# Environmental Assessment/Regulatory Impact Review

# FOR

# AMENDMENT 45 TO THE FISHERY MANAGEMENT PLAN FOR GROUNDFISH OF THE GULF OF ALASKA AND THE ASSOCIATED REGULATORY AMENDMENT TO COMBINE THE THIRD AND FOURTH QUARTERLY POLLOCK ALLOWANCES IN THE WESTERN AND CENTRAL REGULATORY AREAS OF THE GULF OF ALASKA

Prepared by

National Marine Fisheries Service
Alaska Regional Office

September 29, 2009

## EXECUTIVE SUMMARY

At its September 1995 meeting, the North Pacific Fishery Management Council received a proposal from representatives of the Gulf of Alaska (GOA) pollock fishery to combine the third and fourth quarterly pollock allowances in the Western and Central (W/C) Regulatory Areas of the GOA. Under this proposal, the first and second quarterly allowances would remain unchanged; 25 percent of the total allowable catch (TAC) on January 1 and 25 percent of the TAC on June 1. However, the third and fourth quarterly allowances would be combined into a third seasonal allowance of 50 percent of the TAC. This original proposal contained a September 15 opening date for the final combined seasonal allowance. However, representatives for Bering Sea-based processors and vessels objected to scheduling a Western Regulatory Area pollock opening in September because it would conflict with the Bering Sea non-roe season.

At its January 1996 meeting, the Council considered three opening date options for the final combined seasonal allowance (September 1, September 15 and October 1) and approved approved a compromise proposal, supported by a broad coalition of Bering Sea and central GOA-based processors and vessels. This compromise proposal would establish an October 1 opening date in the Western Regulatory Area and a September 1 opening date in the Central Regulatory Area. The Council believed that separate third season opening dates for the Western and Central Regulatory Areas would achieve the objectives outlined above while causing the least amount of dislocation for current participants in the fishery.

This proposal has several management objectives: First, to reduce chum salmon bycatch which has been excessively high in recent years during the third quarter (July 1) opening; second, to eliminate conflicts with salmon processing which peaks for GOA processors in July; third, to reduce the potential for harvest overruns and other difficulties associated with managing extremely short fourth quarter openings; and finally, to limit effort by reducing the incentive for Bering Sea-based vessels to crossover and participate in GOA pollock openings.

The Fishery Management Plan for Groundfish of the GOA (FMP) is very specific with respect to the manner that seasonal allowances of pollock TACs in the W/C Regulatory Areas must be made. Amendment 19 to the FMP, implemented as a measure to prevent roe stripping, requires that W/C Regulatory Area pollock TACs be divided into four equal quarterly allowances. Consequently, an FMP amendment is required before any changes in the quarterly allowance system can be made. Amendment 45 would framework greater flexibility in setting seasonal allowances of pollock TACs would allowing the Council to recommend the Secretary implement the current proposal through regulation while retaining for the Council the flexibility to recommend additional future changes in the seasonal allowance system as necessary.

Two alternatives were developed for consideration:

**Alternative 1**. No Action. The pollock TACs in the W/C Regulatory Areas would continue to be released in four equal quarterly allowances as required by the FMP.

**Alternative 2**. Amend the FMP to framework greater flexibility in setting seasonal allowances of pollock TACs, and combine by regulatory amendment the third and fourth quarterly allowances into a third seasonal allowance of 50 percent of TAC. The first and second quarterly allowances of 25 percent of TAC in the W/C Regulatory Areas would remain unchanged.

> Option 1. Establish a September 1 opening date for the third seasonal allowance. Analysis of this option was requested by the Council at the December 1995 meeting.
>
> Option 2. Establish a September 15 opening date for the third seasonal allowance. This option reflects the proposal submitted to the Council by representatives of the GOA pollock fishery.
>
> Option 3. Establish an October 1 opening date for the third seasonal allowance. This option was included at the request of an organization of catcher vessels that participate in both BSAI and GOA pollock fisheries.

Option 4 (preferred). Establish an October 1 opening date for the third seasonal allowance in the Western Regulatory Area and a September 1 opening date for the third seasonal allowance in the Central Regulatory Area. This option was submitted at the January 1996 Council meeting and represents a compromise proposal agreeable to both Bering Sea and central GOA-based processors and vessels.

## TABLE OF CONTENTS

## LIST OF TABLES



## LIST OF FIGURES

## 1.0 INTRODUCTION

The groundfish fisheries in the exclusive economic zone (EEZ) (3 to 200 miles offshore) off Alaska are managed under the Fishery Management Plan for Groundfish of the Gulf of Alaska and the Fishery Management Plan for the Groundfish Fisheries of the Bering Sea and Aleutian Islands Area. Both fishery management plans (FMP) were developed by the North Pacific Fishery Management Council (Council) under the Magnuson Fishery Conservation and Management Act (Magnuson Act). The Gulf of Alaska (GOA) FMP was approved by the Secretary of Commerce and become effective in 1978. The Bering Sea and Aleutian Islands Area (BSAI) FMP became effective in 1982.

Actions taken to amend FMPs or implement other regulations governing the groundfish fisheries must meet the requirements of Federal laws and regulations. In addition to the Magnuson Act, the most important of these are the National Environmental Policy Act (NEPA), the Endangered Species Act (ESA), the Marine Mammal Protection Act (MMPA), Executive Order (E.O.) 12866, and the Regulatory Flexibility Act (RFA).

NEPA, E.O. 12866 and the RFA require a description of the purpose and need for the proposed action as well as a description of alternative actions which may address the problem. This information is included in Section 1 of this document. Section 2 contains information on the biological and environmental impacts of the alternatives as required by NEPA. Impacts on endangered species and marine mammals are also addressed in this section. Section 3 contains a Regulatory Impact Review (RIR) which addresses the requirements of both E.O. 12866 and the RFA that economic impacts of the alternatives be considered. Section 4 contains the Initial Regulatory Flexibility Analysis (IRFA) required by the RFA which specifically addresses the impacts of the proposed action on small businesses.

This Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) examines a proposed action intended to ameliorate a series problems associated with the current quarterly allowance system for pollock in the combined Western and Central (W/C) Regulatory Areas of the GOA. The proposed action would consist of (1) Amendment 45 to the FMP modifying the requirement that the pollock total allowable catch (TAC) amounts in the W/C Regulatory Areas be divided into four equal quarterly allowances, and (2) a regulatory amendment combining the third and fourth quarterly allowances of pollock TACs in the W/C Regulatory Area into a third seasonal allowance opening on either September 1, September 15, or October 1.

### 1.1 Purpose of and Need for the Action

Since 1990, the pollock TACs specified for the W/C Regulatory Areas (Figure 1) of the GOA has been divided into four equal quarterly allowances which become available January 1, June 1, July 1, and October 1.[1] At its September 1995 meeting, the North Pacific Fishery Management Council received a proposal from representatives of the Gulf of Alaska (GOA) pollock fishery to combine the third and fourth quarterly pollock allowances in the Western and Central (W/C) Regulatory Areas of the GOA. Under this proposal, the first and second quarterly allowances would remain unchanged; 25 percent of the total allowable catch (TAC) on January 1 and 25 percent of the TAC on June 1. However, the third and fourth quarterly allowances would be combined into a third seasonal allowance of 50 percent of the TAC. This original proposal contained a September 15 opening date for the final combined seasonal allowance. However, representatives for Bering Sea-based processors and vessels objected to scheduling a Western Regulatory Area pollock opening in September because it would conflict with the Bering Sea non-roe season.

[1]While directed fishing for pollock opens January 1, fishing with trawl gear in the GOA does not open until January 20. Because no vessels fish for pollock with gear other than trawl gear, the first quarter pollock fishery does not effectively begin until January 20. In the second quarter, the directed fishing opening for pollock has been delayed from April 1 to June 1 at the request of industry. This change was made because pollock harvested in April have recently spawned and tend to be thinner and of less value to processors than pollock harvested in June.

At its January 1996 meeting, the Council considered three opening date options for the final combined seasonal allowance (September 1, September 15 and October 1) and approved approved a compromise proposal, supported by a broad coalition of Bering Sea and central GOA-based processors and vessels. This compromise proposal would establish an October 1 opening date in the Western Regulatory Area and a September 1 opening date in the Central Regulatory Area. The Council believed that separate third season opening dates for the Western and Central Regulatory Areas would achieve the objectives outlined above while causing the least amount of dislocation for current participants in the fishery.This action is intended to further fisheries management and conservation efforts in the GOA and is consistent with the objectives of the Magnuson Act and the FMP.

Regulations authorizing NMFS to divide the pollock TACs in the W/C Regulatory Areas into four equal quarterly allowances are set out at 50 CFR 672.20(a)(2)(iv). In addition to specifying opening dates, the regulations require that overages or shortfalls in one quarter be added or deducted in equal proportions to subsequent quarterly allowances in the same fishing year. The regulations also place a limit on the amount of TAC that may be added to subsequent quarters to adjust for shortfalls.

The GOA pollock industry has identified several problems with respect the quarterly allowance system for pollock in the W/C Regulatory Areas. The first problem is with salmon bycatch. Salmon bycatch in the "other" salmon reporting category is approximately 500 percent higher during the third quarter opening than any other quarter. Observer data indicate that most of these "other" salmon are chum salmon. Small numbers of coho salmon also are reported. Delaying the July pollock fishery until September after chum and coho salmon have spawned should substantially reduce "other" salmon bycatch rates in the pollock fishery. "Other" salmon bycatch does not currently restrict the GOA pollock fishery because no bycatch limit exists for GOA salmon. Consequently, reducing salmon bycatch is not expected to accrue any economic benefits to the pollock fishery. Nevertheless, bycatch reduction is an underlying goal of both the FMP and Magnuson Act.

A second problem identified by industry is that the third quarter pollock fishery conflicts with summer salmon processing activities. During July, many GOA processors are operating at near or full capacity processing salmon. Industry sources have indicated that delaying the July pollock opening until at least September would allow them to avoid conflicts with salmon processing, maintain more stable production levels and maintain a more stable workforce. Processors currently report difficulties in maintaining a workforce during September when fewer fish are typically available, yet they need crews on hand in order to be ready in October when an additional portion of the halibut bycatch mortality limit established for GOA trawl fisheries is made available. A pollock opening in September or October would allow processors to more easily span the gap between August salmon processing and October groundfish processing.

A third problem identified by both management agencies and industry is that declining pollock stocks and escalating fishing effort have made the GOA pollock fishery increasingly difficult to manage, especially during the fourth quarter. The 1995 fourth quarter pollock season is a case in point. Based on anticipated fishing effort, 1995 fourth quarter pollock openings were set at 12 hours in area 610, 24 hours in area 620, and three days in area 630 respectively.[2] Nevertheless, substantial overharvest occurred in area 630 due to greater than anticipated fishing effort from vessels crossing over from the Bering Sea and western GOA. This management problem is most acute during the fourth quarter for two reasons. First, TAC allowances are frequently reduced in the fourth quarter to adjust for overharvest of TACs during the other three quarters. Second, effort is usually highest in the fourth quarter since vessels based in the Bering Sea are able to cross over to the W/C Regulatory Area for the fourth quarter pollock fishery after the September closure of the B season pollock fishery in the Bering Sea.

Finally, some participants in the GOA pollock fishery have requested the Council maintain concurrent GOA and Bering Sea pollock seasons to prevent preemption from the Bering Sea based fleet during GOA pollock

[2]Because regulations currently require that all openings and closures occur at 12:00 noon Alaska local time, NMFS was forced to implement a special inseason regulatory action to open area 610 for 12 hours because a 24 hour opening would have caused substantial overharvest of the remaining TAC.

openings. In 1995, the inshore sector pollock B season in the Bering Sea opened on August 15 and closed on September 23, one week before the fourth quarter opening in the W/C Regulatory Areas. As a result, inshore vessels based in the Bering Sea had both opportunity and incentive to crossover to the W/C Regulatory Areas to participate in the fourth quarter (October 1) opening since they were idled nearby with their crews available. This additional fishing effort exacerbated efforts to manage small releases of TACs in the W/C Regulatory Areas and led to substantial overharvest in area 630.

The FMP for the GOA currently requires that quarterly allowances be used for pollock in the W/C Regulatory Areas. The FMP must therefore be amended in order to implement the proposal under consideration. Section 4.2.1 (step 3) of the FMP states:

> The annual TAC established for pollock in the combined Central and Western Regulatory areas shall be divided into four equal quarterly allowances. Shortfalls or overages in one quarter's allowance shall be proportionately added to, or subtracted from the following quarters' allowances.

Amendment 45 to the FMP would replace Section 4.2.1(step 3) with the following language :

> The annual TAC established for pollock in the combined Western and Central Regulatory Areas shall be divided into seasonal allowances. Seasonal allowances of the pollock TAC will be established by regulation. The Council will consider the criteria described in Section 4.3.3 when recommending changes in seasonal allowances. Shortfalls or overages in one seasonal allowance shall be proportionately added to, or subtracted from, subsequent seasonal allowances.

When recommending Amendment 45 to the Secretary, the Council included a recommendation that the third and fourth quarterly allowances be combined through regulation with an opening date of October 1 in the Western Regulatory Area and an opening date of September 1 in the Central Regulatory Area.

## 1.2 Alternatives Considered

Two alternatives are developed for consideration.

**1.2.1 Alternative 1**. No Action. The pollock TAC in the W/C Regulatory Areas would continue to be released in four equal quarterly allowances.

**1.2.2 Alternative 2**. Amend the FMP to framework greater flexibility in setting seasonal allowances of pollock TACs, and combine by regulatory amendment the third and fourth quarterly allowances into a third seasonal allowance of 50 percent of TAC. The first and second quarterly allowances of 25 percent of TAC in the W/C Regulatory Areas would remain unchanged.

> Option 1. Establish a September 1 opening date for the third seasonal allowance. Analysis of this option was requested by the Council at the December 1995 meeting.
>
> Option 2. Establish a September 15 opening date for the third seasonal allowance. This option reflects the proposal submitted to the Council by representatives of the GOA pollock fishery.
>
> Option 3. Establish an October 1 opening date for the third seasonal allowance. This option was included at the request of an organization of catcher vessels that participate in both BSAI and GOA pollock fisheries.
>
> Option 4 (preferred). Establish an October 1 opening date for the third seasonal allowance in the Western Regulatory Area and a September 1 opening date for the third seasonal allowance in the Central Regulatory Area. This option was submitted at the January 1996 Council meeting and

represents a compromise proposal agreeable to both Bering Sea and central GOA-based processors and vessels.

## 1.3 Background

### 1.3.1 Management History

In 1989, the Council first considered a quarterly allowance system for pollock in the W/C Regulatory Areas as a possible measure to prevent roe stripping and preemption of the shorebased processing sector by the offshore factory trawler fleet. During the 1989 pollock roe season, several factory trawlers entered the GOA for the first time to participate in the pollock fishery. Due largely to the explosion of effort by these factory trawlers, the entire 1989 pollock TAC in the GOA was reached by early March. Prior to 1989, the pollock fishery in the GOA was primarily an inshore fishery and the TAC generally lasted into September. The unexpectedly rapid closure of the 1989 GOA pollock season generated widespread demands from the inshore sector that the Council and NMFS implement measures to prohibit roe stripping and slow down the fishery.

In addition to the roe stripping problem, the Council was concerned that rapid expansion into the GOA pollock roe fishery by factory trawlers would preempt the inshore sector because all of the available annual pollock TAC could be harvested by factory trawlers during the short roe season. The Council thought a quarterly allowance system would better distribute the harvest resulting in a more easily managed fishery and ensure that the inshore sector would have greater opportunity to harvest the pollock TAC. In December 1989, the Council recommended the Secretary issue emergency rules to prohibit roe stripping and divide the pollock TAC in the W/C Regulatory Areas into four equal quarterly allowances. Because insignificant amounts of pollock are harvested in the Eastern Regulatory Area, including that area in the quarterly allowance proposal was not considered necessary.

Rather than issue an emergency rule, NMFS instead chose to implement the quarterly allowance part of the Council's recommendation through an inseason adjustment of fishing seasons (55 FR 3233, January 31, 1990).[3] This inseason adjustment was implemented under authority of FMP section 4.2.4 and § 672.22 of the regulations which authorize NMFS to establish inseason adjustments in the fishery to prevent overfishing of groundfish stocks including pollock. NMFS considered quarterly allowances to be the least restrictive method of slowing down the fishery and preventing roe stripping. Specific language banning roe stripping and requiring a quarterly allowance system in the W/C Regulatory Areas was formally added to the FMP by the Council when it adopted Amendments 13 and 19 to the BSAI and GOA FMPs, respectively. Final regulations implementing Amendments 13 and 19 became effective January 1, 1991 (56 FR 492, January 7, 1991).

Because of a precipitous decline in population size, NMFS listed the Steller sea lion as threatened under the ESA on November 26, 1990 (55 FR 49204). Although the ultimate causes for the Steller sea lion decline are not well understood, researchers believe that the proximate cause of the decline is long-term reduced juvenile survival with episodes of acute declines in adult survival (NMFS 1995a). Change in prey availability appears to be the most likely cause of the decline in juvenile survival. The effects of reduced prey availability are expected to be most severe in fall and winter, and for juvenile sea lions which are less adept foragers.

Because of concerns that a pollock fishery concentrated in time and/or space could cause localized depletions of Steller sea lion prey, exacerbating the current decline, NMFS implemented management regulations to disperse spatially the GOA pollock fishery in 1991. Amendment 25 to the GOA FMP, which implemented a variety of sea lion protection measures, also required that the pollock TAC specified for the W/C Regulatory Areas be subdivided into three new management districts corresponding to the three

[3]NMFS did issue an emergency rule at about the same time to prohibit the actual practice of roe stripping through product retention standards.

statistical areas (610, 620, and 630) that compose the W/C Regulatory Areas (Figure 1).[4] The purpose of this action was to spread fishing effort over a wider area to preclude large amounts of the available TAC from being harvested in a small area. Amendment 25 to the GOA FMP also required that the pollock TAC specified for the W/C Regulatory Areas be divided among the statistical areas in amounts proportional to the distribution of pollock biomass observed during the most recent NMFS pollock stock assessment.

The original quarterly allocation system established by Amendment 19 also required that "any unharvested amount of a quarterly allowance or excessive harvests of a quarterly allowance, will be added to, or subtracted from, the subsequent quarters' allowances in equal proportions." To prevent excessive harvest in any one quarter, the regulations implementing Amendment 25 established a 150-percent limit on the level to which any quarterly allowance could be increased when adjusting for shortfalls in prior quarters. For example, if each initial quarterly allowance of pollock TAC in a management district is 10,000 mt, the maximum amount of any subsequent quarterly allowance resulting from the accumulations of pollock unharvested in previous quarters is 15,000 mt in that district. The purpose of this measure was to prevent excessive harvests of pollock in any quarter, which could temporarily reduce the amounts of food available for sea lions, or which could limit their feeding efficiency.

The issue of sector preemption in groundfish fisheries was addressed by the Council in 1991 when it adopted Amendments 18 and 23 (inshore/offshore) to the BSAI and GOA FMPs, respectively. Amendment 23 to the GOA FMP allocated 100 percent of the pollock TAC and 90 percent of the Pacific Cod TAC to the inshore sector. Amendment 23 therefore eliminated any concerns about preemption by the offshore sector in the pollock and cod fisheries of the GOA, but it did not address the issue of preemption by inshore vessels based in the Bering Sea that crossover to the GOA to participate in GOA openings.

In 1991, the Council received an exclusive area registration proposal designed to address the perceived problem of Bering Sea-based vessels preempting the generally smaller and less powerful vessels based in the GOA. These crossovers typically occurred during the GOA pollock openings which were not scheduled to be concurrent with BSAI pollock openings and after the halibut bycatch allowance specified for the BSAI Pacific cod trawl fishery was reached. This increase in effort in the GOA from Bering Sea-based vessels has also exacerbated inseason management problems. For example, the first quarter catch of pollock in the westernmost district (610) was 12,638 mt, exceeding the TAC by 7,808 mt. This overage was reportedly due to a large influx of effort from vessels crossing over to the GOA after completing the BSAI pollock roe season. Because of this unanticipated level of effort, NMFS was unable to close the season in time to avoid the TAC overrun.

In December 1992, the Council voted to establish exclusive registration for trawl vessels engaged in directed pollock fisheries but did not immediately forward the amendment to the Secretary for review. At its June 1993 meeting, the Council voted to rescind its earlier exclusive registration action, which pertained only to pollock, and to consider the issue in a more comprehensive context. Subsequent to the June 1993 meeting, an ad hoc industry group formed to review the preemption problem and to develop alternative management strategy proposals. That group, composed of representatives from all of the diverse segments of this domestic fishing sector, examined a range of alternative approaches. The group concluded, and the Council subsequently concurred, that a less burdensome option to the exclusive registration proposal would be a system to apportion TAC and bycatch among different gear types and target fisheries. A variety of regulations implementing changes in the apportionment of both halibut PSC and target species to different gear types and areas was subsequently recommended and implemented.

---

[4]The GOA is divided into both regulatory areas and statistical areas (Figure 1). Amendment 4 to the FMP, approved in 1979, reduced the number of regulatory areas from five to three (Western, Central and Eastern) for the purposes of specifying TACs of groundfish species. Prior to 1979, the GOA was managed using five regulatory/statistical areas defined by the International North Pacific Fisheries Commission (INPFC). While the three larger regulatory areas are used for most regulatory purposes such as specifying TAC, NMFS continues to use the five smaller INPFC statistical areas (610, 620, 630, 640 and 650) for monitoring and reporting purposes. In cases where the Council or NMFS have determined that regulatory areas are too large to adequately manage a specific stock or species, TACs have been further subdivided by statistical area as was the case with pollock in the W/C Regulatory Areas in 1991.

The GOA pollock fishery has evolved substantially since the quarterly allowance system was first implemented in 1990. Most significantly, Amendment 23 has completely excluded the offshore catcher processor fleet from participating in the GOA pollock fishery. Consequently, two of the primary reasons the Council adopted the quarterly allowance system in 1990--roe stripping and preemption by the offshore sector, are largely moot. Commercial fishery-Steller sea lion interaction management is now the most important rationale for subdividing the GOA pollock TAC by season and area.

### 1.3.2 Description of the Fishery

The biological and economic status of GOA groundfish fisheries are reviewed extensively in the Stock Assessment and Fisheries Evaluation reports prepared annually by the Gulf of Alaska Plan Team (NPFMC 1995). The TAC of pollock in the W/C Regulatory Areas has been fully used by the domestic fishery since 1988, after being harvested primarily by foreign fisheries through 1981, and then harvested primarily by joint venture fisheries through 1988. Since 1988, the TAC of pollock in the W/C Regulatory Areas has ranged from a high of 111,000 mt in 1993 to a low of 65,000 mt in 1995. In recent years, pollock abundance in the GOA has declined from the peak abundance levels of the early 1980s when the TAC peaked at 400,000 mt. The 1996 TAC has fallen to 52,000 mt (Table 1).

Since Amendment 23 (inshore/offshore) was passed in 1992, 100 percent of the pollock TAC in the W/C Regulatory Areas has been allocated to the inshore sector. Most GOA pollock landings are delivered to processors in Sand Point, King Cove, Kodiak, and Cordova. Some vessels also make deliveries of GOA-caught pollock to Bering Sea processors in Dutch Harbor and Akutan. Various combinations of surimi, roe, fillets, meal and head and gut products are produced. In 1994 the ex-vessel value of the pollock catch in the GOA was estimated at $17.2 million (Kinoshita, et al. 1995).

## 2.0 NEPA REQUIREMENTS: ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES

An environmental assessment (EA) is required by NEPA to determine whether the action considered will result in significant impact on the human environment. If the action is determined not to be significant based on an analysis of relevant considerations, the EA and resulting finding of no significant impact (FONSI) would be the final environmental documents required by NEPA. An environmental impact statement (EIS) must be prepared for major Federal actions significantly affecting the human environment.

An EA must include a brief discussion of the need for the proposal, the alternatives considered, the environmental impacts of the proposed action and the alternatives, and a list of document preparers. The purpose and alternatives were discussed in Sections 1.1 and 1.2, and the list of preparers is in Section 8. This section contains the discussion of the environmental impacts of the alternatives including impacts on threatened and endangered species and marine mammals.

### 2.1 Environmental Impacts of the Alternatives

The environmental impacts generally associated with fishery management actions are effects resulting from: (1) harvest of fish stocks which may result in changes in food availability to predators and scavengers, changes in the population structure of target fish stocks, and changes in the marine ecosystem community structure; (2) changes in the physical and biological structure of the marine environment as a result of fishing practices, e.g., effects of gear use and fish processing discards; and (3) entanglement/entrapment of non-target organisms in active or inactive fishing gear.

A summary of the effects of the annual groundfish total allowable catch amounts on the biological environment and associated impacts on marine mammals, seabirds, and other threatened or endangered species are discussed in the final EA for the annual groundfish total allowable catch specifications (NMFS 1995b).

#### 2.1.1 Salmon Conservation Issues

Chum Salmon. The high levels of "other" salmon[5] bycatch during the third quarter (July 1) pollock fishery is one of the identified problems with the quarterly allowance system (Table 2 and Figure 2). Observer data indicate that almost all salmon bycatch reported in the "other" salmon category are chum salmon (Table 3). In 1994, chum salmon made up 78.9 percent of the total salmon bycatch in W/C Regulatory Areas groundfish fisheries followed by chinook (18.9 percent), pink (0.7 percent), sockeye (0.2 percent) and coho (0.1 percent). No bycatch of steelhead was reported. Since 1991, "other" salmon bycatch rates in directed fishery for pollock in the W/C Regulatory Areas have averaged 500 percent higher during the third quarter fishery than the other three quarters (Figures 2 and 3 and Table 3). The estimated number of "other" salmon caught as bycatch during directed fishing for pollock in the W/C Regulatory Areas peaked at 59,076 during the 1993 third quarter opening.

The high levels of chum salmon bycatch during the July pollock fishery are likely due to the fact that chum salmon are schooling up offshore in July for runs that occur in July and August along the Alaska Peninsula, central Alaska and Southeast Alaska. As a consequence, chum salmon are more susceptible to incidental capture by the pollock trawl fishery in July than other quarters (Dahlberg pers. comm.).

Numerous studies indicate that the peaks of chum salmon runs along the Gulf of Alaska occur in July and early August. Small runs of chum salmon enter numerous streams of the Alaska Peninsula in July and August, especially on the south side of the peninsula. At the same time, substantial runs occur on the north

[5]Chinook salmon is the only species of Pacific salmon separately reported for the purposes of inseason monitoring of salmon bycatch in Alaska groundfish fisheries. All other salmonid species (chum, coho, sockeye, pink and steelhead) are grouped and reported as the category "other" salmon.

side of Kodiak Island and lesser runs on the south side (Holmes 1982, Salo 1991). In central Alaska, a substantial run of chum salmon occurs in the Susitna River and in about fifteen short streams along the northern portion of Cook Inlet. The peaks of the runs are primarily in late July. In southern Cook Inlet, the runs occur in July and August in the Kenai River and in streams north of Kachemak Bay to Resurrection Bay. Numerous runs enter Prince William Sound destined for Port Wells, the Valdez Arm, and Port Fidalgo areas (Salo, 1991). For chum salmon native to southeastern Alaska, the peak of nearshore abundance was established for 1984, as the first two weeks in August (Clark and Weller 1986, Salo 1991).

Any of the opening date options under Alternative 2 could dramatically decrease "other" salmon bycatch rates because the July pollock fishery would be delayed until at least September, after the spawning period for chum salmon has passed. To the extent that chum salmon bycatch in the pollock trawl fishery is related to the aggregation of spawning chum salmon stocks, chum salmon may be most susceptible to incidental capture by the pollock fishery during the weeks preceding peak run abundance when the fish are aggregating offshore. Because there has never been a domestic pollock trawl fishery conducted in September in the W/C Regulatory Areas, there are no bycatch data available that can be used to directly predict what chum salmon bycatch rates would be during a September fishery. However, because the bulk of chum salmon runs in Alaska occur between July and early August, any pollock trawl fishery conducted after mid-August would be expected to avoid the bulk of spawning chum salmon stocks. During 1995, an estimated 46,033 "other" salmon were taken in the third quarter W/C Regulatory Area pollock fishery and an estimated 9,326 "other" salmon were taken in the fourth quarter W/C Regulatory Area pollock opening.

Chinook Salmon. Chinook bycatch numbers peaked at 6,601 during the 1993 fourth quarter W/C Regulatory Area pollock opening and have declined to less than 2,000 per quarter in 1995. Unlike chum salmon bycatch, which is strikingly higher during July and appears to be associated with spawning stocks aggregating for July and August runs, chinook salmon bycatch does not appear to fluctuate as dramatically on a seasonal basis. Chinook salmon bycatch rates tend to be lowest during the second and third quarter openings (Table 2 and Figure 3).

Despite the many extensive and intensive investigations that have been conducted, information on the ocean migratory and seasonal distribution patterns of chinook salmon in the North Pacific is still very sketchy. Because, feeding populations of chinook salmon are known to be widely distributed throughout the North Pacific in relatively low numbers, it is difficult to predict when and where they will occur as bycatch in trawl fisheries (Dahlberg pers. comm).

Chinook salmon are the deepest swimming species of Pacific salmon. Healey (1991) reports on several studies which indicate that the depth distribution of chinook salmon may vary by season with deeper average depths during the fall and winter months. The tendency of chinook salmon to swim deeper in the water column during the fall and winter months may make them more susceptible to incidental capture by the trawl fleet during those months. In addition, the first and fourth quarter pollock fishery may be conducted further offshore and in deeper water which may account for the apparent higher chinook salmon bycatch rates during those quarters (Dahlberg pers. comm.).

Because there is no history of domestic pollock fishing in the GOA during the month of September, there are no data that can be used to predict the effects of September 1 or September 15 opening dates on chinook salmon bycatch. Chinook salmon bycatch (unlike chum salmon bycatch) does not appear to be associated with aggregating spawning stocks. Therefore, it is more difficult to predict the effects of seasonal shifts in fishing effort on chinook salmon bycatch rates. Nevertheless, under all the opening date options under both alternatives, the total bycatch of chinook salmon in the W/C Regulatory Area pollock fishery is expected to remain low because the total numbers of chinook salmon taken as bycatch in recent years are very low in both the third and fourth quarter openings. For example, in 1995, an estimated 482 chinook salmon were taken in the third quarter W/C Regulatory Area pollock fishery and an estimated 1,137 chinook salmon were taken in the fourth quarter W/C Regulatory Area pollock opening. The decline in the W/C Regulatory Area pollock TAC from 62,000 mt in 1995 to 52,000 mt in 1996 may further lower the number of chinook salmon taken in the pollock trawl fishery if chinook salmon bycatch rates remain stable or continue to decline.

### 2.1.2 Pollock Conservation Issues

One of the original reasons for dividing the pollock TAC in the W/C Regulatory Areas into quarterly allowances was to promote conservation of pollock resources and prevent overfishing. The Council considered the possibility that high levels of effort during a roe fishery could lead to overfishing and that concentrated harvest of roe bearing female pollock could adversely affect the health of pollock stocks. However, neither alternative would increase harvest levels during the roe season and would not be expected to increase the percentage of roe bearing female pollock being harvested. Furthermore, under the status quo some potential for overharvest exists given that the TAC is available through 12 small releases (3 areas by 4 seasons). Some aggregation of releases under Alternative 2 may, therefore, be a more conservative pollock management measure.

## 2.2 Impacts on Endangered, Threatened or Candidate Species

Species listed as endangered or threatened under the ESA that may be present in the GOA and BSAI include:

ENDANGERED

| | |
|---|---|
| Northern right whale | *Balaena glacialis* |
| Sei whale | *Balaenoptera borealis* |
| Blue whale | *Balaenoptera musculus* |
| Fin whale | *Baleanoptera physalus* |
| Humpback whale | *Megaptera novaeangliae* |
| Sperm whale | *Physeter macrocephalus* |
| Snake River sockeye salmon | *Oncorhynchus nerka* |
| Short-tailed albatross | *Diomedea albatrus* |

THREATENED

| | |
|---|---|
| Steller sea lion | *Eumetopias jubatus* |
| Snake R. spring and summer chinook salmon | *Oncorhynchus tshawytscha* |
| Snake R. fall chinook salmon | *Oncorhynchus tshawytscha* |
| Spectacled eider | *Somateria fischeri* |

CANDIDATE

| | |
|---|---|
| Steller's eider | *Polysticta stelleri* |

The impact of GOA groundfish fisheries on listed marine mammals was addressed in a formal consultation pursuant to section 7 of the ESA that culminated in a biological opinion dated April 19, 1991; NMFS concluded that the GOA groundfish fisheries were not likely to adversely affect listed cetaceans or to jeopardize the continued existence or recovery of Steller sea lions. NMFS determined that section 7 consultation should be reinitiated for Steller sea lions if any proposed change in the GOA fishery was likely to adversely affect them, if new information regarding the effects of the fishery on Steller sea lions was obtained, or if there was a change in the status of sea lions. Since April 1991, NMFS has reinitiated section 7 consultation for several GOA regulatory amendments (e.g., inshore/offshore) and for the annual total allowable catch specifications.

Endangered, threatened and candidate species of seabirds that may be found within the regions of the GOA and BSAI where the groundfish fisheries operate, and potential impacts of the groundfish fisheries on these

species are discussed in the EA prepared for the TAC specifications. The U.S. Fish and Wildlife Service (USFWS), in consultation on the 1995 specifications, concluded that groundfish operations will not jeopardize the continued existence of the short-tailed albatross (letter, Rappoport to Pennoyer, February 7, 1995). The action is not expected to affect threatened or endangered seabird species in any manner or extent not already addressed under previous consultations

Neither alternative is expected to have a significant impact on endangered, threatened, or candidate species. Neither alternative would modify the pollock harvest thresholds that have been established for reinitiating section 7 consultation. However, Alternative 2 would elicit a change in the temporal distribution of fishing effort that could affect the availability of pollock for Steller sea lions and bycatch rates for chinook salmon. The possible effects of such a shift on Steller sea lions and ESA-listed salmon stocks are discussed below.

### 2.2.1 Steller Sea Lions

Section 7 consultation has been reinitiated to evaluate the effects of Alternative 2--combining the third and fourth quarter pollock allowances into one season opening either September 1, September 15 or October 1. A combination of quarterly allowances is generally inconsistent with prior efforts to disperse the pollock harvest temporally. However, with the anticipated low 1996 pollock TAC (about 52,000 mt) the actual difference between three and four seasonal allocations is equivocal. Under a quarterly allocation system (TAC divided into 3 areas by 4 seasons), pollock could be overharvested because the resulting small allocations are difficult to manage. With three seasonal allocations instead of four, the risk of TAC overruns is lower (particularly in the last release). Alternative 2 may therefore be a more conservative measure for sea lions. An earlier opening date for the combined third and fourth quarter allowance may be preferable because it would distance the fishery from the critical winter period. Overall, none of the proposed alternatives would adversely affect Steller sea lions.

### 2.2.2 ESA-Listed Salmon

Formal consultation conducted on effects of the GOA and BSAI groundfish fisheries concluded that the continued operation of these fisheries would not jeopardize listed species of salmon as long as current observer coverage levels continued and salmon bycatch was monitored and NMFS takes necessary actions to ensure that the bycatch is minimized to the extent possible and in any case does not exceed 55,000 chinook per year in the BSAI fisheries or 40,000 chinook salmon per year in the GOA fisheries (NMFS 1995c). Neither alternative is expected to cause the groundfish fisheries of the GOA to exceed these salmon bycatch levels.

## 2.3 Impacts on Marine Mammals

Marine mammals not listed under the Endangered Species Act that may be present in the GOA and BSAI include cetaceans, (minke whale (*Balaenoptera acutorostrata*), killer whale (*Orcinus orca*), Dall's porpoise (*Phocoenoides dalli*), harbor porpoise (*Phocoena phocoena*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), and the beaked whales (e.g., *Berardius bairdii* and *Mesoplodon spp.*)) as well as pinnipeds (northern fur seals (*Callorhinus ursinus*), and Pacific harbor seals (*Phoca vitulina*)) and the sea otter (*Enhydra lutris*).

A list of marine mammal species and detailed discussion regarding life history and potential impacts of the 1995 groundfish fisheries of the BSAI and GOA on these species can be found in the EA prepared for the 1995 Total Allowable Catch Specifications for Groundfish (NMFS 1995b). Neither alternative would be expected to adversely affect marine mammals.

## 2.4 Coastal Zone Management Act

Implementation of the preferred alternative would be conducted in a manner consistent, to the maximum extent practicable, with the Alaska Coastal Management Program within the meaning of section 30(c)(1) of the Coastal Zone Management Act of 1972 and its implementing regulations.

## 2.5 Finding of No Significant Impact

Neither alternative is likely to affect significantly the quality of the human environment, and the preparation of an environmental impact statement for the proposed action is not required by section 102(2)(C) of the National Environmental Policy Act or its implementing regulations.

## 3.0 REGULATORY IMPACT REVIEW: ECONOMIC AND SOCIOECONOMIC IMPACTS OF THE ALTERNATIVES

This section provides information about the economic and socioeconomic impacts of the alternatives including identification of the individuals or groups that may be affected by the action, the nature of these impacts, quantification of the economic impacts if possible, and discussion of the trade offs between qualitative and quantitative benefits and costs.

The requirements for all regulatory actions specified in E.O. 12866 are summarized in the following statement from the order:

> In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider. Further, in choosing among alternative regulatory approaches, agencies should select those approaches that maximize net benefits (including potential economic, environment, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

This section also addresses the requirements of both E.O. 12866 and the Regulatory Flexibility Act to provide adequate information to determine whether an action is "significant" under E.O. 12866 or will result in "significant" impacts on small entities under the RFA.

E. O. 12866 requires that the Office of Management and Budget review proposed regulatory programs that are considered to be "significant". A "significant regulatory action" is one that is likely to:

1. Have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

2. Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

3. Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

4. Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the Principles set forth in this Executive Order.

A regulatory program is "economically significant" if it is likely to result in the effects described above. The RIR is designed to provide information to determine whether the proposed regulation is likely to be "economically significant."

A description of the purpose and need for the action and alternatives were considered to address these problems were included in section 1. The economic and socioeconomic impacts of these alternatives are discussed in this section.

Regulations increase some costs, decrease others, and cause a redistribution of costs and benefits. The alternatives are expected to have different effects both on net benefits to the Nation and on the distribution of those benefits. Neither alternative is expected to have an annual effect of $100 million.

Neither alternative is expected to cause a significant change in the prices paid by consumers, local governments, or geographic regions because the total supply of pollock is not expected to be measurably affected. Alternative 2 may result in a minor increase in the total supply of pollock products if the expected

reduction in effort during the last allowance permits fishery managers to more closely reach the TAC. In addition, industry sources have suggested that a September fishery may provide higher quality pollock than a July fishery. If product recovery rates increase during a September fishery, minor increases in the total supply of pollock products would be expected.

Under the status quo alternative, continued increases in fishing effort and lower TACs may prevent fishery managers from even opening the fourth quarter fishery because overharvest could occur in a matter of hours. In any case, attributable benefits would not be expected to affect groundfish markets and prices significantly. Costs of management and enforcement are not anticipated to change substantially.

Neither alternative is expected to have any adverse effects on state, local or tribal governments. Both alternatives under consideration would be expected to have some impacts, both positive and negative, on communities, which either depend upon or service the pollock trawl fleets that operate in the GOA. These impacts are addressed below.

### 3.1 Current Participation Patterns in the W/C Regulatory Area Pollock Fishery

To understand the potential economic and socioeconomic impacts of any proposed changes in the allowance system for pollock TAC in the W/C Regulatory Areas, the current pattern of participation in the fishery must first be understood. Seventeen shoreside pollock processors and two inshore-sector floating pollock processor vessels are located in Alaska. All but one of these have processed pollock caught in the W/C Regulatory Areas since 1994. In the central and eastern GOA, shoreside pollock processors are located in Cordova and Kodiak. In the western GOA, shoreside pollock processors are located in King Cove and Sand Point. In the Bering Sea, shoreside pollock processors are located in Dutch Harbor/Unalaska and Akutan, and floating processor vessels are located in Beaver Inlet.

The Alaska inshore pollock processing sector can logically be grouped into three general categories reflecting location and primary source of pollock. Table 4 lists the percentage of pollock harvested by area for inshore processors grouped by location. First, central/eastern GOA processors located in Kodiak and Cordova receive over 99 percent of their pollock from the GOA. Second, western GOA processors located in King Cove and Sand Point process substantial quantities of pollock harvested from both the BSAI and GOA. Finally the Bering Sea processors located in Dutch Harbor/Unalaska, Akutan and Beaver Inlet receive over 95 percent of their pollock from the BSAI area. For the purpose of this analysis, these three groups of processors will be used.

The source of pollock for inshore processors in the BSAI and GOA area also varies greatly by season. Figures 4-6 illustrate the total catch of pollock by week for BSAI, Western GOA, and Central/Eastern GOA processors.

Central/Eastern GOA Processors. Vessels delivering to shoreside processors located in the central/eastern GOA harvest over 99 percent of their pollock during the four discrete W/C Regulatory Area openings (Table 4). The only instances of reported catch from the BSAI area occurred in September and were likely from vessels in transit to the GOA during the period between the BSAI B season closure and the W/C Regulatory Area fourth quarter opening (Figure 4). These central/eastern GOA processors, if they wish to process pollock, are clearly dependent upon the W/C Regulatory Areas because they are located too far from the BSAI to process fish caught in that area. Both the total catch per quarter and the percentage of W/C Regulatory Area TAC harvested by this group appears to be declining since the first quarter of 1994 (Figure 7).

Western GOA Processors. Vessels delivering to shoreside processors located in Sand Point and King Cove participate heavily in both BSAI and W/C Regulatory Area pollock openings. Industry sources indicate that the larger vessels based in the western Gulf tend to participate in both BSAI and GOA openings while the smaller vessels (primarily converted limit seiners) tend to restrict their pollock fishing to the GOA. Thus, two discrete fleets may be delivering pollock to western GOA processors. Overall, vessels delivering to western GOA processors harvest more pollock in the W/C Regulatory Areas during the first quarter than any

other quarter (Figures 4 and 7). The percentage of W/C Regulatory Area TAC harvested per quarter by this group fluctuates widely but appears to be increasing (Figure 7).

Bering Sea Processors. Vessels delivering to shoreside processors located in Dutch Harbor/Unalaska and Akutan and floating processor vessels located in Beaver Inlet harvest over 95 percent of their pollock from the BSAI area (Table 4). Vessels delivering to processors in this area rarely operate in the GOA when pollock fisheries are open in the BSAI (Figure 6). In fact, when Bering Sea processors report deliveries from both the BSAI and GOA during the same week it usually means that one area has closed and the other opened during the same reporting week. Almost all of the W/C Regulatory Area pollock caught by vessels delivering to Bering Sea processors is harvested during the second, third and fourth quarters when directed fishing for pollock in the BSAI is closed (Figure 7). Despite a decline in the W/C Regulatory Area TAC, vessels delivering to Bering Sea processors have increased their total catch of pollock from that area between since 1994. In addition, the percentage of W/C Regulatory Area TAC harvested by these vessels appears to be increasing.

## 3.2 Economic and Socioeconomic impacts of the Alternatives

### 3.2.1 Alternative 1: Status Quo or "No Action"

Under Alternative 1, the pollock TAC in the W/C Regulatory Areas would continue to be released in four equal quarterly allowances. Under this alternative, a significant and increasing percentage of W/C Regulatory Area pollock would be expected to be harvested by vessels delivering to Bering Sea and western GOA processors because the second, third and fourth quarterly openings would continue to occur when BSAI area pollock fisheries are closed. Any increase in catch of W/C Regulatory Area pollock by vessels delivering to Bering Sea and western GOA processors would be at the expense of processors located in Kodiak and Cordova who have no other source of pollock.

### 3.2.2 Alternative 2: Combined Third and Fourth Quarterly Allowances

Alternative 2 would amend the FMP to framework greater flexibility in setting seasonal allowances of pollock TAC, and combine by regulatory amendment the third and fourth quarterly allowances into a single release of 50 percent of the TAC. The first and second quarter allowances of 25 percent of the pollock TAC in the W/C Regulatory Areas would remain unchanged.

Alternative 2 could also result in lower operating costs for both vessels and processors that participate in W/C Regulatory Area pollock openings since the fishery would be reduced from four to three openings per year. Vessels and processors necessarily incur fuel, transportation and labor costs when entering each quarterly pollock opening. These costs may include resources expended traversing to the fishing grounds and prospecting for pollock, costs expended to transport processing and fishing crews to vessels and plants, and costs associated with preparing fishing and processing equipment for pollock.

Option 1. This option would establish a September 1 release date for the combined third and fourth quarter allowance. Under Option 1, the percentage of W/C Regulatory Area pollock harvested by vessels delivering to central/eastern GOA (Kodiak and Cordova) processors would be expected to increase. This increase would be expected because the third and fourth quarter openings in the W/C Regulatory Areas would occur concurrent with the BSAI B season opening. Bering Sea-based vessels typically prefer to fish in the BSAI when both the GOA and BSAI are open to directed fishing for pollock.

Vessels based in the Bering Sea harvested 7,406 mt of W/C Regulatory Area pollock during the third and fourth quarter openings in 1994 and 8,629 mt of W/C Regulatory Area pollock during the third and fourth quarter openings in 1995 with exvessel values (using 1994 prices) of $1.21 million and $1.41 million, respectively. Under Option 1, much or all of the W/C Regulatory Area third and fourth quarter pollock harvested by Bering Sea-based vessels could instead be taken by vessels delivering to western and central/eastern GOA processors. Because Bering Sea-based vessels rarely choose to fish for pollock in the

GOA when directed fishing for pollock is open in the BSAI, Option 1 is expected to cause a significant drop in participation by Bering Sea-based vessels.

Option 2. This option would establish a September 15 release date for the combined third and fourth quarter allowance. Under both Option 1 and Option 2, the W/C Regulatory Area pollock fishery would be scheduled concurrent with the B season pollock fishery in the BSAI. Therefore, the economic effects of Option 1 and Option 2 are expected to be identical. Under Option 2, much or all of the W/C Regulatory Area third and fourth quarter pollock harvested by Bering Sea-based vessels could instead be taken by vessels delivering to western and central/eastern GOA processors.

Option 3. This option would establish an October 1 release date for the combined third and fourth quarter allowance. Under this option, the percentage distribution of pollock between central/eastern GOA, western GOA and Bering Sea processors would not be expected to change substantially from the status quo. This is because both the second quarter and combined third and fourth quarter openings in the W/C Regulatory Areas would continue to occur during periods when directed fishing for pollock is closed in the BSAI. In fact a greater percentage of W/C Regulatory Area pollock could be caught by Bering Sea-based vessels if the larger combined third and fourth quarter allowance provides greater incentive for them to crossover to the W/C Regulatory Areas.

Option 4 (preferred). This option would establish an October 1 opening date for the Western Regulatory Area combined third and fourth quarter allowance and a September 1 opening date for the Central Regulatory Area combined third and fourth quarter allowance. Under this option, the percentage distribution of Western Regulatory Area pollock between central/eastern GOA, western GOA and Bering Sea processors would not be expected to change substantially from the status quo. This is because the second quarter and combined third and fourth quarter openings in the Western Regulatory Area would continue to occur during periods when directed fishing for pollock is closed in the BSAI. However, because the combined third and fourth quarter allowance in the Central Regulatory area would be released on September 1, there is no longer any economic incentive for vessels that prefer to operate in the Bering Sea to crossover to the Central Regulatory Area for this opening. Consequently, there may be some increase in the percentage of Central Regulatory Area pollock taken by vessels based in the Central Regulatory Area.

## 4.0 REGULATORY FLEXIBILITY ANALYSIS

The objective of the Regulatory Flexibility Act is to require consideration of the capacity of those affected by regulations to bear the direct and indirect costs of regulation. If an action will have a significant impact on a substantial number of small entities an Initial Regulatory Flexibility Analysis (IRFA) must be prepared to identify the need for the action, alternatives, potential costs and benefits of the action, the distribution of these impacts, and a determination of net benefits.

NMFS has defined all fish-harvesting or hatchery businesses that are independently owned and operated, not dominant in their field of operation, with annual receipts not in excess of $2,000,000 as small businesses. In addition, seafood processors with 500 employees or fewer, wholesale industry members with 100 employees or fewer, not-for-profit enterprises, and government jurisdictions with a population of 50,000 or less are considered small entities. A "substantial number" of small entities would generally be 20 percent of the total universe of small entities affected by the regulation. A regulation would have a "significant impact" on these small entities if it reduced annual gross revenues by more than 5 percent, increased total costs of production by more than 5 percent, or resulted in compliance costs for small entities that are at least 10 percent higher than compliance costs as a percent of sales for large entities.

If an action is determined to affect a substantial number of small entities, the analysis must include:

1. A description and estimate of the number of small entities and total number of entities in a particular affected sector, and total number of small entities affected; and

. analysis of economic impact on small entities, including direct and indirect compliance costs, burden of completing paperwork or recordkeeping requirements, effect on the competitive position of small entities, effect on the small entity's cashflow and liquidity, and ability of small entities to remain in the market.

### 4.1 Economic Impacts of Alternative 1 on Small Entities

None of the processing plants affected by the proposal are considered small entities under the definition used by NMFS pursuant to the RFA. However, many independently owned catcher vessels delivering to these plants are considered small entities. In 1995, approximately 62 percent of the groundfish trawlers operating in the GOA participated in the W/C Regulatory Area pollock fishery.[6]

Under Alternative 1, fourth quarter TACs could continue to decline to the point that it is no longer possible to effectively manage a fourth quarter fishery. If this occurs, and NMFS finds it impossible to open a fourth quarter fishery without causing significant overharvest of the TAC, then all processors and vessels participating in the W/C Regulatory Area pollock fishery would face the loss of fourth quarter income. Such a closure of the fourth quarter fishery would affect a substantial number of small entities. However, such a closure would only occur if the remaining TAC for the fourth quarter was extremely small and/or if effort was projected to be very high. Under such conditions, the economic impacts of such a closure on individual small entities would not be considered significant.

### 4.2 Economic Impacts of Alternative 2 on Small Entities

As discussed in Section 3, the overall economic impacts of Alternative 2 are expected to be positive. Some of the expected benefits of Alternative 2, such as more efficient scheduling of annual processing activities, would accrue primarily to processors rather than vessels. However, the cost savings associated with reducing the number of openings to three instead of four would accrue to vessels as well as processors. Vessels based

[6]According to 1995 Alaska Department of Fish and Game fish ticket data, 109 trawlers participated in directed fishing for pollock in the W/C Regulatory Areas out of a total of 176 trawlers operating in the GOA.

in the Bering Sea could face a loss of income since they will no longer have the opportunity to participate fully in both BSAI and GOA pollock fisheries. However, any losses to vessels based in the Bering Sea will be offset by gains to vessels based in the GOA. Because the overall economic impacts of Alternative 2 are expected to be positive, this alternative would not cause a significant economic impact on a substantial number of small entities.

## 5.0 SUMMARY AND CONCLUSIONS

The need for the proposed action was identified at the September 1995 Council meeting in a proposal submitted by representatives of the GOA pollock fishery. The proposal under consideration to combine the third and fourth quarter pollock allowances in the W/C Regulatory Areas of the GOA is intended to result in four types of management improvements: (1) A reduction in chum salmon bycatch which has been excessively high in recent years during the third quarter (July 1) opening, (2) a reduction in conflicts with salmon processing which peaks for GOA processors in July, (3) a reduction in the potential for harvest overruns and other difficulties associated with managing extremely short fourth quarter openings, and (4) a reduction in fishing effort through elimination of the economic incentive for Bering Sea-based vessels to crossover and participate in GOA pollock openings.

Because the FMP for the GOA groundfish fishery is very specific with respect to the manner that seasonal allowances of pollock TAC in the W/C Regulatory Areas must be made, an FMP amendment is required before any changes in the quarterly allowance system can be made. An FMP amendment that frameworks greater flexibility in setting seasonal allowances of pollock TAC would allow the Council to recommend the Secretary implement the proposal through regulation while retaining for the Council the flexibility to recommend additional future changes in the seasonal allowance system as necessary.

Two alternatives were evaluated. Alternative 1 is the "No Action" or status quo option, required by NEPA and E.O. 12866. Alternative 2 is the proposal submitted by representatives of GOA processors and would combine the third and fourth quarterly allowances into a single allowance. Three release date options were considered under Alternative 2; September 1, September 15 and October 1.

A review of the environmental impacts of the alternatives reveals that Alternative 2 would be expected to substantially reduce "other" salmon bycatch by delaying the July pollock fishery. None of the options will adversely affect Steller sea lions however, an earlier opening date for the combined third and fourth quarter allowance may be preferable because would shift the pollock harvest further away from the critical winter feeding period for Steller sea lions.

A review of the economic and socioeconomic impacts of the alternatives reveals that Alternative 2 would likely reduce operating costs for vessels and processors through reduction in the number of openings and increase the value of the pollock to industry by shifting the fishery to the fall when pollock are fatter. Both Options 1 and 2 would be expected to increase the percentage of W/C Regulatory Area pollock TAC harvested by central/eastern GOA-based vessels. This result is expected because scheduling the combined third and fourth quarter opening in the W/C Regulatory Areas to be concurrent with the BSAI pollock B Season, and would eliminate the incentive for Bering Sea-based vessels to crossover to the GOA. Options 3 and 4 would not be expected to significantly change the current percentages of W/C Regulatory Area pollock harvested by vessels based in the Bering Sea, western GOA and central/eastern GOA, respectively. The actual extent to which any option would shift the percentage of W/C Regulatory Area pollock TAC between vessels and processors based in different areas is an empirical question that can be quantitatively answered only after the regulatory change is implemented and the sectors have the opportunity to adjust to the new management regime.

Alternative 2 would be expected to ease the problems associated with managing extremely short openings or small amounts of TAC. The burden on management agencies would automatically be reduced to some extent by the elimination of one opening date. In addition, the difficulty associated with managing the short openings and small remaining TACS that typically occur in the fourth quarter would be eased by providing for 50 percent of the TAC to be released in the final seasonal opening under Alternative 2. Options 1 and 2 may be preferable from a management perspective since scheduling the combined third and fourth quarter openings in the W/C Regulatory Areas to be concurrent with the BSAI B season opening is expected to decrease effort in the GOA and result in a more easily managed fishery. The lower levels of effort expected under Option 1 and 2 will also reduce the possibility that overharvests will occur because NMFS will have more time to respond to unexpected changes in fishing effort or harvest rates.

## 6.0 REFERENCES


Clark, J.E., and J.L. Weller. 1986. Age, sex, and size of chum salmon (*Oncorynchus keta Walbaum*) from catches and escapements in southeastern Alaska, 1984. Alaska Deptarment of Fish and Game (ADF&G) Tech. Data Rep. 168:288 p.

Fish and Wildlife Service. 1995. Letter from Rappoport to Pennoyer, February 7.

Healey, M.C. 1991. Life History of Chinook Salmon (*Oncorynchus tshawytscha*). in C. Groot and L. Margolis (eds.) *Pacific Salmon Life Histories*. Vancouver, B.C: UBC Press.

Holmes, P.B. 1982. Aleutian Islands Salmon Stock Assessment Study. Special report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Anchorage, AK 83 p.

Kinoshita, R.K., A. Grieg and J.M. Terry. 1995. Economic Status of the Groundfish Fisheries off Alaska, 1994. NMFS-Alaska Fisheries Science Center, REFM Division, 7600 Sand Point Way NE, Seattle, WA 98115.

Narita, R., M. Guttormsen, J. Gharrett, G. Tromble, and J. Berger. 1994. Summary of observer sampling of domestic groundfish fisheries in the northeast Pacific Ocean and eastern Bering Sea, 1991. Alaska Fisheries Science Center, NOAA Tech. Memo. NMFS-AFSC-48, 540 p.

National Marine Fisheries Service (NMFS). 1990. EA/RIR/IRFA for Amendment 19 to the Fishery Management Plan for Groundfish of the Gulf of Alaska and Amendment 14 to the Fishery Management Plan for Groundfish of the Bering Sea/Aleutian Islands. North Pacific Fishery Management Council, 605 West 4th. Ave., Anchorage, AK 99510.

National Marine Fisheries Service (NMFS). 1995a. Status Review of the United States Steller Sea Lion (*Eumetopias jubatus*)Population Prepared by NMFS, National Marine Mammal Laboratory, Seattle, WA. 51 pp.

National Marine Fisheries Service (NMFS). 1995b. Final Environmental Assessment for 1995 Groundfish Total Allowable Catch Specifications. NMFS-Alaska Region, PO Box 21668, Juneau, AK 99802-1668.

National Marine Fisheries Service (NMFS). 1995c. Biological Opinion on Groundfish Fisheries Conducted Under the BSAI and GOA FMPs of the NPFMC. December 7.

North Pacific Fishery Management Council (NPFMC). 1992. EA/RIR/IRFA for the Exclusive Area Registration Proposal in the Bering Sea/Aleutian Islands and the Gulf of Alaska. Prepared by the Institute of Social and Economic Research, University of Alaska Anchorage and NMFS for NPFMC, 605 West 4th Ave., Anchorage, AK 99510.

North Pacific Fishery Management Council (NPFMC). 1995. Preliminary Stock Assessment and Fisheries Evaluation Report for the Groundfish Resources of the Gulf of Alaska as Projected for 1996. NPFMC, 605 West 4th Ave., Anchorage, AK 99510.

Salo, E.O. 1991. Life History of Chum Salmon (*Oncorhynchus keta*). in C. Groot and L. Margolis (eds.) *Pacific Salmon Life Histories*. Vancouver, B.C: UBC Press.

## 7.0 AGENCIES AND INDIVIDUALS CONSULTED

Dave Ackley
Alaska State Department of Fish and Game
Commercial Fisheries Management and Development
Juneau, AK

Chris Blackburn
Alaska Groundfish Data Bank
Kodiak, AK

Dr. Michael Dahlberg
NMFS-Auke Bay Laboratory
Juneau, AK

Russ Kappenman
Alaska Fisheries Science Center
Seattle, WA

Sue Mello
NMFS-Protected Resources Division
Juneau, AK

Tom Pearson
NMFS-Kodiak Field Office
Kodiak, AK

## 8.0 LIST OF PREPARERS

Kent Lind
NMFS-Alaska Region
Fisheries Management Division
P.O. Box 21668
Juneau, AK 99802-1668

Table 1. Pollock TAC and landed catch (1,000 mt) in the W/C Regulatory Area of the Gulf of Alaska, 1977-1996.

| *Year* | *TAC** | *Landed Catch* |
|---|---|---|
| 1977 | 118.0* | 112.3 |
| 1978 | 168.0* | 95.8 |
| 1979 | 168.0* | 99.8 |
| 1980 | 168.0* | 110.4 |
| 1981 | 168.0* | 139.2 |
| 1983 | 256.6* | 215.5 |
| 1984 | 400.0 | 306.7 |
| 1985 | 305.0 | 284.8 |
| 1986 | 150.0 | 93.6 |
| 1987 | 104.0 | 69.5 |
| 1988 | 90.0 | 69.6 |
| 1989 | 72.0 | 78.2 |
| 1990 | 70.0 | 90.5 |
| 1991 | 100.0 | 107.5 |
| 1992 | 84.0 | 93.9 |
| 1993 | 110.4 | 108.2 |
| 1994 | 102.0 | 104.5 |
| 1995 | 62.0 | 67.3 |
| 1996 | 52.0 | |

*Gulf-wide TAC from 1977-1983

Source: NPFMC 1995.

Table 2. Total chinook salmon and "other" salmon bycatch (expressed as number of individuals and individuals per metric ton) during directed fishing for pollock in the W/C Regulatory Area of the Gulf of Alaska, 1991-1995.

| *Year and Quarter* | *Chinook Salmon* | | *"Other" Salmon* | |
|---|---|---|---|---|
| | *numbers* | *rate (per mt)* | *numbers* | *rate (per mt)* |
| 19911st Quarter | 3,333 | 0.152 | 95 | 0.004 |
| 2nd Quarter | 579 | 0.063 | 1,157 | 0.125 |
| 3rd Quarter | 1,664 | 0.036 | 11,525 | 0.250 |
| 4th Quarter | 2,849 | 0.118 | 277 | 0.012 |
| 19921st Quarter | 4,952 | 0.166 | 18 | 0.001 |
| 2nd Quarter | 627 | 0.038 | 406 | 0.024 |
| 3rd Quarter | 831 | 0.043 | 5,790 | 0.302 |
| 4th Quarter | 1,807 | 0.091 | 558 | 0.028 |
| 19931st Quarter | 6,601 | 0.232 | 11,378 | 0.400 |
| 2nd Quarter | 1,114 | 0.040 | 5,349 | 0.194 |
| 3rd Quarter | 1,616 | 0.051 | 59,076 | 1.869 |
| 4th Quarter | 4,149 | 0.182 | 7,481 | 0.329 |
| 19941st Quarter | 3,837 | 0.120 | 7,793 | 0.243 |
| 2nd Quarter | 1,484 | 0.073 | 7,496 | 0.366 |
| 3rd Quarter | 671 | 0.027 | 19,120 | 0.765 |
| 4th Quarter | 1,578 | 0.063 | 5,306 | 0.213 |
| 19951st Quarter | 1,065 | 0.054 | 159 | 0.008 |
| 2nd Quarter | 1,861 | 0.135 | 9,934 | 0.722 |
| 3rd Quarter | 482 | 0.032 | 46,033 | 3.057 |
| 4th Quarter | 1,137 | 0.057 | 9,326 | 0.466 |

Source: NMFS observer estimates.

Table 3. Salmon bycatch by species (espressed as a percentage of the total number of salmon caught as bycatch) during all groundfish trawl fisheries in the W/C Regulatory Area, 1991-1994.

| *Year* | *Chinook* | *Chum* | *Coho* | *Sockeye* | *Pink* | *Unident.* |
|---|---|---|---|---|---|---|
| 1991 | 73.8 | 21.3 | 1.7 | 0.1 | 0.1 | 3.0 |
| 1992 | 48.2 | 49.7 | 0.1 | 0.0 | 0.0 | 2.0 |
| 1993 | 31.2 | 66.2 | 0.4 | 0.0 | 1.0 | 1.2 |
| 1994 | 18.9 | 79.8 | 0.1 | 0.2 | 0.7 | 0.3 |
| Total | 43.3 | 54.8 | 0.7 | 0.1 | 0.5 | 1.6 |

Source: NMFS observer estimates.

Table 4. Percentage of pollock caught in the BSAI and GOA areas, respectively, by location of processor, 1994-1995.

| Location | BSAI | W/C GOA |
|---|---|---|
| Cordova | 0.0 | 100.0 |
| Kodiak | 0.6 | 99.4 |
| King Cove | 65.5 | 34.5 |
| Sand Point | 54.6 | 45.4 |
| Akutan | 98.3 | 1.7 |
| Beaver Inlet | 96.2 | 3.8 |
| Dutch Harbor/ Unalaska | 96.2 | 3.8 |

Source: NMFS blend estimates.

Figure 1. Regulatory and reporting areas in the Gulf of Alaska.