APPENDIX 1

REGULATORY IMPACT REVIEW/
INITIAL REGULATORY FLEXIBILITY ANALYSIS

VOLUNTARY THREE-PIE COOPERATIVE PROGRAM
FOR THE
BERING SEA AND ALEUTIAN ISLANDS CRAB FISHERIES

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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 (*C. opilio*)	333 (1992)	25.3 (2001)	None
Bristol Bay Red King Crab	18 (1991)	5 (1996)	1994, 1995
Bering Sea Tanner (*C. bairdi*)	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) Golden (Brown) King Crab	3.2 (1996, 1997, 1998)	3.0 (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

[a]Combined 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 C. opilio*[3]	*BS C. bairdi*[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 GHLs 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 GHL 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 GHL 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 GHLs), regulating fishing activity, and collecting harvest date 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 *C. Opilio*	260	93	256
Bering Sea *C. Bairdi*	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 median[2] 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 median[5] 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 GHL 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 GHL 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 GHLs, 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 base 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 late1970'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	
C. opilio and C. bairdi	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 GHL 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 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, 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 season[8]

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:

[8]All 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 issuees 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/processors 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 history[9] 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 - 2001for 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.

[9]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.

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/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.

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 GHL 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 GHLs 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 byctach, 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 issuees 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 purhased 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 Corporation[10] 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%

[10]The 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

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.

<u>Detail of Structure II (Last best offer structure)</u>

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.

<u>Detail of Structure V (Fleet-wide binding arbitration structure)</u>

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.

IFQ 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 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.$500,000
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 56º20'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.

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 (Fixed in FMP)	Category 2 (Frameworked in FMP)	Category 3 (Discretion of State)
* 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. Fourty-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 have10% 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
Pribilof 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 have 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.

[1]The 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 to16 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 faired 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. *baird*i 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
	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 Qualified Processors (Pounds)	Deliveries to Unqualified Processors (Pounds)	Total Deliveries (Pounds)	Qualified Processors	Unqualified Processors	Total 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 2.4-1shows the number of vessels that a processor or a processor subsidiary or affiliate owns at least 10 percent[2] 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 affliliated with processors	Pounds Caught by Vertically Integrated Vessels (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 C. opilio	6	30	212,759.2	1,724,107.9
Bering Sea C. bairdi	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.

<u>Pricing in the Bristol Bay red king crab and Bering Sea *C. opilio* fisheries</u>

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 exvessel 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 *C. Opilio*	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 *C. Bairdi*	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

	Alaska					Washington		Oregon		
Fishery Category	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Grand Total
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

	Alaska					Washington		Oregon		
Data	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Grand Total
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

	Alaska					Washington		Oregon		
Data	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Grand Total
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	$139,393,635
Bering Sea Tanner Crab	$216,299	$615,159	$429,111	$3,593,507	$685,572	$13,163,108	$765,462	$740,503	$512,954	$20,721,675
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

	Alaska					Washington		Oregon		
Data	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Grand Total
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

	Alaska					Washington		Oregon		
Data	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Grand Total
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

	Alaska					Washington		Oregon			
Fishery	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Other States	Grand Total
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

	Alaska					Washington		Oregon			
Fishery	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Other States	Grand Total
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

	Alaska					Washington		Oregon			
Fishery	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Other States	Grand Total
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

	Alaska					Washington		Oregon			
Fishery	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Other States	Grand Total
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

	Alaska					Washington		Oregon			
Fishery	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Other States	Grand Total
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

	Alaska					Washington		Oregon			
Fishery	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Other States	Grand Total
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

	Alaska					Washington		Oregon			
Fishery	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Other States	Grand Total
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

[6]Where 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

	Alaska					Washington		Oregon			
Fishery	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Other States	Grand Total
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

	Alaska					Washington		Oregon			
Fishery	Anchorage	Homer	King Cove/ Sand Point	Kodiak	Other Alaska	Seattle-Tacoma CMSA	Other Washington	Newport	Other Oregon	Other States	Grand Total
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

	Processing Activity with Area Designation					Processing Activity without Area Designation		
	South Region							
Species	Kodiak	Unalaska	Other South	Total South	North Region	Catcher Processors	Undesignated Floaters	Grand Total
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

	Processing Activity with Area Designation					Processing Activity without Area Designation		
	South Region							
Species	Kodiak	Unalaska	Other South	Total South	North Region	Catcher Processors	Undesignated Floaters	Grand Total
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

	Processing Activity with Area Designation					Processing Activity without Area Designation		
	South Region							
Species	Kodiak	Unalaska	Other South	Total South	North Region	Catcher Processors	Undesignated Floaters	Grand Total
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 species[7]), 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

[7]In 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.

[8]Tables 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	$23,619,793	$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

	Processing Activity with Area Designation					Processing Activity without Area Designation		
	South Region							
Species	Kodiak	Unalaska	Other South	Total South	North Region	Catcher Processors	Undesignated Floaters	Grand Total
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

	Processing Activity with Area Designation					Processing Activity without Area Designation		
	South Region							
Species	Kodiak	Unalaska	Other South	Total South	North Region	Catcher Processors	Undesignated Floaters	Grand Total
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.

<u>Possible rationalization programs</u>

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 GHLs 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 C. opilio and C. bairdi
E. Aleutian Is. Tanner	closed	BSAI C. opilio and C. bairdi
W. Aleutian Is. Tanner	closed	BSAI C. opilio and C. bairdi
EBS Tanner	closed	BSAI C. opilio and C. bairdi
E. Aleutian Is. angulatus	permit	none
EBS angulatus	permit	none
E. Aleutian Is. tanneri	permit	none
EBS tanneri	permit	none
W. Aleutian Is. tanneri	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.

<u>Norton Sound red king crab</u>: 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 its self 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 GHL 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 GHL was not often reached. In 2001, however, the fishery lasted only 3.5 months prior to the GHL 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 GHL 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 GHL 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 GHL. 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 GHLs, 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. anugulatus* (triangle Tanner crab) are harvested under a permit authorized in 5

AAC 35.511. PERMITS FOR TANNERI AND ANGULATUS TANNER CRAB IN REGUSTRATION 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 implementation and administered. Also, each different program will effect fishermens' behavior, the timing of fishing activity, and the number of vessels participating. The questions for analysis are whether these difference 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 has 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:

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[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, it's 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 in 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 handling[2]. 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

[2]The Council's 2001Stock 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.

<u>Stock assessment and TAC setting</u>

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 GHL 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 mangers 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 GHLs, 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 GHL 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 that 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	Effected/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 posses 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 exit 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

[5]Additional 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 the 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 fishermens 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.

[8]NMFS 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

[9]Since 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.

[10]Since 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 *C. Opilio*	254	55	256
Bering Sea *C. Bairdi*	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 adopted 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 the 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 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.

<u>Calculation of QS Distributions.</u> 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:

$$\frac{\dfrac{\textit{Year 1 Harvest}}{\textit{Total Year 1 Harvests}} + \dfrac{\textit{Year 2 Harvest}}{\textit{Total Year 2 Harvests}} + \dfrac{\textit{Year 3 Harvest}}{\textit{Total Year 3 Harvests}} + \dfrac{\textit{Year 4 Harvest}}{\textit{Total Year 4 Harvests}}}{\textit{Number of Years in Qualifying Period (4)}} = \textit{Quota Share}$$

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.

<u>Allocations to owners of sunken vessels replaced under Amendment 10</u>. 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)

	Year					
Boat	1	2	3	4	Total	%
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)

	Year				Average %	
Boat	1	2	3	4	All Years	Active 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)

	Year				All Years		Best 3 Years	
Boat	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)

	Year				All Years		Best 3 Years	
Boat	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).

	Adjudicated		Pending		Total	
Fishery	**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 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. 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

[12]Under 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
AI golden king	1	0	1	0	2	0
AI 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 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.

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 vessels[14], 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.

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[14]It 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 options[16]. 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.

[16]The 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	Qualification	Number of vessels
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.

<u>The Pribilof red king crab fishery.</u>

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 C. opilio 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.

<u>The Pribilof blue king crab fishery.</u>

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

Figure 3.3-6 **Allocation in the Pribilof Island blue king crab fishery.**

<u>The Pribilof red and blue king crab fishery.</u>

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]

[17] A 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)/WAI (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.

[18]Since 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 vessels[19] 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 in 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:

[22]Historical 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 issuees 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 GHL 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.

[23]An option that would apply only to the Aleutian Islands golden king crab fishery, no person would be exempt from the cap.

[24]Although 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.

<u>The distinction between ownership and use caps</u>

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

Fishery	Sum of Owners Over 8 Percent Cap	Sum of Owners Over 5 Percent Cap	Sum of Owners Over 1 Percent Cap	Sum of Owners Over 0.5 Percent Cap	Number of Owners
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
GHL 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

<u>The eastern Aleutian Island (Dutch Harbor) golden king crab fisheries.</u>

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 GHL 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**

<u>The western Aleutian Island (Adak) golden king crab fisheries.</u>

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, catch/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 Aluetian 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 red 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 - 2001for 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.

[27]A 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 GHL or TAC for which IPQs are distributed

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

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 GHL (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 GHL (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/processors 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/processors 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.

Under this provision catcher/processors 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/processors, 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/processors from acting as either motherships or floating processors, a practice that some catcher/processors 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/processors, 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/processors 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/processors 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/processors 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 catch/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 is 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/processors 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/processors. Under the first framework, catcher/processors 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/processors 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/processors are allocated harvesting and processing allocations separately, based on independent assessments of harvesting and processing activities. The second analysis considers the case of catcher/processors 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/processors

This section of the analysis quantitatively examines the processor allocation alternatives under the assumption that catcher/processors 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/processors 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/processors. 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/processors will receive allocations of approximately 7 to 8 percent of the total processing share allocation. In the three Pribilof king crab fisheries no catcher/processors 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

Fishery/Option	*Total allocation of processing shares to catcher/processors*	*Number of catcher/processors receiving processing shares*
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/processors receiving processing shares).**

Fishery/Option	*Total qualifying processor pounds*
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.**

<u>The Bristol Bay red king crab fishery.</u>

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 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.

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 option 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.**

Fishery/Option	*Number of Owners Over 50 Percent Cap*	*Number of Owners Over 40 Percent Cap*	*Number of Owners Over 30 Percent Cap*	*Number of Owners Over 20 Percent Cap*	*Number of Owners*	*Average of the top 4 processors*
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

Fishery/Option	Number of vessels affiliated with processors	Number of processors affiliated with vessels	Number of processors over the 8% cap	Number of processors over the 5% cap	Number of processors over the 1% cap
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

[32]Under 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 sharesindependent of the

Fishery/Option	*Number of Vessels Qualified for Catcher/Processor Shares*
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/processors 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/processors 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/processors 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/processors 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/processors 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/processors 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/processors 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/processors 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 f*ishery

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).**

	Allocation with catcher/processors receiving catcher/processor shares		*Allocation with catcher/processors receiving processing shares*		*AFA Sideboards*
Fishery/Option	*Non AFA Processors*	*AFA Processors*	*Non AFA Processors*	*AFA Processors*	
Bering Sea Opilio					
Option 1 - 1997 - 1999 (Three year average)	0.286	0.714			0.653
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			0.496
Option 2 - 1996 - 1998 (Best of 4 season)	0.467	0.533			
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			0.496
Option 2 - 1996 - 1998 (Best of 4 season)	0.450	0.550			
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)**

Fishery/Option	*Number of vessels affiliated with processors*	*Number of processors affiliated with vessels*	*Number of processors over the 8% cap*	*Number of processors over the 5% cap*	*Number of processors over the 1% cap*	*Total allocation to processor affiliated vessels*
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)

Fishery/Option	*Number of vessels affiliated with processors*	*Number of processors affiliated with vessels*	*Number of processors over the 8% cap*	*Number of processors over the 5% cap*	*Number of processors over the 1% cap*	*Total allocation to processor affiliated vessels*
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.

[34]There 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 option[35]. 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 associate 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.

[35]Since 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.

<u>Cooperative structure</u>

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 owner[38] 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 fleet[40], 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.

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[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 the 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 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.

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 catch[41] 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:

[41]Catch 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
Icicle 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 no appear to fair well under this option. The only processors with

[42]This 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/processors have been excluded from the above discussion because they tend to deliver a plurality of their catch to themselves. For many catcher/processors 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/processors 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/processors 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 it 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/processors. Applying regional designations to processing by catcher/processors 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 cacther 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 force 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	Fishery closed in all years proposed for this option	0.075	NA	11	Fishery closed in all years proposed for this option	11	NA
	North	0.035*		0.227		2		7	
	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	NA	1	0	0	NA
	North	0.586	0.710	0.630		4	4	4	
	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	NA	4	4	4	NA
	South	0.339	0.355*	0.373*		11	9	10	
	Unknown	0.075	*	*		4	3	3	
St. Matthew blue king crab	Catcher/processor	0.094*	*	0.069*	NA	5	2	3	NA
	North	0.678	0.707	0.717		4	4	4	
	South	0.228	0.294*	0.214		9	7	9	
	Unknown	*	*	*		2	1	1	
Western Aleutian Islands (Adak) red king crab	Catcher/processor	*	NA	NA	NA	2	NA	NA	NA
	South	1.000				10			
	Unknown	*				1			

* Concealed for confidentiality. Asterisked 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. Mathew 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:

> 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.

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

[3]To 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: Both North and South	North Only	South Only	Total Number of Vessels	Average Deliveries per Vessel
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			
Community or Communities	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
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			
Community or Communities	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
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			
Community or Communities	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
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			
Community or Communities	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
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

Bering Sea C. Bairdi	Community Share				Number of Processors			
Community or Communities	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
Homer, King Cove, False Pass, Anchorage, Wasilla, Port Moller, Ninilchik	0.233	NA	0.122	NA	3	NA	11	NA
Catcher/Processor	***	NA	0.075	NA	11	NA	11	NA
Dutch Harbor, Akutan, South	0.592	NA	0.506	NA	9	NA	13	NA
Kodiak	0.140	NA	0.019	NA	5	NA	4	NA
St.Paul, St. Matthew, St. George, Unknown	0.035	NA	0.277	NA	4	NA	15	NA

Pribilof Blue King Crab	Community Share				Number of Processors			
Community or Communities	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
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 Share				Number of Processors			
Community or Communities	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
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 Share				Number of Processors			
Community or Communities	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
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 Share				Number of Processors			
Community or Communities	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
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 measurs. 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 Alaska[5] 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. $500,000

   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.

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 a 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.

		Processors with allocations in		
Fishery	Region	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 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 56º20'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 communities[7] 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 56º20'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 C. opilio
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 preseason 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 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 complicated 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 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 holders 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 is 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 extent 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

[22]In 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 therefor 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 advance 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:

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.

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 *C. Opilio*	2000	228	684
Bering Sea *C. Bairdi*	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 captains 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:

1.8.1.3 Species specific:
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 GHLs 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 boardrequirements

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.

<u>The first right of refusal.</u>

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 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 fours 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.

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 program[33]:

[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. bairid 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

[34]The 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 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.

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

[35]See section on community fishing quotas, Sharing the Fish, 1999, p. 128.

[36]Note 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.

[37]Note, 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.

[38]One 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).

[39]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.

[40]The 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.

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[41]Source: 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.

[42]Another 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

[43]Source: 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.*

[44]Source: 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.

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[45]The 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.

[46]Sharing the Fish (1999), p.128.

[47]The 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.

[48]The 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:

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[49]A 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.

[50]See 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

[51]From 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 action[52] 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.

[52]At 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

[53]Establishing 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.

<u>BSAI Pacific Cod</u> 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															
	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	Grand Total	CFEC Tendering Permits
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									
		BS	BS & WG	BS & CG	BS, CG, & WG	AI & BS	AI, BS, & WG	AI, BS, & CG	AI, BS, CG, & WG	All Other	Grand Total
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									
		BS	BS & WG	BS & CG	BS, CG, & WG	AI & BS	AI, BS, & WG	AI, BS, & CG	AI, BS, CG, & WG	All Other	Grand Total
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 Site[54]). 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.

[54]The 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

	Central GOA			Western GOA		
Year	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 district[55] 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.

[55]A 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 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 GHL 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 are 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 vessels[56] 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.

	Number of Vessels			Catch History of Vessels					
GOA Endorsements	<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.

	Number of Vessels			Catch History of Vessels					
GOA Endorsements	<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 are 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	-	-	-	-	-		-	-	-	-
21						-	-	-	-	-
22	-					-	-	-	-	-
23	-	-	-	-		-	-	-	-	-
24	-	-	-	-		-	-	-	-	-
25	-	-			-	-	-	-	-	-
26	-	-			-	-	-	-	-	-
27	-			-	-	-	-	-	-	-
28		-		-	-	-	-	-	-	-
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 cap[57]. 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

[57]Caps 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 license[58] 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 caps[59] 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 transferred[60]. From an industry perspective, persons will need to determine whether a more bureaucratic transfer system out weighs 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.

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[58]The 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.

[59]NMFS 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.

[60]Any 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 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.

	Allocation with catcher/processors receiving catcher/processor shares		*Allocation with catcher/processors receiving processing shares*		*AFA Sideboards*
Fishery/Option	*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.

[61]One 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 approve the program 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 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 allocations[64], 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 would receive no compensation for that loss. 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 makeup 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.

[65]It 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).

	Allocation with catcher/processors receiving catcher/processor shares		*Allocation with catcher/processors receiving processing shares*	
Fishery/Option	*Number of foreign owned processors receiving allocations*	*Percent of total allocation to foreign owned processors*	*Number of foreign owned processors receiving allocations*	*Percent of total allocation to foreign owned processors*
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)

Species	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
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]

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[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.

[69]Clearly, any reduction in crew sizes will have distributional impacts, but these reductions could result in a reduction of costs to harvesters.

[70]Costs 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).

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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 GHL 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.

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[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-rents[3] 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).

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[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.

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[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 facilitating 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 decreases 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 staff[11]. 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.

[11] See 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's[14] 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 ownership[15].

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[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) <u>do not</u> 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 survey[16], 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).

[16]The 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 calculations[18]). 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.

[18]Total 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 prorate[19] 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.

[19]The 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 alternative[20]

Measures	Confidence in Estimate Under Alternative 1	Confidence in Estimate Under Alternative 2	Confidence in Estimate Under Alternative 3
Issue: Excess Harvesting and Processing Capacity and Low Economic Returns			
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.
Issue: Lack of Economic Stability for Harvesters, Processors and Coastal Communities			

[20]Because 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 *only*) depends on the number of fixed costs prorated between crab and other activities. Good estimates of quasi rents (for BSAI crab only) can be made.	Estimates of profit cannot be made. Estimates of quasi rents (for BSAI crab *only*) 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 *only*) 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.
Issue: High Levels of Loss of Life and Injury			
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 agreements[21] 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.

[21]NOAA 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 QSs. 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 errors[22] 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 agency[23] 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

[22]The 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.

[23]The 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 provided[25].

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 derived[26]. 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.*

[24]This "audit" could be the result of either the random review process that is contemplated or an "audit" triggered under scenario three.

[25]However, in cases of non-compliance in which enforcement has to be notified, the data verification process is likely be more comprehensive.

[26]Any 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 addresses 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 GHLs 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 PMA[27] 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 1991-2000	Option 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 1991-2000	Option 1A	1B	2A	2B	3A	3B	4A
		STM_BLU	4	6		5	5			
Washing-ton	Seattle-Tacoma CMSA	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								
		ADK_RED								
		BB_RED	10	9	9	9	9	9		
		BS_OPIE	10	8		9		8	8	8
		BS_TANN	9	9	9	9				
		DUT_BRN								
		PRB_BLU								
		PRB_RED								
		STM_BLU								
Oregon	Newport	ADK_BRN								
		ADK_RED								
		BB_RED	9	11	11	11	11	11		
		BS_OPIE	8	12		12		10	10	11
		BS_TANN	8	12	12	12				
		COM_BRN								
		DUT_BRN								
		PRB_BLU	4	5		5	5			
		PRB_RED	4	5		5	5			
		STM_BLU								
	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								
		PRB_RED								
		STM_BLU								
Other States		ADK_RED								
		BB_RED		6	6	6	6	6		
		BS_OPIE	4	6		6		6	6	6
		BS_TANN		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 1991-2000	Option 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%	-49.33%	-34.72%
		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	*	*							
	Oregon	Newport	*	*	*	*	*	*	*	*	*
	Washington	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	*	*							
	Oregon	Newport	*	*	*	*					
	Other States	Other States	*	*	NA	NA					
	Washington	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%		
	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%		
	Washington	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 are14.39 (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

	Harvesting									Processing			
	Value	Volume								Value	Volume		
Species	1991-2000 Average	1991-2000 Average	Alt 1A	Alt 1B	Alt 2A	Alt 2B	Alt 3A	Alt 3B	Alt 4A	1991-2000 Average	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 Committee[2] 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 *C. opilio* (snow crab)	1996 - 2000 (best 4 of 5 seasons)
Bering Sea *C. bairdi* (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 person[8] 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.

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[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 Priblof 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 waive 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	Mean allocation	Median allocation	Average of four largest allocations
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 C. Opilio	155	245	0.006	0.006	0.014
Bering Sea C. Bairdi (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 Priblof 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 *C. opilio* (snow crab)	1997 - 1999 (3 seasons)
Bering Sea *C. bairdi* (Tanner crab)	Based 50 percent on allocation for Bristol Bay red king crab and 50 percent on allocation for Bering Sea *C. opilio*
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)

[13]Processor 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 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] Witheld 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 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 supressed 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 a 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 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 responses 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

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[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 disburse 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

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[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

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[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 GHL, 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 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 inthis 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, therefor, 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*	0*
		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 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. 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%
		St. Matthew Blue	*	*	*
	King Cove/ Sand Point	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%
		St. Matthew Blue	2.59%	2.78%	-23.38%
	Kodiak	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%
		St. Matthew Blue	20.47%	20.65%	-12.74%
	Other Alaska	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 criteria[19]). 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 GHL/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

	Harvesting			Processing		
	Value	Volume		Value	Volume	
Species	1991-2000 Average	1991-2000 Average	Quota Allocation	1991-2000 Average	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 group[20] 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 grand fathered 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.			

[1]Owners 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.

[2] Community protections in rationalization could reduce efficiency gains of the harvest and processing sectors in rationalization.

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