	27.8%	23.9%	24.3%	32.1%	33.8%	30.0%	35.5%
		Non-PMA Crab Fisheries	3.0%	4.3%	2.8%	2.8%	1.7%	1.0%	1.1%	0.5%	0.3%	0.5%	1.9%
		Pollock	3.7%	8.5%	6.3%	7.3%	6.2%	5.4%	7.6%	5.6%	4.6%	7.4%	6.2%
		Pacific Cod	9.1%	5.9%	6.1%	5.7%	11.7%	11.5%	13.5%	11.2%	14.5%	24.7%	10.7%
		Other Groundfish	4.8%	5.9%	6.0%	7.6%	6.3%	11.9%	11.2%	7.4%	4.5%	12.9%	7.4%
		Other Fisheries	17.7%	11.3%	14.1%	17.7%	16.2%	26.8%	28.1%	20.0%	23.1%	2.2%	18.0%
		Salmon	14.7%	18.4%	17.1%	12.8%	24.9%	14.3%	10.9%	18.2%	14.9%	18.0%	16.4%
		"Non-Vessel" Fisheries	3.8%	2.9%	3.0%	3.1%	5.2%	5.2%	3.3%	5.1%	4.2%	4.2%	3.9%
	TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Other Alaska	PMA Crab Fisheries	3.4%	2.8%	3.5%	2.9%	3.1%	2.5%	3.2%	6.2%	4.7%	2.7%	3.4%
		Non-PMA Crab Fisheries	4.8%	2.6%	2.9%	3.6%	6.1%	3.9%	5.6%	4.9%	4.7%	5.4%	4.3%
		Pollock	0.4%	0.8%	0.6%	0.5%	0.0%	0.1%	0.1%	0.1%	0.0%	0.1%	0.3%
		Pacific Cod	2.0%	1.3%	1.1%	0.6%	1.1%	1.2%	1.7%	1.4%	2.2%	2.9%	1.5%
		Other Groundfish	10.6%	8.4%	10.3%	12.1%	12.8%	13.4%	15.8%	13.0%	9.2%	19.2%	12.1%
		Other Fisheries	22.3%	10.9%	14.7%	15.5%	17.1%	22.4%	22.0%	19.0%	19.6%	6.5%	17.1%
		Salmon	44.3%	55.2%	53.4%	51.8%	48.1%	39.9%	40.8%	47.0%	49.6%	54.4%	48.6%
		"Non-Vessel" Fisheries	12.2%	18.0%	13.5%	12.9%	11.7%	16.7%	10.9%	8.5%	9.9%	8.9%	12.8%
	TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Total Alaska	PMA Crab Fisheries	16.0%	12.3%	15.9%	13.5%	10.7%	9.1%	10.0%	15.7%	14.4%	10.5%	12.9%
		Non-PMA Crab Fisheries	3.6%	2.5%	2.4%	2.9%	4.0%	2.7%	3.6%	2.9%	2.7%	3.3%	3.0%
		Pollock	1.3%	2.2%	1.9%	1.9%	1.5%	1.4%	2.4%	1.9%	1.6%	2.2%	1.8%
		Pacific Cod	4.9%	3.1%	2.9%	2.2%	3.8%	4.4%	6.0%	5.6%	6.7%	11.0%	4.7%
		Other Groundfish	7.7%	6.7%	8.2%	9.7%	9.7%	11.4%	12.6%	9.5%	6.6%	14.8%	9.4%
		Other Fisheries	20.8%	10.7%	14.1%	15.9%	16.0%	22.9%	22.5%	18.0%	19.4%	4.9%	16.7%
Salmon		36.6%	48.9%	44.3%	43.2%	44.8%	33.9%	33.9%	39.2%	40.5%	45.6%	41.3%	
"Non-Vessel" Fisheries		9.2%	13.4%	10.2%	10.6%	9.5%	14.2%	9.0%	7.2%	8.0%	7.7%	10.1%	
TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
GRAND TOTALS	PMA Crab Fisheries	31.7%	24.0%	31.0%	26.5%	21.1%	17.5%	18.2%	26.6%	25.8%	17.4%	24.3%	
	Non-PMA Crab Fisheries	2.3%	1.7%	1.8%	2.3%	3.1%	1.9%	2.3%	1.6%	1.6%	1.8%	2.1%	
	Pollock	6.1%	10.0%	7.0%	7.7%	8.5%	8.3%	12.2%	10.0%	10.6%	15.6%	9.3%	
	Pacific Cod	5.2%	3.1%	2.9%	2.4%	3.9%	5.1%	6.8%	5.5%	6.4%	11.7%	4.9%	
	Other Groundfish	6.4%	5.1%	5.5%	6.8%	8.3%	9.6%	10.7%	7.7%	5.5%	11.6%	7.4%	
	Other Fisheries	13.6%	7.2%	8.9%	10.3%	10.5%	16.2%	15.8%	12.1%	13.6%	3.5%	11.2%	
	Salmon	29.4%	41.2%	36.9%	37.7%	38.9%	28.9%	28.3%	31.9%	31.7%	33.8%	34.3%	
	"Non-Vessel" Fisheries	5.3%	7.9%	5.9%	6.3%	5.6%	12.6%	5.6%	4.6%	4.9%	4.6%	6.4%	
TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Notes: "Non-Vessel" Fisheries are fish ticket harvests not associated with a licensed vessel
Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-35. Total Value of Fish Harvested by Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery (1991-2000) as Percentage of Total State Value of all Alaskan Fisheries

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average		
Total Value of Fish Harvested by Oregon Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000 - As % of State Total															
As Percent of Total State Value of all Fisheries															
Oregon	Newport	PMA Crab Fisheries	23.3%	13.5%	27.3%	29.3%	20.4%	16.1%	17.5%	22.5%	20.1%	20.4%	21.1%		
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	*	
		Pollock	13.9%	16.6%	10.0%	11.2%	13.3%	10.9%	13.1%	10.8%	12.2%	14.6%	12.8%	12.8%	
		Pacific Cod	7.5%	5.6%	6.1%	4.3%	9.9%	10.0%	14.0%	13.0%	12.1%	14.2%	9.5%	9.5%	
		Other Groundfish	1.2%	0.2%	0.2%	0.4%	1.5%	1.6%	1.7%	1.4%	0.9%	1.4%	1.0%	1.0%	
		Other Fisheries	2.5%	0.4%	0.4%	1.0%	2.6%	2.8%	4.1%	2.4%	3.3%	0.0%	1.9%	1.9%	
		Salmon	*	*	*	*	*	*	*	*	*	*	*	*	*
		"Non-Vessel" Fisheries	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		TOTAL HARVEST VALUE	48.9%	36.9%	44.3%	46.3%	48.2%	41.6%	50.7%	50.2%	48.7%	50.6%	46.3%	46.3%	46.3%
		Other Oregon	PMA Crab Fisheries	10.1%	8.3%	11.3%	8.9%	6.9%	4.8%	4.1%	6.6%	8.7%	6.8%	7.8%	7.8%
	Non-PMA Crab Fisheries		0.8%	0.6%	0.6%	0.6%	*	*	0.1%	0.0%	0.0%	0.0%	0.3%	0.3%	
	Pollock		3.5%	6.7%	5.0%	5.6%	3.9%	6.8%	7.2%	8.7%	6.0%	8.6%	6.1%	6.1%	
	Pacific Cod		3.3%	4.3%	4.1%	1.9%	2.8%	3.9%	4.9%	5.7%	7.0%	8.4%	4.6%	4.6%	
	Other Groundfish		3.9%	4.1%	4.9%	4.1%	5.2%	6.4%	7.3%	5.4%	3.3%	7.7%	5.1%	5.1%	
	Other Fisheries		9.4%	3.5%	4.4%	5.2%	4.8%	6.6%	8.3%	6.8%	8.2%	0.5%	5.8%	5.8%	
	Salmon		18.5%	33.1%	22.6%	23.4%	*	*	14.3%	14.0%	15.7%	15.0%	20.7%	20.7%	
	"Non-Vessel" Fisheries		1.4%	2.6%	2.3%	2.9%	2.8%	11.2%	3.0%	2.6%	2.2%	2.1%	3.2%	3.2%	
	TOTAL HARVEST VALUE		51.1%	63.1%	55.1%	52.5%	51.6%	58.1%	49.2%	49.8%	51.0%	49.1%	53.7%	53.7%	
	Total Oregon		PMA Crab Fisheries	33.4%	21.7%	38.6%	38.2%	27.3%	20.9%	21.7%	29.0%	28.8%	27.2%	29.0%	29.0%
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	*	
Pollock		17.4%	23.3%	15.0%	16.8%	17.2%	17.7%	20.3%	19.5%	18.2%	23.2%	18.9%	18.9%		
Pacific Cod		10.9%	9.9%	10.2%	6.2%	12.8%	13.9%	18.9%	18.7%	19.1%	22.6%	14.1%	14.1%		
Other Groundfish		5.0%	4.3%	5.1%	4.5%	6.8%	8.0%	9.0%	6.8%	4.2%	9.1%	6.1%	6.1%		
Other Fisheries		11.9%	3.9%	4.8%	6.2%	7.4%	9.4%	12.5%	9.1%	11.5%	0.5%	7.7%	7.7%		
Salmon		*	*	*	*	*	*	*	*	*	*	*	*		
"Non-Vessel" Fisheries		1.4%	2.6%	2.3%	2.9%	2.8%	11.4%	3.0%	2.6%	2.2%	2.1%	3.3%	3.3%		
TOTAL HARVEST VALUE		100.0%	100.0%	99.5%	98.8%	99.8%	99.7%	99.9%	100.0%	99.7%	99.7%	100.0%	100.0%		
Total Value of Fish Harvested by "Other States" Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000 -- As % of State Total															
As Percent of Total State Value of all Fisheries															
Total Other States	PMA Crab Fisheries	5.3%	3.8%	6.3%	6.1%	7.7%	6.4%	10.4%	13.6%	13.8%	6.2%	7.5%	7.5%		
	Non-PMA Crab Fisheries	1.0%	0.8%	0.4%	0.4%	0.7%	*	*	0.7%	0.8%	0.7%	0.7%	0.7%		
	Pollock	12.2%	14.9%	11.9%	10.6%	9.9%	*	*	6.4%	8.5%	11.0%	10.4%	10.4%		
	Pacific Cod	5.3%	1.2%	0.3%	0.8%	2.0%	3.0%	2.0%	3.2%	1.3%	4.8%	2.1%	2.1%		
	Other Groundfish	6.8%	2.5%	1.9%	1.4%	4.5%	4.1%	6.1%	4.2%	4.1%	7.9%	4.0%	4.0%		
	Other Fisheries	11.1%	7.7%	10.6%	10.0%	6.1%	11.8%	15.9%	10.9%	11.9%	7.7%	9.9%	9.9%		
	Salmon	49.1%	58.4%	59.3%	61.0%	60.6%	37.7%	50.0%	50.8%	49.1%	52.4%	53.3%	53.3%		
	"Non-Vessel" Fisheries	9.1%	10.7%	9.5%	9.7%	8.5%	30.8%	14.2%	10.3%	10.5%	9.3%	12.1%	12.1%		
	TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%		

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
Total Value of Fish Harvested by Washington Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000 -- As % of State Total														
As Percent of Total State Value of all Fisheries														
Washington	Other Washington	PMA Crab Fisheries	2.2%	2.3%	3.0%	2.6%	2.6%	1.9%	2.1%	2.9%	3.2%	1.6%	2.5%	
		Non-PMA Crab Fisheries	0.9%	0.3%	0.3%	0.3%	0.5%	0.2%	0.5%	0.2%	0.2%	0.2%	0.1%	0.4%
		Pollock	2.0%	3.4%	1.5%	2.5%	2.9%	2.8%	3.3%	2.7%	2.7%	2.7%	4.2%	2.8%
		Pacific Cod	1.1%	0.6%	0.5%	0.4%	0.6%	0.8%	1.0%	0.6%	0.9%	0.9%	1.8%	0.8%
		Other Groundfish	1.4%	1.0%	0.7%	1.4%	2.2%	2.6%	2.8%	1.9%	1.6%	1.6%	3.2%	1.8%
		Other Fisheries	2.7%	1.5%	1.5%	1.9%	2.6%	4.0%	3.4%	2.3%	2.9%	1.1%	2.4%	2.4%
		Salmon	10.9%	16.1%	14.3%	15.5%	16.6%	11.7%	11.5%	13.0%	11.7%	12.3%	12.3%	13.6%
		"Non-Vessel" Fisheries	0.6%	0.9%	0.8%	0.8%	0.8%	4.8%	0.8%	0.8%	0.7%	0.8%	1.1%	1.1%
		TOTAL HARVEST VALUE	21.9%	26.0%	22.7%	25.5%	28.8%	28.8%	25.3%	24.5%	23.9%	25.2%	25.3%	25.3%
		S-T CMSA	PMA Crab Fisheries	49.2%	38.2%	46.5%	40.0%	31.2%	27.7%	26.6%	37.3%	36.5%	23.1%	36.5%
	Non-PMA Crab Fisheries		0.2%	0.5%	1.1%	1.8%	2.1%	1.2%	0.7%	0.2%	0.3%	0.4%	0.9%	0.9%
	Pollock		7.8%	13.6%	9.6%	10.2%	12.3%	13.6%	20.2%	15.7%	17.4%	25.1%	14.0%	14.0%
	Pacific Cod		3.8%	1.8%	1.7%	1.9%	2.5%	4.3%	5.4%	3.0%	3.7%	9.6%	3.5%	3.5%
	Other Groundfish		3.7%	2.6%	2.2%	2.9%	5.2%	5.6%	6.2%	4.1%	2.9%	5.9%	3.9%	3.9%
	Other Fisheries		3.1%	1.8%	2.0%	2.5%	2.8%	4.7%	4.7%	3.5%	4.5%	0.8%	3.0%	3.0%
	Salmon		10.0%	14.8%	13.8%	14.8%	14.7%	10.7%	10.5%	11.2%	10.4%	9.6%	12.3%	12.3%
	"Non-Vessel" Fisheries		0.3%	0.7%	0.4%	0.4%	0.5%	3.3%	0.4%	0.4%	0.4%	0.4%	0.7%	0.7%
	TOTAL HARVEST VALUE		78.1%	74.0%	77.3%	74.5%	71.2%	71.2%	74.7%	75.5%	76.1%	74.8%	74.7%	74.7%
	Total Washington		PMA Crab Fisheries	51.4%	40.5%	49.5%	42.6%	33.7%	29.6%	28.7%	40.3%	39.7%	24.7%	38.9%
			Non-PMA Crab Fisheries	1.1%	0.8%	1.4%	2.1%	2.7%	1.4%	1.1%	0.5%	0.5%	0.5%	1.3%
		Pollock	9.8%	17.0%	11.1%	12.8%	15.2%	16.4%	23.4%	18.5%	20.1%	29.3%	16.7%	
		Pacific Cod	4.9%	2.4%	2.2%	2.3%	3.1%	5.1%	6.4%	3.6%	4.6%	11.4%	4.3%	
		Other Groundfish	5.1%	3.6%	2.9%	4.4%	7.4%	8.2%	9.0%	6.0%	4.4%	9.1%	5.7%	
		Other Fisheries	5.8%	3.3%	3.6%	4.4%	5.3%	8.8%	8.1%	5.8%	7.4%	1.9%	5.4%	
		Salmon	20.9%	30.9%	28.1%	30.3%	31.3%	22.4%	21.9%	24.2%	22.1%	21.9%	25.9%	
		"Non-Vessel" Fisheries	0.9%	1.5%	1.2%	1.2%	1.2%	8.2%	1.3%	1.2%	1.1%	1.2%	1.8%	
		TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Total Value of Fish Harvested by Alaska Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000 -- As % of State Total														
As Percent of Total State Value of all Fisheries														
Alaska	Anchorage	PMA Crab Fisheries	1.0%	0.3%	0.9%	0.7%	1.3%	1.1%	1.0%	1.3%	1.3%	1.0%	1.0%	
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	
		Pollock	*	*	*	*	*	*	*	*	*	*	*	
		Pacific Cod	0.1%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%	0.3%	0.1%	
		Other Groundfish	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.3%	0.1%	0.1%	0.3%	0.2%	
		Other Fisheries	0.9%	0.5%	0.4%	0.5%	0.6%	0.9%	0.7%	0.5%	0.5%	0.2%	0.6%	
		Salmon	3.0%	4.4%	3.6%	3.5%	3.8%	2.5%	2.2%	2.4%	3.1%	3.6%	3.3%	
		"Non-Vessel" Fisheries	1.0%	1.8%	1.4%	1.5%	1.2%	2.2%	1.4%	0.9%	1.2%	1.2%	1.4%	
		TOTAL HARVEST VALUE	6.1%	7.3%	6.6%	6.5%	7.2%	6.8%	5.5%	5.3%	6.3%	6.8%	6.5%	
		Homer	PMA Crab Fisheries	1.5%	1.0%	1.4%	1.4%	1.1%	1.1%	0.9%	1.7%	1.6%	1.4%	1.3%
	Non-PMA Crab Fisheries		*	*	*	*	*	*	*	*	*	*	*	
	Pollock		*	*	*	*	*	*	*	*	*	*	*	
	Pacific Cod		0.4%	0.2%	0.2%	0.1%	0.3%	0.4%	0.6%	0.5%	0.5%	1.3%	0.4%	
	Other Groundfish		0.3%	0.4%	0.7%	0.6%	0.5%	0.4%	0.5%	0.3%	0.3%	0.5%	0.5%	
	Other Fisheries		2.2%	1.2%	1.6%	1.8%	1.9%	2.8%	2.2%	1.8%	2.2%	0.4%	1.8%	
	Salmon		2.3%	4.6%	3.0%	2.9%	3.6%	2.7%	3.1%	3.0%	3.3%	3.9%	3.3%	
	"Non-Vessel" Fisheries		0.2%	0.3%	0.2%	0.4%	0.2%	0.6%	0.3%	0.2%	0.2%	0.2%	0.3%	
	TOTAL HARVEST VALUE		7.0%	7.9%	7.3%	7.2%	7.6%	7.9%	7.5%	7.6%	8.0%	7.8%	7.6%	

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
	King Cove/Sand Point	PMA Crab Fisheries	1.0%	0.8%	1.0%	1.1%	1.1%	0.9%	1.0%	1.6%	1.0%	0.4%	1.0%	
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	
		Pollock	*	*	*	*	*	*	*	*	*	*	*	
		Pacific Cod	1.1%	0.8%	0.6%	0.6%	0.6%	1.0%	1.5%	1.5%	1.5%	2.7%	1.1%	
		Other Groundfish	0.1%	0.1%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.1%	
		Other Fisheries	0.9%	0.4%	0.4%	0.6%	0.1%	0.3%	0.4%	0.3%	0.4%	0.4%	0.1%	0.4%
		Salmon	2.6%	4.1%	3.2%	2.5%	3.6%	1.3%	1.9%	3.1%	2.9%	2.4%	2.8%	
		"Non-Vessel" Fisheries	0.2%	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%	0.2%	0.1%	0.2%	0.1%	
		TOTAL HARVEST VALUE	5.8%	6.4%	5.5%	5.1%	5.7%	4.3%	5.6%	7.1%	6.2%	6.3%	5.8%	
	Kodiak	PMA Crab Fisheries	10.6%	8.5%	10.6%	8.5%	5.3%	4.6%	5.2%	7.7%	7.9%	6.0%	7.6%	
		Non-PMA Crab Fisheries	0.7%	0.9%	0.7%	0.6%	0.3%	0.2%	0.2%	0.1%	0.1%	0.1%	0.4%	
		Pollock	0.9%	1.7%	1.5%	1.4%	1.2%	1.0%	1.6%	1.3%	1.1%	1.5%	1.3%	
		Pacific Cod	2.2%	1.2%	1.4%	1.1%	2.2%	2.2%	2.9%	2.7%	3.4%	5.0%	2.3%	
		Other Groundfish	1.2%	1.2%	1.4%	1.5%	1.2%	2.3%	2.4%	1.8%	1.1%	2.6%	1.6%	
		Other Fisheries	4.3%	2.3%	3.3%	3.5%	3.1%	5.1%	6.0%	4.8%	5.4%	0.4%	3.9%	
		Salmon	3.6%	3.7%	4.0%	2.5%	4.7%	2.7%	2.3%	4.4%	3.5%	3.6%	3.5%	
		"Non-Vessel" Fisheries	0.9%	0.6%	0.7%	0.6%	1.0%	1.0%	0.7%	1.2%	1.0%	0.8%	0.8%	
		TOTAL HARVEST VALUE	24.5%	20.0%	23.6%	19.7%	19.0%	19.1%	21.4%	24.0%	23.3%	20.1%	21.4%	
	Other Alaska	PMA Crab Fisheries	1.9%	1.6%	2.0%	1.8%	1.9%	1.5%	1.9%	3.5%	2.7%	1.6%	2.0%	
		Non-PMA Crab Fisheries	2.7%	1.5%	1.6%	2.2%	3.7%	2.4%	3.4%	2.7%	2.6%	3.2%	2.5%	
		Pollock	0.2%	0.5%	0.3%	0.3%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.2%	
		Pacific Cod	1.1%	0.8%	0.6%	0.4%	0.7%	0.7%	1.0%	0.8%	1.2%	1.7%	0.9%	
		Other Groundfish	6.0%	4.9%	5.9%	7.5%	7.7%	8.3%	9.4%	7.3%	5.2%	11.3%	7.1%	
		Other Fisheries	12.6%	6.3%	8.4%	9.5%	10.3%	13.8%	13.2%	10.6%	11.0%	3.8%	10.0%	
		Salmon	25.0%	32.2%	30.4%	31.8%	29.0%	24.7%	24.4%	26.4%	27.8%	32.0%	28.5%	
		"Non-Vessel" Fisheries	6.9%	10.5%	7.7%	7.9%	7.1%	10.3%	6.5%	4.7%	5.6%	5.3%	7.5%	
		TOTAL HARVEST VALUE	56.4%	58.4%	57.0%	61.4%	60.3%	61.8%	59.9%	56.1%	56.1%	58.9%	58.7%	
	Total Alaska	PMA Crab Fisheries	16.0%	12.3%	15.9%	13.5%	10.7%	9.1%	10.0%	15.7%	14.4%	10.5%	12.9%	
		Non-PMA Crab Fisheries	3.6%	2.5%	2.4%	2.9%	4.0%	2.7%	2.9%	2.7%	2.7%	3.3%	3.0%	
		Pollock	1.3%	2.2%	1.9%	1.9%	1.5%	1.4%	2.4%	1.9%	1.6%	2.2%	1.8%	
		Pacific Cod	4.9%	3.1%	2.9%	2.2%	3.8%	4.4%	6.0%	5.6%	6.7%	11.0%	4.7%	
		Other Groundfish	7.7%	6.7%	8.2%	9.7%	9.7%	11.4%	12.6%	9.5%	6.6%	14.8%	9.4%	
		Other Fisheries	20.8%	10.7%	14.1%	15.9%	16.0%	22.9%	22.5%	18.0%	19.4%	4.9%	16.7%	
Salmon		36.6%	48.9%	44.3%	43.2%	44.8%	33.9%	33.9%	39.2%	40.5%	45.6%	41.3%		
"Non-Vessel" Fisheries		9.2%	13.4%	10.2%	10.6%	9.5%	14.2%	9.0%	7.2%	8.0%	7.7%	10.1%		
TOTAL HARVEST VALUE		99.9%	100.0%	100.0%	99.9%	99.9%	100.0%	100.0%	100.0%	99.9%	100.0%	100.0%		

Notes: "Non-Vessel" Fisheries are fish ticket harvests not associated with a licensed vessel
Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-36. Total Value of Fish Harvested by Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery (1991-2000) as Percentage of Individual Fishery Category (all States)

State	City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Grand Total	
Total Value of Fish Harvested by Oregon Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000														
As Percent of the Individual Fishery Category														
Oregon	Newport	PMA Crab Fisheries	3.5%	3.0%	5.0%	6.1%	5.2%	5.0%	5.7%	5.2%	4.9%	8.1%	4.9%	
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	*
		Pollock	10.8%	8.9%	8.1%	8.1%	8.3%	7.2%	6.4%	6.6%	7.2%	6.5%	7.7%	7.7%
		Pacific Cod	6.9%	9.7%	12.1%	10.0%	13.6%	10.7%	12.3%	14.5%	11.9%	8.4%	10.8%	10.8%
		Other Groundfish	0.9%	0.2%	0.2%	0.4%	1.0%	0.9%	1.0%	1.1%	1.1%	0.8%	0.8%	0.8%
		Other Fisheries	0.9%	0.3%	0.3%	0.5%	1.3%	0.9%	1.5%	1.2%	1.5%	0.0%	1.0%	1.0%
		Salmon	*	*	*	*	*	*	*	*	*	*	*	*
		"Non-Vessel" Fisheries	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	TOTAL HARVEST VALUE	2.3%	2.0%	2.5%	2.6%	2.6%	2.3%	3.0%	3.1%	3.1%	3.5%	2.6%	2.6%	
	Other Oregon	PMA Crab Fisheries	1.5%	1.8%	2.1%	1.9%	1.8%	1.5%	1.3%	1.5%	2.1%	2.7%	1.8%	1.8%
		Non-PMA Crab Fisheries	1.7%	1.9%	1.9%	1.4%	*	*	0.3%	0.0%	0.0%	0.0%	0.8%	0.8%
		Pollock	2.7%	3.6%	4.0%	4.0%	2.5%	4.5%	3.5%	5.3%	3.5%	3.8%	3.7%	3.7%
		Pacific Cod	3.0%	7.5%	8.1%	4.4%	3.9%	4.1%	4.3%	6.4%	6.9%	5.0%	5.3%	5.3%
		Other Groundfish	2.9%	4.3%	5.1%	3.3%	3.4%	3.6%	4.1%	4.3%	3.8%	4.6%	3.9%	3.9%
		Other Fisheries	3.3%	2.6%	2.8%	2.8%	2.5%	2.2%	3.1%	3.4%	3.8%	1.0%	2.9%	2.9%
		Salmon	3.0%	4.3%	3.5%	3.4%	*	*	3.0%	2.7%	3.1%	3.1%	3.4%	3.4%
		"Non-Vessel" Fisheries	1.3%	1.8%	2.2%	2.5%	2.6%	4.8%	3.1%	3.4%	2.9%	3.1%	2.9%	2.9%
	TOTAL HARVEST VALUE	2.4%	3.4%	3.2%	2.9%	2.8%	3.2%	2.9%	3.0%	3.2%	3.4%	3.0%	3.0%	
Total Oregon	PMA Crab Fisheries	5.0%	4.9%	7.1%	8.0%	6.9%	6.5%	7.0%	6.7%	7.0%	10.8%	6.7%	6.7%	
	Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	*	
	Pollock	13.5%	12.5%	12.2%	12.1%	10.8%	11.6%	9.9%	11.9%	10.8%	10.3%	11.4%	11.4%	
	Pacific Cod	9.9%	17.3%	20.2%	14.5%	17.4%	14.8%	16.5%	20.9%	18.8%	13.4%	16.1%	16.1%	
	Other Groundfish	3.7%	4.5%	5.3%	3.7%	4.4%	4.5%	5.0%	5.4%	4.8%	5.4%	4.7%	4.7%	
	Other Fisheries	4.2%	2.9%	3.1%	3.3%	3.8%	3.2%	4.7%	4.6%	5.3%	1.0%	3.9%	3.9%	
	Salmon	*	*	*	*	*	*	*	*	*	*	*	*	
	"Non-Vessel" Fisheries	1.3%	1.8%	2.2%	2.5%	2.6%	4.9%	3.1%	3.4%	2.9%	3.1%	2.9%	2.9%	
TOTAL HARVEST VALUE	4.7%	5.4%	5.7%	5.5%	5.4%	5.5%	5.9%	6.1%	6.3%	6.9%	5.7%	5.7%		
Total Value of Fish Harvested by "Other States" Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000														
As Percent of the Individual Fishery Category														
Total Other States	PMA Crab Fisheries	0.6%	0.8%	0.9%	1.2%	1.9%	1.9%	1.9%	2.0%	2.3%	1.8%	1.4%	1.4%	
	Non-PMA Crab Fisheries	1.6%	2.5%	0.9%	0.8%	1.2%	*	*	1.7%	2.2%	1.9%	1.5%	1.5%	
	Pollock	7.3%	7.4%	7.8%	7.0%	6.0%	*	*	2.5%	3.5%	3.5%	5.1%	5.1%	
	Pacific Cod	3.8%	2.0%	0.5%	1.7%	2.7%	3.0%	1.0%	2.3%	0.9%	2.0%	2.0%	2.0%	
	Other Groundfish	3.9%	2.4%	1.6%	1.0%	2.8%	2.2%	1.9%	2.2%	3.3%	3.4%	2.5%	2.5%	
	Other Fisheries	3.0%	5.3%	5.5%	4.9%	3.0%	3.8%	3.3%	3.6%	3.8%	11.0%	4.1%	4.1%	
	Salmon	6.1%	7.1%	7.4%	8.2%	8.1%	6.7%	5.8%	6.4%	6.7%	7.7%	7.1%	7.1%	
	"Non-Vessel" Fisheries	6.4%	6.8%	7.4%	7.8%	7.9%	12.6%	8.3%	9.0%	9.3%	9.9%	8.7%	8.7%	
TOTAL HARVEST VALUE	3.7%	5.0%	4.6%	5.0%	5.2%	5.1%	3.3%	4.0%	4.4%	4.9%	4.6%	4.6%		

State	City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Grand Total	
Total Value of Fish Harvested by Washington Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000														
As Percent of the Individual Fishery Category														
Washington	Other Washington	PMA Crab Fisheries	3.0%	4.0%	4.0%	4.1%	5.1%	4.2%	4.7%	4.6%	5.1%	3.9%	4.2%	
		Non-PMA Crab Fisheries	16.2%	7.4%	7.0%	5.5%	7.3%	4.2%	7.9%	6.3%	6.2%	3.3%	7.5%	
		Pollock	14.4%	13.9%	9.2%	13.5%	14.4%	12.9%	10.8%	11.4%	10.4%	11.4%	11.4%	12.2%
		Pacific Cod	9.3%	8.2%	7.4%	6.8%	6.5%	5.8%	5.8%	4.4%	5.9%	6.6%	6.6%	6.6%
		Other Groundfish	9.6%	7.9%	5.4%	8.6%	11.1%	10.5%	10.6%	10.4%	12.1%	11.7%	9.9%	9.9%
		Other Fisheries	8.6%	8.3%	7.4%	7.5%	10.3%	9.5%	8.6%	8.0%	8.9%	13.8%	8.8%	8.8%
		Salmon	16.0%	16.0%	16.5%	17.0%	18.0%	15.6%	16.3%	16.9%	15.4%	15.5%	16.4%	16.4%
		"Non-Vessel" Fisheries	4.9%	4.6%	5.9%	5.5%	6.0%	14.8%	5.8%	7.3%	6.1%	7.0%	7.4%	7.4%
	TOTAL HARVEST VALUE	9.4%	10.6%	9.6%	10.5%	12.1%	11.1%	10.2%	10.2%	9.9%	10.7%	10.5%	10.5%	
	S-T CMSA	PMA Crab Fisheries	66.9%	65.3%	63.8%	62.3%	62.2%	60.8%	58.8%	58.1%	58.9%	56.1%	62.1%	62.1%
		Non-PMA Crab Fisheries	4.3%	12.8%	24.9%	31.2%	29.4%	23.8%	11.3%	5.9%	7.3%	9.2%	17.8%	17.8%
		Pollock	54.8%	55.5%	58.0%	55.1%	60.6%	63.0%	66.7%	65.2%	68.0%	68.3%	61.8%	61.8%
		Pacific Cod	31.4%	23.6%	24.6%	32.1%	27.0%	32.7%	32.2%	22.8%	24.2%	34.9%	29.0%	29.0%
		Other Groundfish	24.5%	20.9%	17.2%	17.8%	26.4%	22.2%	23.5%	22.0%	21.8%	21.4%	22.0%	22.0%
		Other Fisheries	9.8%	10.5%	9.7%	10.0%	11.0%	11.3%	12.1%	12.0%	13.7%	9.9%	11.2%	11.2%
		Salmon	14.6%	14.7%	15.9%	16.1%	15.9%	14.3%	14.9%	14.5%	13.6%	12.0%	14.8%	14.8%
		"Non-Vessel" Fisheries	2.8%	3.4%	3.0%	2.6%	3.4%	10.2%	3.2%	3.8%	3.2%	4.1%	4.5%	4.5%
	TOTAL HARVEST VALUE	33.6%	30.3%	32.9%	30.7%	30.0%	27.4%	30.1%	31.3%	31.6%	31.8%	31.0%	31.0%	
	Total Washington	PMA Crab Fisheries	69.9%	69.2%	67.8%	66.3%	67.3%	65.0%	63.5%	62.7%	64.0%	60.0%	66.3%	66.3%
		Non-PMA Crab Fisheries	20.5%	20.2%	31.9%	36.7%	36.7%	28.0%	19.2%	12.2%	13.5%	12.5%	25.3%	25.3%
Pollock		69.2%	69.4%	67.2%	68.6%	75.0%	75.9%	77.5%	76.6%	78.4%	79.7%	74.1%	74.1%	
Pacific Cod		40.7%	31.8%	32.0%	38.9%	33.6%	38.5%	38.0%	27.1%	30.1%	41.5%	35.6%	35.6%	
Other Groundfish		34.1%	28.8%	22.6%	26.4%	37.5%	32.8%	34.1%	32.4%	33.9%	33.1%	31.9%	31.9%	
Other Fisheries		18.4%	18.8%	17.1%	17.5%	21.3%	20.8%	20.7%	20.0%	22.6%	23.7%	19.9%	19.9%	
Salmon		30.6%	30.7%	32.5%	33.2%	33.9%	29.9%	31.2%	31.4%	29.0%	27.5%	31.2%	31.2%	
"Non-Vessel" Fisheries		7.8%	8.0%	8.9%	8.1%	9.3%	25.0%	9.0%	11.1%	9.3%	11.2%	11.9%	11.9%	
TOTAL HARVEST VALUE	43.1%	40.9%	42.6%	41.3%	42.1%	38.4%	40.3%	41.5%	41.5%	42.4%	41.4%	41.4%		
Total Value of Fish Harvested by Alaska Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000														
As Percent of the Individual Fishery Category														
Alaska	Anchorage	PMA Crab Fisheries	1.6%	0.7%	1.3%	1.3%	2.9%	3.1%	2.6%	2.4%	2.4%	2.7%	1.9%	
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	
		Pollock	*	*	*	*	*	*	*	*	*	*	*	
		Pacific Cod	0.6%	1.7%	0.9%	0.6%	1.0%	0.4%	0.1%	0.7%	0.6%	1.0%	0.7%	
		Other Groundfish	1.2%	1.7%	1.8%	1.1%	1.1%	1.0%	1.3%	0.8%	1.2%	1.3%	1.3%	
		Other Fisheries	3.2%	3.6%	2.2%	2.5%	2.8%	2.9%	2.3%	1.9%	1.7%	2.8%	2.6%	
		Salmon	5.0%	5.2%	4.6%	4.4%	4.6%	4.3%	3.8%	3.6%	4.7%	4.9%	4.6%	
		"Non-Vessel" Fisheries	9.0%	11.1%	11.2%	11.7%	10.3%	8.8%	12.3%	9.8%	11.5%	12.0%	10.6%	
TOTAL HARVEST VALUE	3.0%	3.6%	3.1%	3.1%	3.4%	3.5%	2.8%	2.6%	3.0%	3.1%	3.1%			

State	City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Grand Total	
	Homer	PMA Crab Fisheries	2.2%	2.1%	2.2%	2.5%	2.5%	3.1%	2.5%	3.1%	2.9%	3.6%	2.6%	
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	*
		Pollock	*	*	*	*	*	*	*	*	*	*	*	*
		Pacific Cod	3.5%	3.5%	2.8%	2.2%	3.4%	3.8%	4.3%	4.7%	4.1%	5.3%	4.0%	
		Other Groundfish	2.6%	3.9%	5.8%	4.2%	3.1%	2.2%	2.2%	2.1%	2.3%	2.1%	3.0%	
		Other Fisheries	7.8%	8.4%	8.4%	8.3%	8.3%	8.7%	6.9%	7.2%	7.6%	4.9%	7.9%	
		Salmon	3.8%	5.4%	3.8%	3.7%	4.4%	4.8%	5.5%	4.6%	4.9%	5.3%	4.6%	
		"Non-Vessel" Fisheries	2.1%	2.1%	1.9%	2.9%	1.5%	2.4%	2.4%	1.7%	1.8%	2.2%	2.1%	
	TOTAL HARVEST VALUE	3.4%	3.9%	3.4%	3.5%	3.6%	4.0%	3.8%	3.7%	3.8%	3.6%	3.7%		
	King Cove/Sand Point	PMA Crab Fisheries	1.6%	1.6%	1.6%	2.1%	2.5%	2.8%	2.9%	2.8%	1.8%	1.1%	2.0%	
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	
		Pollock	*	*	*	*	*	*	*	*	*	*	*	
		Pacific Cod	10.5%	13.1%	9.5%	11.9%	7.1%	10.1%	11.1%	13.4%	10.9%	10.7%	10.8%	
		Other Groundfish	0.5%	0.5%	0.3%	0.2%	0.0%	1.4%	0.1%	0.1%	0.0%	0.0%	0.3%	
		Other Fisheries	3.1%	2.6%	2.0%	2.7%	0.6%	0.9%	1.4%	1.1%	1.3%	0.8%	1.7%	
		Salmon	4.2%	4.9%	4.1%	3.1%	4.4%	2.4%	3.3%	4.7%	4.3%	3.3%	4.0%	
		"Non-Vessel" Fisheries	1.5%	1.3%	1.2%	1.3%	0.8%	0.4%	0.8%	1.6%	1.2%	1.5%	1.1%	
	TOTAL HARVEST VALUE	2.8%	3.1%	2.6%	2.5%	2.7%	2.2%	2.8%	3.4%	3.0%	2.9%	2.8%		
	Kodiak	PMA Crab Fisheries	16.2%	17.4%	16.0%	15.4%	11.9%	13.3%	14.3%	14.0%	14.6%	15.8%	15.1%	
		Non-PMA Crab Fisheries	15.2%	25.1%	17.0%	11.5%	5.0%	5.0%	5.0%	3.4%	2.2%	2.6%	9.8%	
		Pollock	7.3%	8.3%	10.0%	9.1%	6.6%	6.4%	6.7%	6.4%	4.8%	4.4%	6.9%	
		Pacific Cod	20.6%	18.7%	23.7%	22.8%	26.9%	22.0%	21.5%	23.8%	25.3%	19.4%	22.3%	
		Other Groundfish	8.8%	11.3%	12.1%	10.6%	6.8%	12.1%	11.2%	11.1%	9.3%	10.2%	10.3%	
		Other Fisheries	15.5%	15.4%	17.5%	16.3%	13.8%	16.1%	19.1%	19.2%	18.9%	5.8%	16.7%	
		Salmon	6.0%	4.3%	5.2%	3.2%	5.8%	4.8%	4.1%	6.6%	5.2%	4.9%	4.9%	
		"Non-Vessel" Fisheries	8.6%	3.6%	5.7%	4.6%	8.2%	4.0%	6.2%	13.0%	9.5%	8.3%	6.3%	
	TOTAL HARVEST VALUE	11.9%	9.7%	11.1%	9.5%	9.0%	9.7%	10.7%	11.6%	11.1%	9.2%	10.3%		
	Other Alaska	PMA Crab Fisheries	2.9%	3.3%	3.0%	3.3%	4.1%	4.5%	5.3%	6.3%	4.9%	4.1%	4.0%	
		Non-PMA Crab Fisheries	56.4%	44.2%	42.6%	45.0%	56.2%	65.0%	72.7%	81.5%	80.6%	81.4%	59.7%	
		Pollock	1.9%	2.4%	2.2%	2.1%	0.1%	0.2%	0.1%	0.3%	0.1%	0.1%	0.9%	
		Pacific Cod	10.4%	12.1%	10.5%	7.5%	8.0%	7.4%	7.6%	7.2%	9.3%	6.7%	8.5%	
		Other Groundfish	45.1%	46.8%	50.5%	52.7%	44.2%	43.9%	44.2%	45.9%	45.2%	44.4%	46.1%	
		Other Fisheries	44.9%	43.1%	44.2%	44.5%	46.3%	43.6%	41.6%	42.5%	38.6%	50.1%	43.3%	
		Salmon	41.2%	38.2%	38.9%	40.6%	35.3%	43.6%	43.2%	40.0%	41.9%	43.3%	40.1%	
		"Non-Vessel" Fisheries	63.5%	65.4%	61.5%	61.0%	59.3%	41.9%	57.9%	50.3%	54.4%	51.8%	56.4%	
	TOTAL HARVEST VALUE	27.3%	28.5%	26.9%	29.6%	28.5%	31.5%	30.0%	27.1%	26.8%	26.9%	28.3%		

State	City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Grand Total
Total Alaska		PMA Crab Fisheries	24.5%	25.1%	24.1%	24.5%	23.9%	26.6%	27.6%	28.6%	26.6%	27.4%	25.5%
		Non-PMA Crab Fisheries	74.9%	73.7%	63.7%	59.6%	61.5%	71.2%	78.3%	86.0%	83.2%	85.1%	71.5%
		Pollock	10.0%	10.7%	12.9%	12.2%	8.1%	8.8%	9.7%	9.0%	7.4%	6.5%	9.4%
		Pacific Cod	45.6%	49.0%	47.3%	45.0%	46.3%	43.6%	44.6%	49.7%	50.2%	43.1%	46.3%
		Other Groundfish	58.2%	64.3%	70.5%	68.9%	55.2%	60.5%	59.0%	60.0%	58.0%	58.1%	61.0%
		Other Fisheries	74.4%	73.0%	74.4%	74.3%	71.9%	72.3%	71.3%	71.8%	68.3%	64.4%	72.1%
		Salmon	60.2%	57.9%	56.6%	55.2%	54.5%	59.9%	59.9%	59.5%	61.1%	61.7%	58.2%
		"Non-Vessel" Fisheries	84.6%	83.5%	81.5%	81.5%	80.1%	57.4%	79.6%	76.4%	78.4%	75.8%	76.5%
	TOTAL HARVEST VALUE	48.5%	48.7%	47.1%	48.1%	47.3%	51.0%	50.1%	48.4%	47.8%	45.7%	48.3%	
GRAND TOTALS		PMA Crab Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Non-PMA Crab Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Pollock	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Pacific Cod	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Other Groundfish	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Other Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		Salmon	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
		"Non-Vessel" Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.6%	100.0%	100.0%	100.0%	100.0%	

Notes: "Non-Vessel" Fisheries are fish ticket harvests not associated with a licensed vessel
Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-37. Total Value of Fish Harvested by Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery (1991-2000) as Percentage of Combined Total Value (all States) of all Alaskan Fisheries

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
Total Value of Fish Harvested by Oregon Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000 - As % of Yearly Grand Total														
As Percent of Combined Total Value of all Fisheries														
Oregon	Newport	PMA Crab Fisheries	1.1%	0.7%	1.6%	1.6%	1.1%	0.9%	1.0%	1.4%	1.3%	1.4%	1.2%	
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	*
		Pollock	0.7%	0.9%	0.6%	0.6%	0.7%	0.6%	0.8%	0.8%	0.7%	0.8%	1.0%	0.7%
		Pacific Cod	0.4%	0.3%	0.3%	0.2%	0.5%	0.5%	0.8%	0.8%	0.8%	0.8%	1.0%	0.5%
		Other Groundfish	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
		Other Fisheries	0.1%	0.0%	0.0%	0.1%	0.1%	0.2%	0.2%	0.1%	0.2%	0.2%	0.0%	0.1%
		Salmon	*	*	*	*	*	*	*	*	*	*	*	*
		"Non-Vessel" Fisheries	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	TOTAL HARVEST VALUE	2.3%	2.0%	2.5%	2.6%	2.6%	2.3%	3.0%	3.1%	3.1%	3.5%	2.6%	2.6%	
	Other Oregon	PMA Crab Fisheries	0.5%	0.4%	0.6%	0.5%	0.4%	0.3%	0.2%	0.4%	0.5%	0.5%	0.4%	0.4%
		Non-PMA Crab Fisheries	0.0%	0.0%	0.0%	0.0%	*	*	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Pollock	0.2%	0.4%	0.3%	0.3%	0.2%	0.4%	0.4%	0.5%	0.4%	0.6%	0.3%	0.3%
		Pacific Cod	0.2%	0.2%	0.2%	0.1%	0.2%	0.2%	0.3%	0.4%	0.4%	0.6%	0.3%	0.3%
		Other Groundfish	0.2%	0.2%	0.3%	0.2%	0.3%	0.3%	0.4%	0.3%	0.2%	0.5%	0.3%	0.3%
		Other Fisheries	0.4%	0.2%	0.3%	0.3%	0.3%	0.4%	0.5%	0.4%	0.5%	0.0%	0.3%	0.3%
		Salmon	0.9%	1.8%	1.3%	1.3%	*	*	0.8%	0.9%	1.0%	1.0%	1.2%	1.2%
		"Non-Vessel" Fisheries	0.1%	0.1%	0.1%	0.2%	0.1%	0.6%	0.2%	0.2%	0.1%	0.1%	0.2%	0.2%
	TOTAL HARVEST VALUE	2.4%	3.4%	3.2%	2.9%	2.8%	3.2%	2.9%	3.0%	3.2%	3.4%	3.0%	3.0%	
Total Oregon	PMA Crab Fisheries	1.6%	1.2%	2.2%	2.1%	1.5%	1.1%	1.3%	1.8%	1.8%	1.9%	1.6%	1.6%	
	Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	*	
	Pollock	0.8%	1.2%	0.9%	0.9%	0.9%	1.0%	1.2%	1.2%	1.1%	1.6%	1.1%	1.1%	
	Pacific Cod	0.5%	0.5%	0.6%	0.3%	0.7%	0.8%	1.1%	1.1%	1.2%	1.6%	0.8%	0.8%	
	Other Groundfish	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.5%	0.4%	0.3%	0.6%	0.3%	0.3%	
	Other Fisheries	0.6%	0.2%	0.3%	0.3%	0.4%	0.5%	0.7%	0.6%	0.7%	0.0%	0.4%	0.4%	
	Salmon	*	*	*	*	*	*	*	*	*	*	*	*	
	"Non-Vessel" Fisheries	0.1%	0.1%	0.1%	0.2%	0.1%	0.6%	0.2%	0.2%	0.1%	0.1%	0.2%	0.2%	
TOTAL HARVEST VALUE	4.7%	5.4%	5.7%	5.5%	5.4%	5.5%	5.9%	6.1%	6.3%	6.9%	5.7%	5.7%		
Total Value of Fish Harvested by "Other Sta68tes" Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000 -- As % of Yearly Grand Total														
As Percent of Combined Total Value of all Fisheries														
Total Other States	PMA Crab Fisheries	0.2%	0.2%	0.3%	0.3%	0.4%	0.3%	0.3%	0.5%	0.6%	0.3%	0.3%	0.3%	
	Non-PMA Crab Fisheries	0.0%	0.0%	0.0%	0.0%	0.0%	*	*	0.0%	0.0%	0.0%	0.0%	0.0%	
	Pollock	0.4%	0.7%	0.5%	0.5%	0.5%	*	*	0.3%	0.4%	0.5%	0.5%	0.5%	
	Pacific Cod	0.2%	0.1%	0.0%	0.0%	0.1%	0.2%	0.1%	0.1%	0.1%	0.2%	0.1%	0.1%	
	Other Groundfish	0.3%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%	0.4%	0.2%	0.2%	
	Other Fisheries	0.4%	0.4%	0.5%	0.5%	0.3%	0.6%	0.5%	0.4%	0.5%	0.4%	0.5%	0.5%	
	Salmon	1.8%	2.9%	2.7%	3.1%	3.2%	1.9%	1.6%	2.0%	2.1%	2.6%	2.4%	2.4%	
	"Non-Vessel" Fisheries	0.3%	0.5%	0.4%	0.5%	0.4%	1.6%	0.5%	0.4%	0.5%	0.5%	0.6%	0.6%	
TOTAL HARVEST VALUE	3.7%	5.0%	4.6%	5.0%	5.2%	5.1%	3.3%	4.0%	4.4%	4.9%	4.6%	4.6%		

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
Total Value of Fish Harvested by Washington Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000 -- As % of Yearly Grand Total														
As Percent of Combined Total Value of all Fisheries														
Washington	Other Washington	PMA Crab Fisheries	0.9%	0.9%	1.3%	1.1%	1.1%	0.7%	0.9%	1.2%	1.3%	0.7%	1.0%	
		Non-PMA Crab Fisheries	0.4%	0.1%	0.1%	0.1%	0.2%	0.1%	0.2%	0.1%	0.1%	0.1%	0.1%	0.2%
		Pollock	0.9%	1.4%	0.6%	1.0%	1.2%	1.1%	1.3%	1.1%	1.1%	1.1%	1.8%	1.1%
		Pacific Cod	0.5%	0.3%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	0.2%	0.4%	0.8%	0.3%
		Other Groundfish	0.6%	0.4%	0.3%	0.6%	0.9%	1.0%	1.1%	0.8%	0.7%	1.4%	0.7%	0.7%
		Other Fisheries	1.2%	0.6%	0.7%	0.8%	1.1%	1.5%	1.4%	1.0%	1.2%	0.5%	1.0%	1.0%
		Salmon	4.7%	6.6%	6.1%	6.4%	7.0%	4.5%	4.6%	5.4%	4.9%	5.2%	5.2%	5.6%
		"Non-Vessel" Fisheries	0.3%	0.4%	0.3%	0.3%	0.3%	1.9%	0.3%	0.3%	0.3%	0.3%	0.3%	0.5%
	TOTAL HARVEST VALUE	9.4%	10.6%	9.6%	10.5%	12.1%	11.1%	10.2%	10.2%	9.9%	10.7%	10.7%	10.5%	
	S-T CMSA	PMA Crab Fisheries	21.2%	15.6%	19.8%	16.5%	13.1%	10.7%	10.7%	15.5%	15.2%	9.8%	15.1%	
		Non-PMA Crab Fisheries	0.1%	0.2%	0.4%	0.7%	0.9%	0.5%	0.3%	0.1%	0.1%	0.2%	0.4%	
		Pollock	3.4%	5.5%	4.1%	4.2%	5.2%	5.2%	8.1%	6.5%	7.2%	10.6%	5.8%	
		Pacific Cod	1.6%	0.7%	0.7%	0.8%	1.1%	1.7%	2.2%	1.2%	1.5%	4.1%	1.4%	
		Other Groundfish	1.6%	1.1%	0.9%	1.2%	2.2%	2.1%	2.5%	1.7%	1.2%	2.5%	1.6%	
		Other Fisheries	1.3%	0.8%	0.9%	1.0%	1.2%	1.8%	1.9%	1.5%	1.9%	0.3%	1.3%	
		Salmon	4.3%	6.1%	5.9%	6.1%	6.2%	4.1%	4.2%	4.6%	4.3%	4.1%	5.1%	
		"Non-Vessel" Fisheries	0.1%	0.3%	0.2%	0.2%	0.2%	1.3%	0.2%	0.2%	0.2%	0.2%	0.3%	
	TOTAL HARVEST VALUE	33.6%	30.3%	32.9%	30.7%	30.0%	27.4%	30.1%	31.3%	31.6%	31.8%	31.8%	31.0%	
	Total Washington	PMA Crab Fisheries	22.1%	16.6%	21.1%	17.6%	14.2%	11.4%	11.6%	16.7%	16.5%	10.5%	16.1%	
		Non-PMA Crab Fisheries	0.5%	0.3%	0.6%	0.9%	1.1%	0.5%	0.4%	0.2%	0.2%	0.2%	0.5%	
Pollock		4.2%	6.9%	4.7%	5.3%	6.4%	6.3%	9.4%	7.7%	8.3%	12.4%	6.9%		
Pacific Cod		2.1%	1.0%	0.9%	0.9%	1.3%	2.0%	2.6%	1.5%	1.9%	4.8%	1.8%		
Other Groundfish		2.2%	1.5%	1.2%	1.8%	3.1%	3.1%	3.6%	2.5%	1.8%	3.8%	2.4%		
Other Fisheries		2.5%	1.3%	1.5%	1.8%	2.2%	3.4%	3.3%	2.4%	3.1%	0.8%	2.2%		
Salmon		9.0%	12.6%	12.0%	12.5%	13.2%	8.6%	8.8%	10.0%	9.2%	9.3%	10.7%		
"Non-Vessel" Fisheries		0.4%	0.6%	0.5%	0.5%	0.5%	3.1%	0.5%	0.5%	0.5%	0.5%	0.8%		
TOTAL HARVEST VALUE	43.1%	40.9%	42.6%	41.3%	42.1%	38.4%	40.3%	41.5%	41.5%	42.4%	41.4%			
Total Value of Fish Harvested by Alaska Vessels Participating in Alaskan Fisheries, by Vessel Owners' Community and Fishery, 1991-2000 -- As % of Yearly Grand Total														
As Percent of Combined Total Value of all Fisheries														
Alaska	Anchorage	PMA Crab Fisheries	0.5%	0.2%	0.4%	0.3%	0.6%	0.5%	0.5%	0.6%	0.6%	0.5%	0.5%	
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	
		Pollock	*	*	*	*	*	*	*	*	*	*	*	
		Pacific Cod	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	
		Other Groundfish	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.2%	0.1%	
		Other Fisheries	0.4%	0.3%	0.2%	0.3%	0.3%	0.5%	0.4%	0.2%	0.2%	0.1%	0.3%	
		Salmon	1.5%	2.1%	1.7%	1.7%	1.8%	1.3%	1.1%	1.1%	1.5%	1.7%	1.6%	
		"Non-Vessel" Fisheries	0.5%	0.9%	0.7%	0.7%	0.6%	1.1%	0.7%	0.4%	0.6%	0.6%	0.7%	
TOTAL HARVEST VALUE	3.0%	3.6%	3.1%	3.1%	3.4%	3.5%	2.8%	2.6%	3.0%	3.1%	3.1%			

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average	
	Homer	PMA Crab Fisheries	0.7%	0.5%	0.7%	0.7%	0.5%	0.5%	0.5%	0.8%	0.7%	0.6%	0.6%	
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	*
		Pollock	*	*	*	*	*	*	*	*	*	*	*	*
		Pacific Cod	0.2%	0.1%	0.1%	0.1%	0.1%	0.2%	0.3%	0.3%	0.3%	0.3%	0.6%	0.2%
		Other Groundfish	0.2%	0.2%	0.3%	0.3%	0.3%	0.2%	0.2%	0.2%	0.2%	0.1%	0.2%	0.2%
		Other Fisheries	1.1%	0.6%	0.8%	0.8%	0.9%	1.4%	1.1%	0.9%	1.0%	1.0%	0.2%	0.9%
		Salmon	1.1%	2.2%	1.4%	1.4%	1.7%	1.4%	1.6%	1.5%	1.6%	1.8%	1.8%	1.6%
		"Non-Vessel" Fisheries	0.1%	0.2%	0.1%	0.2%	0.1%	0.3%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
	TOTAL HARVEST VALUE	3.4%	3.9%	3.4%	3.5%	3.6%	4.0%	3.8%	3.7%	3.8%	3.8%	3.6%	3.7%	
	King Cove/Sand Point	PMA Crab Fisheries	0.5%	0.4%	0.5%	0.6%	0.5%	0.5%	0.5%	0.5%	0.8%	0.5%	0.2%	0.5%
		Non-PMA Crab Fisheries	*	*	*	*	*	*	*	*	*	*	*	*
		Pollock	*	*	*	*	*	*	*	*	*	*	*	*
		Pacific Cod	0.5%	0.4%	0.3%	0.3%	0.3%	0.5%	0.8%	0.7%	0.7%	0.7%	1.3%	0.5%
		Other Groundfish	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
		Other Fisheries	0.4%	0.2%	0.2%	0.3%	0.1%	0.2%	0.2%	0.1%	0.2%	0.2%	0.0%	0.2%
		Salmon	1.2%	2.0%	1.5%	1.2%	1.7%	0.7%	0.9%	1.5%	1.4%	1.1%	1.1%	1.4%
		"Non-Vessel" Fisheries	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%
	TOTAL HARVEST VALUE	2.8%	3.1%	2.6%	2.5%	2.7%	2.2%	2.8%	3.4%	3.0%	2.9%	2.9%	2.8%	
	Kodiak	PMA Crab Fisheries	5.1%	4.2%	5.0%	4.1%	2.5%	2.3%	2.6%	2.6%	3.7%	3.8%	2.8%	3.7%
		Non-PMA Crab Fisheries	0.4%	0.4%	0.3%	0.3%	0.2%	0.1%	0.1%	0.1%	0.1%	0.0%	0.0%	0.2%
		Pollock	0.4%	0.8%	0.7%	0.7%	0.6%	0.5%	0.8%	0.6%	0.5%	0.5%	0.7%	0.6%
		Pacific Cod	1.1%	0.6%	0.7%	0.5%	1.1%	1.1%	1.5%	1.3%	1.6%	1.6%	2.3%	1.1%
		Other Groundfish	0.6%	0.6%	0.7%	0.7%	0.6%	1.2%	1.2%	0.9%	0.5%	1.2%	1.2%	0.8%
		Other Fisheries	2.1%	1.1%	1.6%	1.7%	1.5%	2.6%	3.0%	2.3%	2.6%	2.6%	0.2%	1.9%
		Salmon	1.8%	1.8%	1.9%	1.2%	2.2%	1.4%	1.2%	2.1%	1.7%	1.7%	1.7%	1.7%
		"Non-Vessel" Fisheries	0.5%	0.3%	0.3%	0.3%	0.5%	0.5%	0.4%	0.6%	0.5%	0.5%	0.4%	0.4%
	TOTAL HARVEST VALUE	11.9%	9.7%	11.1%	9.5%	9.0%	9.7%	10.7%	11.6%	11.1%	9.2%	10.3%	10.3%	
	Other Alaska	PMA Crab Fisheries	0.9%	0.8%	0.9%	0.9%	0.9%	0.8%	1.0%	1.0%	1.7%	1.3%	0.7%	1.0%
		Non-PMA Crab Fisheries	1.3%	0.7%	0.8%	1.1%	1.7%	1.2%	1.7%	1.3%	1.2%	1.2%	1.5%	1.2%
		Pollock	0.1%	0.2%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
		Pacific Cod	0.5%	0.4%	0.3%	0.2%	0.3%	0.4%	0.5%	0.4%	0.6%	0.6%	0.8%	0.4%
		Other Groundfish	2.9%	2.4%	2.8%	3.6%	3.7%	4.2%	4.7%	3.5%	2.5%	5.2%	5.2%	3.4%
		Other Fisheries	6.1%	3.1%	4.0%	4.6%	4.9%	7.0%	6.6%	5.1%	5.2%	1.7%	4.8%	4.8%
		Salmon	12.1%	15.7%	14.3%	15.3%	13.7%	12.6%	12.2%	12.8%	13.3%	14.6%	14.6%	13.8%
		"Non-Vessel" Fisheries	3.3%	5.1%	3.6%	3.8%	3.3%	5.3%	3.3%	2.3%	2.7%	2.7%	2.4%	3.6%
	TOTAL HARVEST VALUE	27.3%	28.5%	26.9%	29.6%	28.5%	31.5%	30.0%	27.1%	26.8%	26.9%	26.9%	28.3%	

State	City	Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Total Alaska		PMA Crab Fisheries	7.8%	6.0%	7.5%	6.5%	5.0%	4.7%	5.0%	7.6%	6.9%	4.8%	6.2%
		Non-PMA Crab Fisheries	1.7%	1.2%	1.1%	1.4%	1.9%	1.4%	1.8%	1.4%	1.3%	1.5%	1.5%
		Pollock	0.6%	1.1%	0.9%	0.9%	0.7%	0.7%	1.2%	0.9%	0.8%	1.0%	0.9%
		Pacific Cod	2.4%	1.5%	1.4%	1.1%	1.8%	2.2%	3.0%	2.7%	3.2%	5.0%	2.3%
		Other Groundfish	3.7%	3.3%	3.9%	4.7%	4.6%	5.8%	6.3%	4.6%	3.2%	6.8%	4.5%
		Other Fisheries	10.1%	5.2%	6.7%	7.6%	7.6%	11.7%	11.3%	8.7%	9.3%	2.2%	8.1%
		Salmon	17.7%	23.8%	20.9%	20.8%	21.2%	17.3%	17.0%	19.0%	19.4%	20.8%	20.0%
		"Non-Vessel" Fisheries	4.4%	6.6%	4.8%	5.1%	4.5%	7.2%	4.5%	3.5%	3.8%	3.5%	4.9%
	TOTAL HARVEST VALUE	48.5%	48.7%	47.1%	48.1%	47.3%	51.0%	50.1%	48.4%	47.8%	45.7%	48.3%	
GRAND TOTALS		PMA Crab Fisheries	31.7%	24.0%	31.0%	26.5%	21.1%	17.5%	18.2%	26.6%	25.8%	17.4%	24.3%
		Non-PMA Crab Fisheries	2.3%	1.7%	1.8%	2.3%	3.1%	1.9%	2.3%	1.6%	1.6%	1.8%	2.1%
		Pollock	6.1%	10.0%	7.0%	7.7%	8.5%	8.3%	12.2%	10.0%	10.6%	15.6%	9.3%
		Pacific Cod	5.2%	3.1%	2.9%	2.4%	3.9%	5.1%	6.8%	5.5%	6.4%	11.7%	4.9%
		Other Groundfish	6.4%	5.1%	5.5%	6.8%	8.3%	9.6%	10.7%	7.7%	5.5%	11.6%	7.4%
		Other Fisheries	13.6%	7.2%	8.9%	10.3%	10.5%	16.2%	15.8%	12.1%	13.6%	3.5%	11.2%
		Salmon	29.4%	41.2%	36.9%	37.7%	38.9%	28.9%	28.3%	31.9%	31.7%	33.8%	34.3%
		"Non-Vessel" Fisheries	5.3%	7.9%	5.9%	6.3%	5.6%	12.6%	5.6%	4.6%	4.9%	4.6%	6.4%
	TOTAL HARVEST VALUE	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.6%	100.0%	100.0%	100.0%	100.0%	

Notes: "Non-Vessel" Fisheries are fish ticket harvests not associated with a licensed vessel
Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Series 5: Processing Entities by Community and Region Data

Table A3-38 presents information on the number of processing entities in named communities by year. It supports the summary (or "average") tables in the text. The relative lack of more detailed tables for processing reflects the confidentiality issues inherent in assigning PMA processing data by location to a very limited number of entities. Even though named communities are combined to maintain confidentiality, it is still necessary to suppress many data cells when discussing value or volume information. Named "communities" are:

- For the south region, named places are Unalaska, Kodiak, and "Other South" (i.e., the residual category of the south region, excluding Unalaska and Kodiak).
- For the north region, quantitative volume of value data for either St. Paul alone or the region as a whole can be disclosed without running up against confidentiality constraints, but not both. Since total regional numbers are discussed elsewhere in the document, we have used total regional numbers in this section as well.
- Two different categories comprise "undesigned" data with respect to regional attribution:
 - "Floating" – this is a subset of all floating processors and consists of those floaters for which location information is lacking.
 - "CPs" – this is the category of catcher processors and is being considered for its own category of PMA and has no processing location or region associated with it.

Only limited quantitative information on PMA crab processors can be provided. As demonstrated by the summary processor count lines in the table, processor numbers in most localities of interest are too few to allow for the display of much information on PMA fisheries. Furthermore, because of these low numbers and the interactions of the fisheries, many cells of a table such as A3-38 that would otherwise not be confidential must be suppressed to protect the confidentiality of cells that are required to be suppressed in volume or value displays. The table also demonstrates that only for Unalaska can most species of PMA crab actually be discussed. For the North region, only opilio crab can be discussed as an individual species, and only all nine species together as a group. For Kodiak, only crab and the group of nine can be discussed in quantitative terms. For catcher processors the top three species (Bristol Bay red, Bering Sea opilio, and Bering Sea tanner) can be discussed, as well as the combined groups of nine, and perhaps subgroups of three and six. However, if the subgroups are discussed quantitatively, then St. Matthews Blue cannot be. Rather than provide extensive tables modeled on A3-38 that would consist mainly of suppressed cells, we have provided and discussed the limited non-confidential quantitative PMA crab processing information in the community profiles for Unalaska, Kodiak, and St. Paul. For St. Paul, there is the added complication that we can either discuss the northern region as a whole or St. Paul in quantitative terms, but not both. Since the regionalization discussion in the document already provides information on the northern region as a whole, we must also treat the region as a whole.

Table A3-38. Total Number of Processors (1991-2000) by City/Port Category and PMA Crab Fishery

Region	City	Year	PMA Crab Fishery								
			ADK_BRN	ADK_RED	BB_RED	BS_OPIE	BS_TANN	DUT_BRN	PRB_BLU	PRB_RED	STM_BLU
Undesignated	Floating	1991		1	6	11	13	1			2
		1992			8	6	13	1			6
		1993		1	4	7	13			2	2
		1994	1	1		6	1	1		1	1
		1995	1			7	1	1	1	1	1
		1996			2	4	1		1		
		1997	1		2	3			1	1	1
		1998	1		2	3			1	2	1
		1999			1	2					
		2000			2	2					
	Floating Total		4	3	27	51	42	4	4	7	14
	Floating Average		0.4	0.5	3.4	5.1	7.0	0.4	1.0	1.2	1.8
	C/P	1991	6	4	22	22	25	5			9
		1992	6	2	15	27	28	5			7
		1993	3	1	13	23	19	1		2	3
		1994	1	2		20	9				6
		1995	2	1		15	9	1	1		1
		1996	1		4	12	4				3
		1997	3		8	12		2			1
		1998	1		10	11		1			2
1999		1		8	9		1				
2000		1		6	9						
C/P Total		25	10	86	160	94	16	1	2	32	
C/P Average		2.5	1.7	10.8	16.0	15.7	1.6	0.3	0.3	4.0	
North	North	1991			1	5	2				1
		1992			1	3	2				2
		1993		1	1	6	4			2	4
		1994				10	2			4	6
		1995				8	2		4	4	4
		1996				8			4	4	4
		1997			2	7			4	4	4
		1998			1	7			4	3	4
		1999			1	7					
		2000				5					
	North Total		0	1	7	66	12	0	16	21	29
	North Average		0.0	0.2	0.9	6.6	2.0	0.0	4.0	3.5	3.6
South	Kodiak	1991			5	7	8				
		1992		1	4	4	7				
		1993			4	5	9			2	
		1994		2		2	5			2	1
		1995				3	4		1	1	
		1996			3	2	4		1	1	1
		1997			3	1			1	1	
		1998			1	2			1	1	
		1999			3	1					
		2000			4	3					
	Kodiak Total		0	3	27	30	37	0	4	8	2
	Kodiak Average		0.0	0.5	3.4	3.0	6.2	0.0	1.0	1.3	0.3
	Unalaska	1991	3	4	10	10	9	4			3
		1992	4	3	8	11	10	4			3
		1993	5	5	7	11	11	5		6	5
		1994	5	5		8	8	6		6	6
		1995	4	3		11	6	5	3	4	3
		1996	5	1	5	7	7	5	3	3	4
		1997	5		7	9		4	4	4	4
		1998	4		7	10		6	5	4	4
1999		3		7	9		5				
2000		4		6	5		3				
Unalaska Total		42	21	57	91	51	47	15	27	32	
Unalaska Average		4.2	3.5	7.1	9.1	8.5	4.7	3.8	4.5	4.0	

Region	City	Year	PMA Crab Fishery									
			ADK_BRN	ADK_RED	BB_RED	BS_OPIE	BS_TANN	DUT_BRN	PRB_BLU	PRB_RED	STM_BLU	
	Other South	1991		2	5	4	6	1				
		1992	1	4	5	3	7					
		1993	1	1	5	4	8	2		2		
		1994	1	1		5	3	1		3	1	
		1995	1			4	4		2	2	1	
		1996			3	4	4		2	2	2	
		1997	1		3	8			2	2	2	
		1998			5	5			4	4	2	
		1999	1		3	3		1				
		2000	2		5	5		1				
		Other South Total		8	8	34	45	32	6	10	15	8
		Other South Average		0.8	1.3	4.3	4.5	5.3	0.6	2.5	2.5	1.0
	South Total		50	32	118	166	120	53	29	50	42	
	South Average		5.0	5.3	14.8	16.6	20.0	5.3	7.3	8.3	5.3	
Grand Total			79	46	238	443	268	73	50	80	117	
Fishery Average			7.9	7.7	29.8	44.3	44.7	7.3	12.5	13.3	14.6	

Notes: "C/P" is the catcher processor sector, which is assigned its own IFQ/PQ and is not regionalized
 "Floating" are mobile processors which could not be assigned city or port locations
 "Other South" includes all southern locations except Kodiak and Unalaska
 "North" includes St. George, St. Matthew, and St. Paul. Because of confidentiality, only Grouped North (and other totals) can be provided
 Averages are computed using years that each fishery was actually open 1991-2000
 Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Series 6: Processing Value by Community and Region

The next series of tables provides value of processing information by fishery category for all processors (whether they process PMA crab or not) operating in those named localities for which the database provides reasonably complete information. As discussed in the SIA text, only those localities for which processing takes place primarily in fixed shoreplants (Kodiak, Unalaska, "Other South") is the locational information complete enough to be used. All PMA fisheries are combined, as the purpose of the tables is to describe the importance of PMA, relative to other large fishery categories, in terms of the "processing mix" or "dependence" of a named locality, as well as the "market share" possessed by each named locality of each large fishery category. It is likely that "processing mix" information is more robust than is "market share" information, although both should be used as indicators rather than as precise measures. Tables are:

- Table A3-39 displays the processing value in dollars for all processors operating in each named place, by year.
- Table A3-40 presents the numerical value in dollars of the processing in each fishery category of the processors operating in each named place, as a percent of the value of all processing for that named locality. This is a rough measure of "fisheries mix" or dependence upon any one large fishery category by the processors of a given named locality.
- Table A3-41 presents the value in dollars of the processing in each fishery category of the processors operating in each named place, as a percent of the value of the total processing value for each fishery category (combined value for all processors from all localities). This is a rough measure of "market share" of each fishery category historically processed by the processors of a given named locality.

Table A3-39. Value of Processing for Community Processors by Place of Operation and Fishery Category, by Year (1991-2000)

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Kodiak	All 9 PMA Crab Species	\$4,588,767	\$4,408,095	\$4,677,212	\$3,422,244	\$3,153,972	\$2,586,526	\$1,389,062	\$1,036,385	\$3,553,489	\$6,604,643	\$3,542,040
	All Non-PMA Crab	\$5,154,820	\$6,892,022	\$4,163,021	\$3,727,014	\$970,593	\$876,894	\$1,386,903	\$668,133	\$860,535	\$421,403	\$2,512,134
	Salmon	\$28,490,759	\$33,891,223	\$30,919,937	\$19,837,476	\$41,353,791	\$21,319,667	\$16,552,661	\$26,327,348	\$28,587,045	\$18,477,815	\$26,575,772
	Pollock	\$8,327,265	\$14,772,329	\$11,501,119	\$12,570,228	\$6,574,980	\$4,369,377	\$8,625,740	\$11,190,433	\$12,311,467	\$11,798,065	\$10,204,100
	Pacific Cod	\$15,597,588	\$11,423,941	\$8,626,740	\$6,328,672	\$14,786,604	\$10,450,046	\$15,838,914	\$13,186,623	\$24,651,247	\$22,687,612	\$14,357,799
	Halibut	\$22,182,856	\$11,319,145	\$11,705,472	\$16,874,425	\$14,228,126	\$16,144,982	\$22,115,588	\$10,254,626	\$17,374,280	\$925	\$14,220,043
	Sablefish	\$7,421,681	\$7,828,995	\$6,781,326	\$8,679,003	\$7,233,079	\$9,316,328	\$8,305,717	\$5,282,670	\$5,521,587	\$6,550,433	\$7,292,082
	Other Groundfish	\$2,095,784	\$3,094,779	\$3,013,060	\$1,971,551	\$2,855,387	\$4,942,174	\$4,716,379	\$3,193,349	\$2,383,764	\$4,603,873	\$3,287,010
	All Other Fisheries	\$3,309,612	\$2,072,771	\$2,703,123	\$2,034,232	\$2,972,409	\$4,880,542	\$1,262,864	\$829,988	\$827,202	\$788,980	\$2,168,172
	Non-Commercial	\$210,141	\$427,741	\$158,208	\$1,484,242	\$399,986	\$544,197	\$182,897	\$697,593	\$876,674	\$1,360,770	\$634,245
	Total of All Fisheries	\$97,379,273	\$96,131,041	\$84,249,218	\$76,929,087	\$94,528,927	\$75,430,733	\$80,376,725	\$72,667,148	\$96,947,290	\$73,294,519	\$84,793,396
Unalaska	All 9 PMA Crab Species	\$70,127,427	\$67,256,910	\$70,868,058	\$64,946,324	\$63,124,225	\$53,321,214	\$48,114,977	\$63,689,328	\$84,648,984	\$42,425,541	\$62,852,299
	All Non-PMA Crab	\$706,700	\$1,775,508	\$2,501,828	\$5,016,100	\$6,159,017	\$2,013,879	\$1,609,819	\$349,045	\$966,569	\$483,358	\$2,158,182
	Salmon	\$4,552,531	\$7,398,910	\$10,013,630	\$12,551,911	\$7,746,147	\$6,659,712	\$3,108,353	\$4,100,565	\$6,288,310	\$3,437,423	\$6,585,749
	Pollock	\$37,435,879	\$80,128,990	\$44,444,685	\$50,586,973	\$55,400,054	\$42,959,231	\$58,971,109	\$41,755,636	\$62,437,793	\$78,626,839	\$55,274,719
	Pacific Cod	\$7,778,885	\$3,780,580	\$4,462,915	\$7,667,686	\$10,989,681	\$13,939,735	\$11,286,448	\$7,029,881	\$8,819,980	\$15,040,665	\$9,079,646
	Halibut	\$4,747,846	\$2,366,389	\$4,497,715	\$5,271,277	\$5,714,417	\$3,528,928	\$8,561,085	\$2,307,552	\$9,320,102	\$23	\$4,631,533
	Sablefish	\$2,596,082	\$3,527,305	\$1,382,767	\$1,479,770	\$4,965,125	\$2,657,017	\$3,067,087	\$1,078,649	\$1,311,388	\$2,395,279	\$2,446,047
	Other Groundfish	\$1,570,794	\$823,404	\$630,176	\$1,622,946	\$1,662,513	\$845,177	\$1,998,103	\$253,459	\$307,857	\$611,064	\$1,032,549
	All Other Fisheries	\$796,861	\$267,593	\$1,121,952	\$1,224,803	\$1,253,862	\$2,402,055	\$350,490	\$385,208	\$513,402	\$235,741	\$855,197
	Non-Commercial	\$53,826	\$3,242	\$6,703	\$15,862	\$488,417	\$2,473,490	\$2,659,737	\$3,017,412	\$5,249,780	\$421,324	\$1,438,979
	Total of All Fisheries	\$130,366,831	\$167,328,831	\$139,930,429	\$150,383,652	\$157,503,458	\$130,800,438	\$139,727,208	\$123,966,735	\$179,864,165	\$143,677,257	\$146,354,900
Other South	All 9 PMA Crab Species	\$30,970,962	\$35,539,964	\$33,645,693	\$29,647,218	\$18,614,816	\$19,201,062	\$16,255,993	\$20,800,155	\$32,537,375	\$25,340,006	\$26,255,324
	All Non-PMA Crab	\$1,897,584	\$1,355,825	\$1,509,393	\$1,684,499	\$998,247	\$777,395	\$104,969	\$16,792	\$21,978	\$1,115,415	\$948,210
	Salmon	\$112,831,194	\$203,763,792	\$137,402,965	\$164,941,524	\$181,067,220	\$148,629,785	\$89,780,744	\$92,938,829	\$150,094,275	\$98,597,818	\$138,004,815
	Pollock	\$13,285,028	\$21,675,497	\$13,146,611	\$18,841,069	\$27,574,475	\$25,535,805	\$30,367,447	\$17,809,408	\$33,610,612	\$52,293,514	\$25,413,947
	Pacific Cod	\$16,191,671	\$14,454,263	\$12,016,441	\$9,301,535	\$12,878,236	\$18,509,885	\$22,351,713	\$17,560,769	\$27,682,150	\$27,209,250	\$17,815,591
	Halibut	\$20,682,481	\$9,116,572	\$7,912,213	\$12,561,195	\$9,176,070	\$12,639,123	\$12,986,989	\$14,426,949	\$24,911,052	\$0	\$12,441,264
	Sablefish	\$6,246,426	\$6,692,108	\$3,959,476	\$4,055,523	\$8,304,938	\$6,389,078	\$4,945,639	\$4,971,134	\$7,077,545	\$7,904,487	\$6,054,635
	Other Groundfish	\$208,140	\$269,798	\$238,420	\$339,765	\$698,916	\$1,646,301	\$377,196	\$325,936	\$336,248	\$379,062	\$481,978
	All Other Fisheries	\$6,911,421	\$11,747,838	\$4,425,667	\$2,918,516	\$7,507,437	\$10,095,506	\$3,510,265	\$2,729,119	\$2,367,262	\$1,046,952	\$5,325,998
	Non-Commercial	\$578,812	\$1,131,853	\$884,135	\$4,038,448	\$3,345,356	\$1,851,795	\$4,751,297	\$2,866,361	\$5,100,917	\$2,742,807	\$2,729,178
	Total of All Fisheries	\$209,803,719	\$305,747,510	\$215,141,013	\$248,329,292	\$270,165,711	\$245,275,735	\$185,432,252	\$174,445,452	\$283,739,414	\$216,629,309	\$235,470,941
Other	All 9 PMA Crab Species	\$200,008,866	\$182,648,863	\$195,347,299	\$185,472,853	\$136,216,674	\$78,965,344	\$82,060,470	\$105,498,940	\$143,263,480	\$37,320,042	\$134,680,283
	All Non-PMA Crab	\$15,347,858	\$10,798,188	\$9,879,398	\$15,282,227	\$24,168,671	\$13,114,251	\$16,063,588	\$10,627,446	\$14,069,747	\$16,933,472	\$14,628,485
	Salmon	\$188,143,489	\$346,575,367	\$240,667,697	\$273,336,504	\$235,630,037	\$187,399,366	\$165,709,047	\$138,916,268	\$189,481,648	\$126,000,673	\$209,186,010
	Pollock	\$87,025	\$4,442,150	\$11,347	\$49	\$467	\$12,508	\$845,899	\$1,114,551	\$540,371	\$117,578	\$717,195
	Pacific Cod	\$10,781,855	\$7,720,128	\$3,168,600	\$2,263,824	\$2,458,658	\$2,046,008	\$5,375,445	\$1,504,832	\$4,394,369	\$9,104,373	\$4,881,809
	Halibut	\$51,083,029	\$27,801,302	\$35,910,232	\$49,975,115	\$38,327,532	\$50,042,834	\$66,737,142	\$41,441,904	\$65,809,929	\$0	\$42,712,902
	Sablefish	\$37,306,826	\$36,619,686	\$36,004,888	\$52,305,978	\$58,523,762	\$56,512,307	\$60,319,536	\$37,280,895	\$36,543,150	\$49,789,717	\$46,120,675
	Other Groundfish	\$4,622,806	\$2,719,635	\$1,755,790	\$2,354,045	\$2,422,237	\$2,196,117	\$2,884,462	\$2,446,521	\$2,322,807	\$2,416,473	\$2,614,089
	All Other Fisheries	\$28,699,641	\$28,767,621	\$27,553,542	\$28,079,093	\$42,294,475	\$55,272,141	\$25,512,922	\$21,414,110	\$27,347,118	\$20,302,849	\$30,524,351
	Non-Commercial	\$8,338,310	\$12,497,499	\$9,852,181	\$16,974,347	\$16,101,170	\$19,719,232	\$18,529,767	\$24,568,260	\$30,505,099	\$26,222,066	\$18,330,793
	Total of All Fisheries	\$544,419,705	\$660,590,439	\$560,150,974	\$626,044,035	\$556,143,683	\$465,280,108	\$444,038,278	\$384,813,727	\$514,277,718	\$288,207,243	\$504,396,591

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
TOTAL	All 9 PMA Crab Species	\$305,696,022	\$289,853,832	\$304,538,261	\$283,488,639	\$221,109,687	\$154,074,146	\$147,820,502	\$191,024,808	\$264,003,328	\$111,690,232	\$227,329,946
	All Non-PMA Crab	\$23,106,962	\$20,821,543	\$18,053,640	\$25,709,840	\$32,296,528	\$16,782,419	\$19,165,279	\$11,661,416	\$15,918,829	\$18,953,648	\$20,247,010
	Salmon	\$334,017,973	\$591,629,292	\$419,004,229	\$470,667,415	\$465,797,195	\$364,008,530	\$275,150,805	\$262,283,010	\$374,451,278	\$246,513,729	\$380,352,346
	Pollock	\$59,135,197	\$121,018,966	\$69,103,762	\$81,998,319	\$89,549,976	\$72,876,921	\$98,810,195	\$71,870,028	\$108,900,243	\$142,835,996	\$91,609,960
	Pacific Cod	\$50,349,999	\$37,378,912	\$28,274,696	\$25,561,717	\$41,113,179	\$44,945,674	\$54,852,520	\$39,282,105	\$65,547,746	\$74,041,900	\$46,134,845
	Halibut	\$98,696,212	\$50,603,408	\$60,025,632	\$84,682,012	\$67,446,145	\$82,355,867	\$110,400,804	\$68,431,031	\$117,415,363	\$948	\$74,005,742
	Sablefish	\$53,571,015	\$54,668,094	\$48,128,457	\$66,520,274	\$79,026,904	\$74,874,730	\$76,637,979	\$48,613,348	\$50,453,670	\$66,639,916	\$61,913,439
	Other Groundfish	\$8,497,524	\$6,907,616	\$5,637,446	\$6,288,307	\$7,639,053	\$9,629,769	\$9,976,140	\$6,219,265	\$5,350,676	\$8,010,472	\$7,415,627
	All Other Fisheries	\$39,717,535	\$42,855,823	\$35,804,284	\$34,256,644	\$54,028,183	\$72,650,244	\$30,636,541	\$25,358,425	\$31,054,984	\$22,374,520	\$38,873,718
	Non-Commercial	\$9,181,089	\$14,060,335	\$10,901,227	\$22,512,899	\$20,334,929	\$24,588,714	\$26,123,698	\$31,149,626	\$41,732,470	\$30,746,967	\$23,133,195
	Total of All Fisheries	\$981,969,528	\$1,229,797,821	\$999,471,634	\$1,101,686,066	\$1,078,341,779	\$916,787,014	\$849,574,463	\$755,893,062	\$1,074,828,587	\$721,808,328	\$971,015,828

Notes: Location information is best for shoreplants and unreliable for all other processors. Thus, only Kodiak, Unalaska, and "Other South" can be addressed with this data.
"Other" includes processors identified as in the Northern region, catcher processors and floaters without a geographic designation (most of them), and other unknowns.
"Non-commercial" harvest includes forfeited bycatch, test fisheries, CDQ, and other such classifications
PMA Crab includes both qualified and non-qualified landings by catcher vessels

Source: Summarized from the NPFMC Bering Sea Crab Data Base/2001_1.

Table A3-40. Value of Processing by Place of Operation and Fishery Category, by Year (1991-2000) as Percentage of Annual Total Processing in Place of Operation

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Kodiak	All 9 PMA Crab Species	4.7%	4.6%	5.6%	4.4%	3.3%	3.4%	1.7%	1.4%	3.7%	9.0%	4.2%
	All Non-PMA Crab	5.3%	7.2%	4.9%	4.8%	1.0%	1.2%	1.7%	0.9%	0.9%	0.6%	3.0%
	Salmon	29.3%	35.3%	36.7%	25.8%	43.7%	28.3%	20.6%	36.2%	29.5%	25.2%	31.3%
	Pollock	8.6%	15.4%	13.7%	16.3%	7.0%	5.8%	10.7%	15.4%	12.7%	16.1%	12.0%
	Pacific Cod	16.0%	11.9%	10.2%	8.2%	15.6%	13.9%	19.7%	18.1%	25.4%	31.0%	16.9%
	Halibut	22.8%	11.8%	13.9%	21.9%	15.1%	21.4%	27.5%	14.1%	17.9%	0.0%	16.8%
	Sablefish	7.6%	8.1%	8.0%	11.3%	7.7%	12.4%	10.3%	7.3%	5.7%	8.9%	8.6%
	Other Groundfish	2.2%	3.2%	3.6%	2.6%	3.0%	6.6%	5.9%	4.4%	2.5%	6.3%	3.9%
	All Other Fisheries	3.4%	2.2%	3.2%	2.6%	3.1%	6.5%	1.6%	1.1%	0.9%	1.1%	2.6%
	Non-Commercial	0.2%	0.4%	0.2%	1.9%	0.4%	0.7%	0.2%	1.0%	0.9%	1.9%	0.7%
Total of All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Unalaska	All 9 PMA Crab Species	53.8%	40.2%	50.6%	43.2%	40.1%	40.8%	34.4%	51.4%	47.1%	29.5%	42.9%
	All Non-PMA Crab	0.5%	1.1%	1.8%	3.3%	3.9%	1.5%	1.2%	0.3%	0.5%	0.3%	1.5%
	Salmon	3.5%	4.4%	7.2%	8.3%	4.9%	5.1%	2.2%	3.3%	3.5%	2.4%	4.5%
	Pollock	28.7%	47.9%	31.8%	33.6%	35.2%	32.8%	42.2%	33.7%	34.7%	54.7%	37.8%
	Pacific Cod	6.0%	2.3%	3.2%	5.1%	7.0%	10.7%	8.1%	5.7%	4.9%	10.5%	6.2%
	Halibut	3.6%	1.4%	3.2%	3.5%	3.6%	2.7%	6.1%	1.9%	5.2%	0.0%	3.2%
	Sablefish	2.0%	2.1%	1.0%	1.0%	3.2%	2.0%	2.2%	0.9%	0.7%	1.7%	1.7%
	Other Groundfish	1.2%	0.5%	0.5%	1.1%	1.1%	0.6%	1.4%	0.2%	0.2%	0.4%	0.7%
	All Other Fisheries	0.6%	0.2%	0.8%	0.8%	0.8%	1.8%	0.3%	0.3%	0.3%	0.2%	0.6%
	Non-Commercial	0.0%	0.0%	0.0%	0.0%	0.3%	1.9%	1.9%	2.4%	2.9%	0.3%	1.0%
Total of All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Other South	All 9 PMA Crab Species	14.8%	11.6%	15.6%	11.9%	6.9%	7.8%	8.8%	11.9%	11.5%	11.7%	11.2%
	All Non-PMA Crab	0.9%	0.4%	0.7%	0.7%	0.4%	0.3%	0.1%	0.0%	0.0%	0.5%	0.4%
	Salmon	53.8%	66.6%	63.9%	66.4%	67.0%	60.6%	48.4%	53.3%	52.9%	45.5%	58.6%
	Pollock	6.3%	7.1%	6.1%	7.6%	10.2%	10.4%	16.4%	10.2%	11.8%	24.1%	10.8%
	Pacific Cod	7.7%	4.7%	5.6%	3.7%	4.8%	7.5%	12.1%	10.1%	9.8%	12.6%	7.6%
	Halibut	9.9%	3.0%	3.7%	5.1%	3.4%	5.2%	7.0%	8.3%	8.8%	0.0%	5.3%
	Sablefish	3.0%	2.2%	1.8%	1.6%	3.1%	2.6%	2.7%	2.8%	2.5%	3.6%	2.6%
	Other Groundfish	0.1%	0.1%	0.1%	0.1%	0.3%	0.7%	0.2%	0.2%	0.1%	0.2%	0.2%
	All Other Fisheries	3.3%	3.8%	2.1%	1.2%	2.8%	4.1%	1.9%	1.6%	0.8%	0.5%	2.3%
	Non-Commercial	0.3%	0.4%	0.4%	1.6%	1.2%	0.8%	2.6%	1.6%	1.8%	1.3%	1.2%
Total of All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Other	All 9 PMA Crab Species	36.7%	27.6%	34.9%	29.6%	24.5%	17.0%	18.5%	27.4%	27.9%	12.9%	26.7%
	All Non-PMA Crab	2.8%	1.6%	1.8%	2.4%	4.3%	2.8%	3.6%	2.8%	2.7%	5.9%	2.9%
	Salmon	34.6%	52.5%	43.0%	43.7%	42.4%	40.3%	37.3%	36.1%	36.8%	43.7%	41.5%
	Pollock	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	0.2%	0.3%	0.1%	0.0%	0.1%
	Pacific Cod	2.0%	1.2%	0.6%	0.4%	0.4%	0.4%	1.2%	0.4%	0.9%	3.2%	1.0%
	Halibut	9.4%	4.2%	6.4%	8.0%	6.9%	10.8%	15.0%	10.8%	12.8%	0.0%	8.5%
	Sablefish	6.9%	5.5%	6.4%	8.4%	10.5%	12.1%	13.6%	9.7%	7.1%	17.3%	9.1%
	Other Groundfish	0.8%	0.4%	0.3%	0.4%	0.4%	0.5%	0.6%	0.6%	0.5%	0.8%	0.5%
	All Other Fisheries	5.3%	4.4%	4.9%	4.5%	7.6%	11.9%	5.7%	5.6%	5.3%	7.0%	6.1%
	Non-Commercial	1.5%	1.9%	1.8%	2.7%	2.9%	4.2%	4.2%	6.4%	5.9%	9.1%	3.6%
Total of All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
TOTAL	All 9 PMA Crab Species	31.1%	23.6%	30.5%	25.7%	20.5%	16.8%	17.4%	25.3%	24.6%	15.5%	23.4%
	All Non-PMA Crab	2.4%	1.7%	1.8%	2.3%	3.0%	1.8%	2.3%	1.5%	1.5%	2.6%	2.1%
	Salmon	34.0%	48.1%	41.9%	42.7%	43.2%	39.7%	32.4%	34.7%	34.8%	34.2%	39.2%
	Pollock	6.0%	9.8%	6.9%	7.4%	8.3%	7.9%	11.6%	9.5%	10.1%	19.8%	9.4%
	Pacific Cod	5.1%	3.0%	2.8%	2.3%	3.8%	4.9%	6.5%	5.2%	6.1%	10.3%	4.8%
	Halibut	10.1%	4.1%	6.0%	7.7%	6.3%	9.0%	13.0%	9.1%	10.9%	0.0%	7.6%
	Sablefish	5.5%	4.4%	4.8%	6.0%	7.3%	8.2%	9.0%	6.4%	4.7%	9.2%	6.4%
	Other Groundfish	0.9%	0.6%	0.6%	0.6%	0.7%	1.1%	1.2%	0.8%	0.5%	1.1%	0.8%
	All Other Fisheries	4.0%	3.5%	3.6%	3.1%	5.0%	7.9%	3.6%	3.4%	2.9%	3.1%	4.0%
	Non-Commercial	0.9%	1.1%	1.1%	2.0%	1.9%	2.7%	3.1%	4.1%	3.9%	4.3%	2.4%
	Total of All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes: Location information is best for shoreplants and unreliable for all other processors. Thus, only Kodiak, Unalaska, and "Other South" can be addressed with this data.
 "Other" includes processors identified as in the Northern region, catcher processors and floaters without a geographic designation (most of them), and other unknowns.
 "Non-commercial" harvest includes forfeited bycatch, test fisheries, CDQ, and other such classifications
 PMA Crab includes both qualified and non-qualified landings by catcher vessels
 Source: Summarized from the NPFMC Bering Sea Crab Data Base/2001_1.

Table A3-41. Value of Processing by Place of Operation and Fishery Category, by Year (1991-2000) as Percentage of Total Annual Processing of all Locations Combined

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Kodiak	All 9 PMA Crab Species	1.5%	1.5%	1.5%	1.2%	1.4%	1.7%	0.9%	0.5%	1.3%	5.9%	1.6%
	All Non-PMA Crab	22.3%	33.1%	23.1%	14.5%	3.0%	5.2%	7.2%	5.7%	5.4%	2.2%	12.4%
	Salmon	8.5%	5.7%	7.4%	4.2%	8.9%	5.9%	6.0%	10.0%	7.6%	7.5%	7.0%
	Pollock	14.1%	12.2%	16.6%	15.3%	7.3%	6.0%	8.7%	15.6%	11.3%	8.3%	11.1%
	Pacific Cod	31.0%	30.6%	30.5%	24.8%	36.0%	23.3%	28.9%	33.6%	37.6%	30.6%	31.1%
	Halibut	22.5%	22.4%	19.5%	19.9%	21.1%	19.6%	20.0%	15.0%	14.8%	97.6%	19.2%
	Sablefish	13.9%	14.3%	14.1%	13.0%	9.2%	12.4%	10.8%	10.9%	10.9%	9.8%	11.8%
	Other Groundfish	24.7%	44.8%	53.4%	31.4%	37.4%	51.3%	47.3%	51.3%	44.6%	57.5%	44.3%
	All Other Fisheries	8.3%	4.8%	7.5%	5.9%	5.5%	6.7%	4.1%	3.3%	2.7%	3.5%	5.6%
	Non-Commercial	2.3%	3.0%	1.5%	6.6%	2.0%	2.2%	0.7%	2.2%	2.1%	4.4%	2.7%
Total of All Fisheries	9.9%	7.8%	8.4%	7.0%	8.8%	8.2%	9.5%	9.6%	9.0%	10.2%	8.7%	
Unalaska	All 9 PMA Crab Species	22.9%	23.2%	23.3%	22.9%	28.5%	34.6%	32.5%	33.3%	32.1%	38.0%	27.6%
	All Non-PMA Crab	3.1%	8.5%	13.9%	19.5%	19.1%	12.0%	8.4%	3.0%	6.1%	2.6%	10.7%
	Salmon	1.4%	1.3%	2.4%	2.7%	1.7%	1.8%	1.1%	1.6%	1.7%	1.4%	1.7%
	Pollock	63.3%	66.2%	64.3%	61.7%	61.9%	58.9%	59.7%	58.1%	57.3%	55.0%	60.3%
	Pacific Cod	15.4%	10.1%	15.8%	30.0%	26.7%	31.0%	20.6%	17.9%	13.5%	20.3%	19.7%
	Halibut	4.8%	4.7%	7.5%	6.2%	8.5%	4.3%	7.8%	3.4%	7.9%	2.4%	6.3%
	Sablefish	4.8%	6.5%	2.9%	2.2%	6.3%	3.5%	4.0%	2.2%	2.6%	3.6%	4.0%
	Other Groundfish	18.5%	11.9%	11.2%	25.8%	21.8%	8.8%	20.0%	4.1%	5.8%	7.6%	13.9%
	All Other Fisheries	2.0%	0.6%	3.1%	3.6%	2.3%	3.3%	1.1%	1.5%	1.7%	1.1%	2.2%
	Non-Commercial	0.6%	0.0%	0.1%	0.1%	2.4%	10.1%	10.2%	9.7%	12.6%	1.4%	6.2%
Total of All Fisheries	13.3%	13.6%	14.0%	13.7%	14.6%	14.3%	16.4%	16.4%	16.7%	19.9%	15.1%	
Other South	All 9 PMA Crab Species	10.1%	12.3%	11.0%	10.5%	8.4%	12.5%	11.0%	10.9%	12.3%	22.7%	11.5%
	All Non-PMA Crab	8.2%	6.5%	8.4%	6.6%	3.1%	4.6%	0.5%	0.1%	0.1%	5.9%	4.7%
	Salmon	33.8%	34.4%	32.8%	35.0%	38.9%	40.8%	32.6%	35.4%	40.1%	40.0%	36.3%
	Pollock	22.5%	17.9%	19.0%	23.0%	30.8%	35.0%	30.7%	24.8%	30.9%	36.6%	27.7%
	Pacific Cod	32.2%	38.7%	42.5%	36.4%	31.3%	41.2%	40.7%	44.7%	42.2%	36.7%	38.6%
	Halibut	21.0%	18.0%	13.2%	14.8%	13.6%	15.3%	11.8%	21.1%	21.2%	0.0%	16.8%
	Sablefish	11.7%	12.2%	8.2%	6.1%	10.5%	8.5%	6.5%	10.2%	14.0%	11.9%	9.8%
	Other Groundfish	2.4%	3.9%	4.2%	5.4%	9.1%	17.1%	3.8%	5.2%	6.3%	4.7%	6.5%
	All Other Fisheries	17.4%	27.4%	12.4%	8.5%	13.9%	13.9%	11.5%	10.8%	7.6%	4.7%	13.7%
	Non-Commercial	6.3%	8.0%	8.1%	17.9%	16.5%	7.5%	18.2%	9.2%	12.2%	8.9%	11.8%
Total of All Fisheries	21.4%	24.9%	21.5%	22.5%	25.1%	26.8%	21.8%	23.1%	26.4%	30.0%	24.2%	
Other	All 9 PMA Crab Species	65.4%	63.0%	64.1%	65.4%	61.6%	51.3%	55.5%	55.2%	54.3%	33.4%	59.2%
	All Non-PMA Crab	66.4%	51.9%	54.7%	59.4%	74.8%	78.1%	83.8%	91.1%	88.4%	89.3%	72.3%
	Salmon	56.3%	58.6%	57.4%	58.1%	50.6%	51.5%	60.2%	53.0%	50.6%	51.1%	55.0%
	Pollock	0.1%	3.7%	0.0%	0.0%	0.0%	0.0%	0.9%	1.6%	0.5%	0.1%	0.8%
	Pacific Cod	21.4%	20.7%	11.2%	8.9%	6.0%	4.6%	9.8%	3.8%	6.7%	12.3%	10.6%
	Halibut	51.8%	54.9%	59.8%	59.0%	56.8%	60.8%	60.4%	60.6%	56.0%	0.0%	57.7%
	Sablefish	69.6%	67.0%	74.8%	78.6%	74.1%	75.5%	78.7%	76.7%	72.4%	74.7%	74.5%
	Other Groundfish	54.4%	39.4%	31.1%	37.4%	31.7%	22.8%	28.9%	39.3%	43.4%	30.2%	35.3%
	All Other Fisheries	72.3%	67.1%	77.0%	82.0%	78.3%	76.1%	83.3%	84.4%	88.1%	90.7%	78.5%
	Non-Commercial	90.8%	88.9%	90.4%	75.4%	79.2%	80.2%	70.9%	78.9%	73.1%	85.3%	79.2%
Total of All Fisheries	55.4%	53.7%	56.0%	56.8%	51.6%	50.8%	52.3%	50.9%	47.8%	39.9%	51.9%	

City	Fishery Category	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
TOTAL	All 9 PMA Crab Species	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	All Non-PMA Crab	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Salmon	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Pollock	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Pacific Cod	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Halibut	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Sablefish	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Other Groundfish	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	All Other Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
	Non-Commercial	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Total of All Fisheries	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Notes: Location information is best for shoreplants and unreliable for all other processors. Thus, only Kodiak, Unalaska, and "Other South" can be addressed with this data.
 "Other" includes processors identified as in the Northern region, catcher processors and floaters without a geographic designation (most of them), and other unknowns.
 "Non-commercial" harvest includes forfeited bycatch, test fisheries, CDQ, and other such classifications
 PMA Crab includes both qualified and non-qualified landings by catcher vessels
 Source: Summarized from the NPFMC Bering Sea Crab Data Base/2001_1.

Series 7: Catcher Processor Ownership Location and Value Data

Table A3-42 enumerates catcher processors by PMA crab fishery and year. It also serves to determine confidentiality for the next three tables. Of most significance is that catcher processor information can only be discussed in quantitative terms for Bristol Bay red, Bering Sea opilio, and Bering Sea tanner crab. It should also be noted that the physical number of catcher processors has decreased dramatically since the early 1990s. Not shown in the table, but also significant, is that ownership for catcher processor is concentrated in the Seattle-Tacoma CMSA, with no other named locality having residents who own three or more catcher processors.

Table A3-43 displays the value of the PMA crab harvest for catcher processors, by fishery and year. These data show that there is a general downward trend over the 1991-2000 time period.

Table A3-44 displays the value of the PMA harvest for catcher processors, by fishery and year, as a percent of the total PMA harvest (all nine fisheries) for catcher processors. Note that opilio increased steadily until 1998 and 1999, when Bristol Bay red king crab increased sharply. These two species are now the predominant PMA fisheries for those catcher processors whose harvest can be discussed in quantitative terms. Catcher processors are quite important in some of the other, lower-volume, PMA fisheries, but confidentiality requirements preclude their discussion here.

Table A3-45 displays the value of the PMA harvest for catcher processors, by fishery and year, as a percent of the total PMA harvest (all nine fisheries) for all processors combined. Of note is the steady decline, which may be related to the decreasing number of catcher processors.

Table A3-42. Number of Catcher Processors with PMA Crab Landings by Fishery and Year, 1991-2000

Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Average
Adak Brown	6	5	3	1	2	1	3	1	1	1	2.4
Adak Red	4	2	1	2	1						2.0
Bristol Bay Red	22	15	13			4	8	10	8	6	10.8
Bering Sea Opilio	22	27	23	20	15	12	12	11	9	9	16.0
Bering Sea Tanner	25	28	19	9	9	4					15.7
Dutch Harbor Brown	5	5	1		1		2	1	1		2.3
Pribilof Blue					1						1.0
Pribilof Red			2								2.0
St. Matthews Blue	9	7	3	6	1	3	1	2			4.0
Totals	NA										

Note: Shaded cells values cannot be disclosed in analogous volume or value tables.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-43. Value of Harvest for Catcher Processors by PMA Crab Fishery and Year, 1991-2000

Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Grand Total
Adak Brown	\$7,087,115	\$5,604,102	*	*	*	*	*	*	*	*	*
Adak Red	\$2,562,520	\$2,493,641	*	*	*						*
Bristol Bay Red	\$8,680,406	\$3,924,281	\$5,446,328			\$1,701,749	\$997,216	\$3,912,152	\$5,837,136	\$1,412,391	\$31,911,659
Bering Sea Opilio	\$34,111,279	\$27,853,677	\$31,579,457	\$31,697,955	\$19,234,735	\$14,847,802	\$9,767,695	\$9,210,430	\$9,868,184	\$3,578,005	\$191,749,219
Bering Sea Tanner	\$10,348,247	\$8,683,401	\$4,765,715	\$2,830,811	\$1,073,236	\$86,442					\$27,787,852
Dutch Harbor Brown	\$2,296,534	\$2,238,788	*		*		*	*	*	*	*
Pribilof Blue					*						*
Pribilof Red			*								*
St. Matthews Blue	\$2,506,111	\$1,130,176	*	*	*	*	*	*	*	*	*
Total for CPs	\$67,592,213	\$51,928,066	\$46,208,294	\$39,248,833	\$24,282,631	\$18,391,479	\$13,804,244	\$16,141,875	*	*	\$277,597,635
Total for All Processors	\$305,695,929	\$289,853,730	\$304,538,220	\$283,488,574	\$221,109,681	\$154,074,142	\$147,820,510	\$191,024,760	\$264,003,323	\$111,690,223	\$2,273,299,091

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-44. Value of Harvest for Catcher Processors by PMA Crab Fishery and Year, 1991-2000 as Percentage of Total Catcher Processor PMA Harvest Value in Each Year

Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Annual Average
Adak Brown	10.5%	10.8%	*	*	*	*	*	*	*	*	*
Adak Red	3.8%	4.8%	*	*	*						*
Bristol Bay Red	12.8%	7.6%	11.8%			9.3%	7.2%	24.2%	*	*	11.5%
Bering Sea Opilio	50.5%	53.6%	68.3%	80.8%	79.2%	80.7%	70.8%	57.1%	*	*	69.1%
Bering Sea Tanner	15.3%	16.7%	10.3%	7.2%	4.4%	0.5%					10.0%
Dutch Harbor Brown	3.4%	4.3%	*		*		*	*	*	*	*
Pribilof Blue					*						*
Pribilof Red			*								*
St. Matthews Blue	3.7%	2.2%	*	*	*	*	*	*	*	*	*
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Table A3-45. Value of Harvest for Catcher Processors by PMA Crab Fishery and Year, 1991-2000 as Percentage of Total Processor PMA Harvest Value (All Processing Sectors Combined)

Fishery	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Annual Average
Adak Brown	2.3%	1.9%	*	*	*	*	*	*	*	*	*
Adak Red	0.8%	0.9%	*	*	*						*
Bristol Bay Red	2.8%	1.4%	1.8%			1.1%	0.7%	2.0%	*	*	1.4%
Bering Sea Opilio	11.2%	9.6%	10.4%	11.2%	8.7%	9.6%	6.6%	4.8%	*	*	8.4%
Bering Sea Tanner	3.4%	3.0%	1.6%	1.0%	0.5%	0.1%					1.2%
Dutch Harbor Brown	0.8%	0.8%	*		*		*	*	*		*
Pribilof Blue					*						*
Pribilof Red			*								*
St. Matthews Blue	0.8%	0.4%	*	*	*	*	*	*			*

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1

Series 8: Harvest Allocation Information, Rationalization Alternatives

The next group of tables presents information on the allocation of harvester quota, by fishery and community of residence of vessel owner. This is the same information as presented in Section 4.6.5 in the main body of the EIS, only rearranged with fishery as the main category rather than community. Tables are:

- Table A3-46 enumerates the number of harvest vessels in each relevant BSAI crab fishery owned by residents of each named community that would be allocated quota share under these alternatives. In addition, the average number of vessels in each category owned by residents of each named community for the period 1991-2000 is presented as a baseline measure. The average, of course, includes some vessels with only non-qualified crab landings, while all vessels that would receive allocations are by definition "qualified." Also, since for some BSAI crab fisheries allocations are based on participation in BSAI crab fisheries other than the one for which the allocation is received, and because consistency of participation patterns varies from fishery to fishery, "baseline" averages can be less than the number of vessels receiving allocations in any given fishery. This table also serves to denote confidentiality concerns for the next two tables.
- Table A3-47 aggregates the proposed BSAI crab fishery allocations under the rationalization alternatives for each relevant fishery and ownership from named communities. In addition, average harvest (in terms of both pounds and value) for vessels owned by residents of each named community for the period 1991-2000 is presented as a baseline measure.
- Table A3-48 presents the change between the historical harvest baseline measure (average percent of the total relevant individual BSAI crab fishery harvested 1991-2000) compared to the allocations for each crab fishery and named community. The change is presented in terms of percent change from the historical baseline measure.

Table A3-46. Count of Vessels Allocated BSAI Crab Quota, by Fishery and Community, under the Rationalization Alternatives

Fishery	State	City	Number of Harvest Vessels Annual Average, 1991-2000		Number of Harvest Vessels Qualifying Under the Rationalization Alternatives
			Vessels with "Qualified" BSAI Crab Landings	All Vessels with BSAI Crab Landings	
ADK_BRN	Alaska	Anchorage	1	1	1
		Kodiak	2	2	2
		Other Alaska	1	1	0
	Oregon	Newport	1	2	1
		Washington	Other Washington	0	1
			S-T CMSA	6	9
ADK_BRN Total			9	15	11
ADK_RED	Alaska	Anchorage	0	0	1
		Kodiak	2	2	5
		Other Alaska	0	1	0
	Oregon	Newport	1	1	2
		Other States	Other States	0	0
	Washington	Other Washington	1	1	2
		S-T CMSA	4	5	16
ADK_RED Total			8	10	28
BB_RED	Alaska	Anchorage	5	6	6
		Homer	8	9	7
		King Cove/Sand Point	6	7	5
		Kodiak	36	44	36
		Other Alaska	12	16	12
	Oregon	Newport	9	9	11
		Other Oregon	5	6	4
	Other States	Other States	3	5	6
	Washington	Other Washington	10	13	9
		S-T CMSA	134	146	158
BB_RED Total			227	261	254
BS_OPIE	Alaska	Anchorage	6	6	6
		Homer	8	8	8
		King Cove/Sand Point	5	5	5
		Kodiak	32	38	36
		Other Alaska	12	15	13
	Oregon	Newport	8	8	11
		Other Oregon	4	5	5
	Other States	Other States	4	5	6
	Washington	Other Washington	10	12	8
		S-T CMSA	126	138	147
BS_OPIE Total			213	241	245
BS_TANN	Alaska	Anchorage	5	5	6
		Homer	8	9	8
		King Cove/Sand Point	6	6	5
		Kodiak	35	44	36
		Other Alaska	10	13	13
	Oregon	Newport	8	9	12
		Other Oregon	6	7	5
	Other States	Other States	3	4	6
	Washington	Other Washington	9	12	9
		S-T CMSA	125	139	166
BS_TANN Total			214	248	266
DUT_BRN	Alaska	Anchorage	1	1	1
		Kodiak	1	1	2
		Other Alaska	1	1	0
	Oregon	Newport	1	1	1
		Washington	Other Washington	0	1
		S-T CMSA	6	11	8
DUT_BRN Total			9	15	12
PRB_RAB	Alaska	Anchorage	2	3	1
		Homer	5	5	7
		King Cove/Sand Point	3	9	5
		Kodiak	7	11	15
		Other Alaska	5	8	7

Fishery	State	City	Number of Harvest Vessels Annual Average, 1991-2000		Number of Harvest Vessels Qualifying Under the Rationalization Alternatives
			Vessels with "Qualified" BSAI Crab Landings	All Vessels with BSAI Crab Landings	
	Oregon	Newport	4	4	5
		Other Oregon	1	1	2
	Other States	Other States	4	4	5
	Washington	Other Washington	3	5	2
		S-T CMSA	31	36	61
PRB_RAB Total			63	85	110
STM_BLU	Alaska	Anchorage	2	2	2
		Homer	2	2	2
		King Cove/Sand Point	3	4	4
		Kodiak	18	23	22
		Other Alaska	4	5	5
	Oregon	Newport	2	2	3
		Other Oregon	2	3	3
	Other States	Other States	2	5	5
	Washington	Other Washington	3	5	3
		S-T CMSA	56	64	89
STM_BLU Total			93	110	138

Notes: Not all communities with historical harvest (1991-2000) were issued allocations under the rationalization alternatives
Ownership information for allocations based on ownership of vessel during most recent relevant BSAI crab activity
Ownership information for average harvest 1991-2000 based on ownership of vessel during year of harvest
Average vessel numbers for individual fisheries calculated using only years each such fishery was open.
"PRB_RAB" signifies the Pribilof red king crab and Pribilof blue king crab fisheries combined. While managed as separate fisheries under existing conditions, these are combined under the proposed rationalization alternatives.
Shaded cells are suppressed in subsequent harvest tables due to confidentiality restrictions

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1 and Allocation File

Table A3-47. Summary of Allocations by Fishery and Community, as Percentage of Total Allocated Quota, for the Rationalization Alternatives

Fishery	State	City	Percent of Total Harvest by Value (dollars) 1991-2000	Percent of Total Harvest by Volume (lbs) 1991-2000	Percent of Total Harvest Quota (Volume) Allocated under the Rationalization Alternatives	
ADK_BRN	Alaska	Anchorage	*	*	*	
		Kodiak	*	*	*	
		Other Alaska	*	*	*	
		Oregon	Newport	*	*	*
		Washington	Other Washington	*	*	*
		S-T CMSA	40.90%	40.54%	21.92%	
ADK_BRN Total			100.00%	100.00%	100.00%	
ADK_RED	Alaska	Anchorage	*	*	*	
		Kodiak	*	*	48.95%	
		Other Alaska	*	*	*	
		Oregon	Newport	*	*	*
		Other States	Other States	*	*	*
		Washington	Other Washington	*	*	*
		S-T CMSA	25.96%	26.51%	11.90%	
ADK_RED Total			100.00%	100.00%	100.00%	
BB_RED	Alaska	Anchorage	2.31%	2.27%	2.44%	
		Homer	3.26%	3.16%	3.58%	
		King Cove/Sand Point	2.19%	2.18%	1.67%	
		Kodiak	14.65%	14.50%	13.00%	
		Other Alaska	4.44%	4.55%	3.29%	
		Oregon	Newport	4.10%	4.26%	4.45%
		Other Oregon	2.17%	2.11%	1.55%	
		Other States	Other States	1.45%	1.36%	2.02%
		Washington	Other Washington	4.35%	4.40%	3.83%
				S-T CMSA	61.09%	61.22%
BB_RED Total			100.00%	100.00%	100.00%	
BS_OPIE	Alaska	Anchorage	1.79%	1.57%	2.43%	
		Homer	2.63%	2.54%	3.03%	
		King Cove/Sand Point	1.91%	1.89%	1.09%	
		Kodiak	14.17%	14.51%	13.64%	
		Other Alaska	4.35%	4.33%	4.21%	
		Oregon	Newport	3.63%	3.55%	4.06%
		Other Oregon	1.86%	1.74%	1.96%	
		Other States	Other States	1.64%	1.48%	2.95%
		Washington	Other Washington	4.53%	4.26%	3.85%
				S-T CMSA	63.49%	64.13%
BS_OPIE Total			100.00%	100.00%	100.00%	
BS_TANN	Alaska	Anchorage	1.03%	0.97%	1.55%	
		Homer	2.94%	2.76%	3.06%	
		King Cove/Sand Point	2.05%	1.90%	1.18%	
		Kodiak	17.18%	17.49%	14.52%	
		Other Alaska	3.28%	3.30%	2.84%	
		Oregon	Newport	3.54%	3.15%	4.40%
		Other Oregon	2.45%	2.37%	2.01%	
		Other States	Other States	0.96%	0.86%	2.25%
		Washington	Other Washington	3.66%	3.62%	3.15%
		S-T CMSA	62.91%	63.57%	65.04%	
BS_TANN Total			100.00%	100.00%	100.00%	
DUT_BRN	Alaska	Anchorage	*	*	*	
		Kodiak	*	*	*	
		Other Alaska	*	*	*	
		Oregon	Newport	*	*	*
		Washington	Other Washington	*	*	*
		S-T CMSA	67.69%	68.97%	63.43%	
DUT_BRN Total			100.00%	100.00%	100.00%	
PRB_RAB	Alaska	Anchorage	2.61%	2.75%	*	
		Homer	5.52%	6.31%	11.37%	
		King Cove/Sand Point	7.54%	6.58%	2.04%	
		Kodiak	10.57%	10.40%	10.81%	
		Other Alaska	8.10%	8.40%	6.89%	
		Oregon	Newport	6.19%	6.56%	9.07%
	Other Oregon	*	*	*		
	Other States	Other States	2.88%	3.46%	5.11%	

Fishery	State	City	Percent of Total Harvest by Value (dollars) 1991-2000	Percent of Total Harvest by Volume (lbs) 1991-2000	Percent of Total Harvest Quota (Volume) Allocated under the Rationalization Alternatives
	Washington	Other Washington	5.08%	5.07%	*
		S-T CMSA	50.17%	49.39%	50.68%
PRB_RAB Total			100.00%	100.00%	100.00%
STM_BLU	Alaska	Anchorage	*	*	*
		Homer	*	*	*
		King Cove/Sand Point	2.59%	2.78%	2.13%
		Kodiak	20.47%	20.65%	18.02%
		Other Alaska	2.95%	2.98%	3.64%
	Oregon	Newport	*	*	*
		Other Oregon	*	*	*
	Other States	Other States	1.21%	1.13%	2.50%
	Washington	Other Washington	3.45%	3.73%	*
		S-T CMSA	61.98%	61.02%	63.27%
STM_BLU Total			100.00%	100.00%	100.00%

Notes: Not all communities with historical harvest (1991-2000) were issued allocations under the rationalization alternatives
Ownership information for allocation based on ownership of vessel during the most recent relevant BSAI crab fishery activity
Ownership information for average harvest 1991-2000 based on ownership of vessel during year of harvest
Averages based on ten years, even for those fisheries not open all ten years
*PRB_RAB" signifies the Pribilof red king crab and Pribilof blue king crab fisheries combined. While managed as separate fisheries under existing conditions, these are combined under the proposed rationalization alternatives.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1 and Allocation File

Table A3-48. Summary of Allocations by Fishery and Community, as a Percent Change from Average Annual Pounds Harvested (1991-2000), for the Rationalization Alternatives

Fishery	State	City	Percent of Total Harvest by Volume (lbs) 1991-2000	Percent of Total Harvest by Value (dollars) 1991-2000	Percent Harvest Volume Change From 1991-2000 Average Under Rationalization Alternatives	
ADK_BRN	Alaska	Anchorage	*	*	*	
		Kodiak	*	*	*	
		Other Alaska	*	*	*	
	Oregon	Newport	*	*	*	
		Other Washington	*	*	*	
	Washington	S-T CMSA	40.90%	40.54%	-45.93%	
ADK_RED	Alaska	Anchorage	*	*	*	
		Kodiak	*	*	*	
		Other Alaska	*	*	*	
	Oregon	Newport	*	*	*	
		Other States	*	*	*	
	Washington	Other Washington	*	*	*	
		S-T CMSA	25.96%	26.51%	-55.11%	
BB_RED	Alaska	Anchorage	2.31%	2.27%	7.49%	
		Homer	3.26%	3.16%	13.29%	
		King Cove/Sand Point	2.19%	2.18%	-23.39%	
		Kodiak	14.65%	14.50%	-10.34%	
		Other Alaska	4.44%	4.55%	-27.69%	
		Oregon	Newport	4.10%	4.26%	446%
	Other States	Other Oregon	2.17%	2.11%	-26.54%	
		Other States	1.45%	1.36%	48.53%	
	Washington	Other Washington	4.35%	4.40%	-12.95%	
			S-T CMSA	61.09%	61.22%	4.80%
	BS_OPIE	Alaska	Anchorage	1.79%	1.57%	54.78%
Homer			2.63%	2.54%	19.29%	
King Cove/Sand Point			1.91%	1.89%	-42.33%	
Kodiak			14.17%	14.51%	-6.00%	
Other Alaska			4.35%	4.33%	-2.77%	
Oregon		Newport	3.63%	3.55%	14.37%	
		Other Oregon	1.86%	1.74%	12.64%	
Other States		Other States	1.64%	1.48%	99.32%	
		Washington	Other Washington	4.53%	4.26%	-9.62%
			S-T CMSA	63.49%	64.13%	-2.11%
BS_TANN	Alaska	Anchorage	1.03%	0.97%	59.79%	
		Homer	2.94%	2.76%	10.87%	
		King Cove/Sand Point	2.05%	1.90%	-37.89%	
		Kodiak	17.18%	17.49%	-16.96%	
		Other Alaska	3.28%	3.30%	-13.94%	
	Oregon	Newport	3.54%	3.15%	39.68%	
		Other Oregon	2.45%	2.37%	-15.19%	
	Other States	Other States	0.96%	0.86%	161.63%	
		Washington	Other Washington	3.66%	3.62%	-12.98%
		S-T CMSA	62.91%	63.57%	2.31%	
DUT_BRN	Alaska	Anchorage	*	*	*	
		Kodiak	*	*	*	
		Other Alaska	*	*	*	
	Oregon	Newport	*	*	*	
		Other Washington	*	*	*	
	Washington	S-T CMSA	67.69%	68.97%	-8.03%	
PRB_RAB	Alaska	Anchorage	2.61%	2.75%	*	
		Homer	5.52%	6.31%	80.19%	
		King Cove/Sand Point	7.54%	6.58%	-69.00%	
		Kodiak	10.57%	10.40%	3.94%	
		Other Alaska	8.10%	8.40%	-17.98%	
	Oregon	Newport	6.19%	6.56%	38.26%	
		Other Oregon	*	*	*	
	Other States	Other States	2.88%	3.46%	47.69%	
		Washington	Other Washington	5.08%	5.07%	*
			S-T CMSA	50.17%	49.39%	2.61%
STM_BLU	Alaska	Anchorage	*	*	*	
		Homer	*	*	*	
		King Cove/Sand Point	2.59%	2.78%	-23.38%	
		Kodiak	20.47%	20.65%	-12.74%	
		Other Alaska	2.95%	2.98%	22.15%	

Fishery	State	City	Percent of Total Harvest by Volume (lbs) 1991-2000	Percent of Total Harvest by Value (dollars) 1991-2000	Percent Harvest Volume Change From 1991-2000 Average Under Rationalization Alternatives
	Oregon	Newport	*	*	*
		Other Oregon	*	*	*
	Other States	Other States	1.21%	1.13%	121.24%
	Washington	Other Washington	3.45%	3.73%	*
		S-T CMSA	61.98%	61.02%	3.69%

Notes: Not all communities with historical harvest (1991-2000) were issued allocations under the rationalization alternatives
Ownership information for allocation based on ownership of vessel during the most recent relevant BSAI crab fishery activity
Ownership information for average harvest 1991-2000 based on ownership of vessel during year of harvest
Averages based on ten years, even for those fisheries not open all ten years
"PRB_RAB" signifies the Pribilof red king crab and Pribilof blue king crab fisheries combined. While managed as separate fisheries under existing conditions, these are combined under the proposed rationalization alternatives.

Source: Summarized from the NPFMC Bering Sea Crab Data Base / 2001_1 and Allocation File

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