

PUBLIC REVIEW DRAFT

ENVIRONMENTAL ASSESSMENT / REGULATORY IMPACT REVIEW /
INITIAL REGULATORY FLEXIBILITY ANALYSIS

For

**Modifying the Maximum Retainable Amounts for Selected Groundfish
Species for the Non-American Fishing Act Trawl Catcher Processor
Sector**

Proposed **REGULATORY AMENDMENT**

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National Marine Fisheries Service
Alaska Region

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EXECUTIVE SUMMARY

This document is an Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) for a proposed regulatory amendment to modify the current interval of time allowed for determining the maximum retainable amount (MRA) of selected groundfish species that can be retained by a vessel in the non-American Fishery Act (AFA) trawl catcher processor (C/P) sector. Non-AFA trawl C/Ps operating in the Bering Sea and Aleutian Islands (BSAI) are those that are not listed as AFA C/Ps at 50 CFR 679.4(l)(2)(i). This proposed action would change MRA regulations located at 50 CFR 679.20(e) that establish the calculation method and MRAs for groundfish species that are closed to directed fishing by increasing the interval of time each vessel in this sector would have to retain the MRA specified in regulation. These modifications also would apply when the non-AFA C/Ps participate in any Community Development Quota (CDQ) fishery in which MRAs are used to limit retention of the selected groundfish species. MRAs are the primary tool used by the National Marine Fisheries Service (NMFS) to regulate the catch of species closed to directed fishing during a fishing year.

MRA regulations located at 50 CFR 679.20(e) establish the calculation method and MRA percentages for groundfish species that are closed to directed fishing. The MRA is calculated as a percentage of the retained amount of species closed to directed fishing relative to the retained amount of basis species or species groups open for directed fishing. Table 11 in 50 CFR 679 (see Appendix 2) lists retainable percentages for BSAI groundfish species. Amounts that are caught in excess of the MRA percentage must be discarded. Potential environmental, economic and other distributional effects of the No Action Alternative, Alternative 2 and Alternative 3 are highlighted in the following EA, RIR, and IRFA portion of this executive summary and in Chapters 4, 5 and 6. .

Each year, after the Groundfish Plan Team sets the ABC for each species, the Council and NMFS specify annual levels of total allowable catch (“TAC”) for the various BSAI groundfish fisheries. NMFS assesses each groundfish TAC annually to determine how much of a species’ TAC is needed as incidental catch and bycatch in other groundfish fisheries. For some species and sectors, the remainder may be made available as a directed fishing allowance. This amount of directed fishing allowance is not formally specified for all groundfish species, and may be applied as a flexible target for NOAA fishery management. One exception is that the directed fishing allowance is specified for vessels catching pollock.

NMFS closes a species or species group to directed fishing when the (specified or unspecified) directed fishing allowance for that species has been reached in order to leave sufficient portions of the TAC to provide for incidental catch in other fisheries. However, if TAC is reached, retention of that species becomes prohibited and all catch of the species must be discarded. Under existing regulations, a species or species group may be open to directed fishing, closed to directed fishing, in which case amounts of the species may be retained up to the maximum retainable amount (MRA) for that species (Figure 1), or retention may be prohibited, in which case the species is considered a prohibited species and cannot be retained. Directed fishing is defined in regulations as “any fishing activity that results in the retention of an amount of a species or species group on board a vessel that is greater than the MRA for that species or species group.”

Generalized MRA Management for non-AFA trawl C/P sector for any species, other than Pacific cod, Under Status Quo

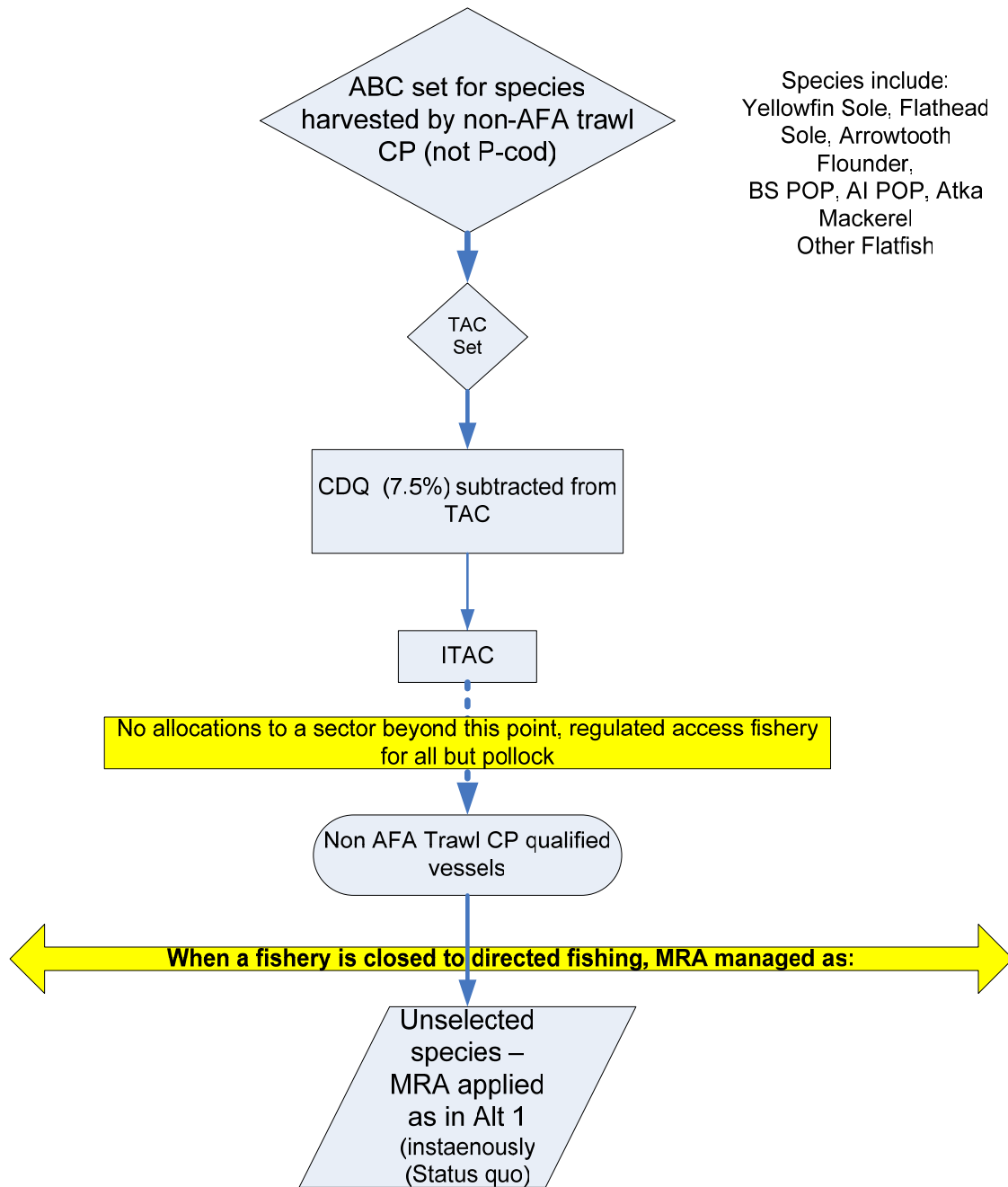


Figure 1 Generalized approach for applying MRAs for most species in the BSAI (exceptions include most CDQ fisheries and pollock fisheries)

The MRA for a species is calculated as a percentage (by weight) of the species closed to directed fishing relative to the weight of other species that are open for directed fishing and retained on board the vessel. On catcher processors, which retain product rather than whole fish, the MRA is determined using round weight equivalents, which are calculated using NMFS product recovery rates established by regulation at Table 3 of 50 CFR part 679. The MRA percentage for each species is established in regulation at 50 CFR part 679 (Table 11 in regulation). When a species is closed to directed fishing, bycatch amounts of the species may still be retained on board a vessel, up to the MRA in effect for that species and catch in Excess of the MRA must be discarded. The MRA percentages serve as a management tool to slow down the harvest rate of a species closed to directed fishing, and to reduce the incentive for fishing vessels to target on that species. In most cases an MRA of 20 percent is established to slow the harvest rate of a species, yet avoid significant discard amounts of these species to the extent they are taken as bycatch in other open groundfish fisheries.

The MRA table is a matrix of proportions that represent a range of expected or accepted incidental catch rates of species closed to directed fishing relative to target species. As a management tool, MRAs rely on the ability of the vessel operator to selectively catch the target species.

Only the 27 qualifying non-AFA trawl C/P vessels identified in the BSAI Catcher Processor Capacity Reduction Program (the “Capacity Reduction Program”) would be regulated by this action. The Capacity Reduction Program was included in the Department of Commerce and Related Agencies Appropriations Act, 2005, which is part of Public Law No. 108-447. In October 2005, members of the non-AFA trawl C/P sector requested that the Council consider modification of the MRA accounting interval for several groundfish species (Appendix 1). Neither that proposal nor this analysis considers alternatives to change current regulations on instantaneous MRA accounting provisions in the BSAI for sectors other than the non-AFA trawl C/P sector, because (1) the instantaneously enforced MRA, as currently configured, is not as likely to constrain groundfish retention in other BSAI groundfish sectors; and (2) NMFS data on catch, retention, and discards of groundfish identify the non-AFA trawl C/P sector as having the greatest challenge to increasing retention.

The EA for this action shows that while the non-AFA trawl C/P sector has improved the rate of groundfish retention since 1995, it continues to have the lowest groundfish retention rate in the BSAI among all sectors. For example, in 1995 the non-AFA trawl C/P sector had an overall groundfish retention rate of 59 percent. Six years later, the groundfish retention rate for the non-AFA trawl C/P sector improved to 75 percent with a discard rate of 25 percent (Table 1), but the groundfish retention rate was still well below the other sectors operating in the BSAI. With the exception of the longline C/P sector, which had a retention rate that ranged between 84 to 86 percent during 1995 to 2001, all other sectors in the BSAI had retention rates greater than 90 percent. Between 2003 and 2005, the average groundfish discard rate for the non-AFA trawl C/P sector was approximately 30 percent (Table 1). In 2005 retained catch of all groundfish has increased to 78 percent. For non-AFA trawl C/P vessels greater than or equal to 125 ft length overall (LOA), the groundfish retention percentage was at 73 percent.

Table 1. Groundfish percent of discarded catch, total catch, in BSAI fisheries in 1999-2004 for non-AFA trawl C/P processors

Length Class	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Number of Vessels											
< 125'	8	8	7	10	7	8	6	6	6	7	6
> 125'	24	21	18	16	16	16	16	16	16	16	16
Total	32	29	25	26	23	24	22	22	22	23	22
Total Groundfish Catch (1,000 mt)											
< 125'	19.2	34.5	50.6	37.4	34.3	42.7	30.2	44.1	40.8	50.2	41.8
> 125'	284	293	303	234	234	251	239.8	240.6	230.0	249.6	259.2
Total	303.2	327.5	353.6	271.4	268.3	293.7	270.1	284.7	270.7	299.8	301.0
Discards as a Percent of Total Groundfish Catch of Length Class											
< 125'	60.7	55.1	52	46.9	41.2	41	39.8	40.1	42.1	46.1	42.8
> 125'	39.4	36.3	34.1	27.1	32.1	29.3	24.2	28.6	28.3	29.9	18.3
Discards as a Percent of non-AFA trawl CP Total Discards											
< 125'	12.1	13.5	18.4	20.4	17.8	17.2	17.1	20.4	20.8	23.7	27.5
> 125'		87.9	86.5	81.6	79.6	82.2	82.9	79.6	79.2	76.3	72.5

A number of factors are likely to have contributed to generally higher total discards and percentage of discard between the non-AFA trawl C/P sector and other BSAI groundfish sectors. These include the type of bottom trawl gear authorized for use in this fishery, the locations that this trawl gear is deployed, mixed stock nature and distribution of the species, regulations that apply to this sector, and market and other economic tradeoffs associated with the sector and the operations of each vessel in the sector.

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson Stevens Act) authorizes the Secretary of the Department of Commerce to approve actions to increase retention and reduce discards for conservation and management purposes. The North Pacific Fishery Management Council (Council) has a long history of proposing actions to increase retention and utilization of groundfish species in the North Pacific. Prior to Congress passing the Sustainable Fisheries Act (SFA) in 1996, the Council proposed and Secretary adopted bycatch and discard reduction management actions. One of these actions was a ban on pollock roe stripping implemented in 1991. Following the SFA, an additional action to improve retention and utilization of groundfish, Amendment 49 (Improved Retention and Improved Utilization; IR/IU) to the BSAI Groundfish Fishery Management Plan (FMP), was implemented on January 3, 1998. Amendment 49 required all vessels fishing for groundfish in the BSAI management area to retain all pollock and Pacific cod beginning January 3, 1998 and retain all rock sole and yellowfin sole beginning January 1, 2003.¹ Regulations requiring retention of all rock sole and yellowfin sole were subsequently removed. A groundfish retention standard (GRS) for the non-AFA trawl C/P sector in the BSAI was approved by the Secretary of Commerce in April, 2006. The GRS minimizes discards while maintaining a viable multi-species trawl fishery.

In February 2006, the Council requested that NOAA Fisheries provide a discussion paper for the April 2006 meeting that described the scope of an analysis and alternatives for a regulatory amendment to modify the current accounting period required for the MRAs (MRA calculation interval) for selected groundfish caught by the non-AFA trawl C/P sector. Representatives from the non-AFA trawl C/P sector had requested that this regulatory amendment be implemented in 2007 to provide an additional tool to reduce regulatory discard amounts.

A discussion paper was presented at the April 2006 Council meeting describing a concept for a regulatory amendment that would respond to the proposal from members of the non-AFA trawl C/P sector to change the current MRA accounting period for a select number of species (NMFS 2006). The discussion paper presented some decision points for the Council to review including (1) a problem statement; (2) components and options as well as potential alternatives that may be considered for a regulatory amendment; (3) a discussion of some management, catch accounting, and enforcement issues associated with the range of components and options developed; and (4) tradeoffs in program complexity and scheduling implications.

The Council subsequently requested an initial review of the proposed MRA accounting interval for the June 2006 meeting. The Council also reviewed and approved a draft problem statement At the April meeting that would extend the MRA accounting interval for selected species and is

¹ Amendment 75 was partially approved by the Secretary of Commerce on September 2, 2003 (68 FR 52412). By approving the removal of the January 1, 2003 effective date for the IR/IU flatfish program from the FMP, and by disapproving the adjusted effective date of June 1, 2004, NMFS' decision on Amendment 75 had the effect of indefinitely delaying the IR/IU flatfish program.

intended to increase retention of species harvested by the non-AFA trawl C/P sector. The problem statement was intended to provide the flexibility to use existing market incentives to increase retention of groundfish, while avoiding the exposure of incidentally caught species to increased conservation concerns. The draft problem statement reads as follows:

The non-AFA trawl C/P sector (authorized under the BSAI groundfish buyback program in the Consolidated Appropriations Act of 2005) participates in multispecies bottom trawl fisheries with naturally occurring incidental catch rates of nontarget groundfish that result in higher bycatch rates compared to other groundfish sectors in the BSAI. Efforts to improve retention of many groundfish species utilized by this sector is restrained by regulations at 50 CFR 679.20(e) that establish maximum retainable allowances (MRA) that are accounted for at any time during a fishing trip. The sector has reported that the current instantaneous MRA accounting period forces the discard of incidentally caught species that otherwise would be retained. MRAs are a widely used groundfish management tool to reduce targeting on a species and slow harvest rates as an allocation is approached. However, sometimes species managed with MRAs must be discarded when incidental catch at anytime during a fishing trip exceeds the MRA, even though economic incentives exist to retain that species and overall catch at the end of a fishing trip would not exceed the MRA. Thus, the instantaneous period of MRA accounting forces discard of some species, particularly at the beginning of a fishing trip, that might otherwise be retained without undermining the intent of the MRA as a tool to reduce overall harvest rates. This regulatory amendment would evaluate an extension of the MRA accounting period for multiple groundfish species to provide increased opportunity for retention of species harvested by the non-AFA trawl C/P sector and reduce overall bycatch rates in this sector, while not subjecting incidentally caught species to increased conservation concerns.

The Council requested at its April 2006 meeting that an EA/RIR/IRFA be prepared in June 2006 analyzing (1) a change in the MRA accounting interval for yellowfin sole, rock sole, flathead sole, "other flatfish," and arrowtooth flounder to occur at the end of a fishing trip (with the option of adding other species); and (2) a change in the MRA accounting interval to include the offload of any catch and removing the accounting interval of a weekly reporting period. This application of the MRA accounting period would apply to the species listed above plus Atka mackerel and Aleutian Islands Pacific ocean perch to the time of an offload (with the option of including other species).

At the June 2006 Council meeting, additional changes were made to the motion:

The Council directs staff to send out the EA/RIR/IRFA for public review with modifications to alternatives as described below.

Alternatives for MRA accounting of selected species for the non-AFA catcher processor sector.²

Alternative 1. No action, and no change in MRA accounting period.

Alternative 2. In the BSAI, allow the calculation of the MRA of yellowfin sole, rock sole, flathead sole, "other flatfish", and arrowtooth flounder to occur at the end of a fishing trip.³

² Any increase in the current enforcement MRA interval applies only to the non-AFA trawl C/P sector (under the Department of Commerce and Related Agencies Appropriations Act, 2005, Public Law No. 108-447).

³ The following regulation defining a fishing trip in current regulations would still apply to Alternative 2: In 50 CFR 679.2 a Fishing trip is defined as:

- Option:** Include Pacific cod,
- Option:** Include Aleutian Islands Pacific ocean perch,
- Option:** Include Bering Sea Pacific ocean perch,
- Option:** Include Atka mackerel

Alternative 3. In the BSAI, calculate the period of accounting for MRA of yellowfin sole, rock sole, flathead sole, “other flatfish” and arrowtooth flounder at the time of offload.

- Option:** Include Pacific cod,
- Option:** Include Aleutian Islands Pacific ocean perch,
- Option:** Include Bering Sea Pacific ocean perch,
- Option:** Include Atka mackerel

Environmental Assessment

The no action alternative applies the current MRA accounting regulations. These regulations enumerate an MRA at any point during a fishing trip, and may be enforced instantaneously. These regulations encourage groundfish vessels in the BSAI to avoid or limit catch of species closed to directed fishing.

Groundfish management in the BSAI applies MRAs in the following manner. NMFS currently prohibits directed fishing for a species to manage a specified quota for groundfish or prohibited species (e.g., crab, halibut). When NMFS prohibits directed fishing, retention is allowed up to an amount calculated with the MRA. The MRA tables show retainable proportions of incidental species relative to species open to directed fishing. Vessel operators calculate the MRA through three basic steps. First, they identify and calculate the round weight of the basis (or target) species on board. Next, they identify the appropriate fraction from the MRA table (Appendix 2), and then multiply that rate against the round weight of the basis species. The calculated maximum amount limits retention of the incidental species. The vessel is required to discard catch of the incidental species in excess of that amount. While the effect of the existing regulation on fishing behavior is uncertain, members of the non-AFA trawl C/P sector report that operators often choose to increase discards of groundfish catch as they approach the instantaneous MRA. It is also possible that operators avoid areas with higher abundance of incidental species managed under an MRA.

A factor explored in the EA and RIR is the consequence of relaxing an MRA on a species complex that may subsequently be split into smaller groups of species. In 2005, Bering Sea rockfish were closed to directed fishing for the entire year. Catch for most rockfish species was

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- (1) Retention requirements (MRA, IR/IU, and pollock roe stripping).
 - (i) With respect to retention requirements of MRA, IR/IU, and pollock roe stripping, an operator of a catcher/processor or mothership processor vessel is engaged in a fishing trip from the time the harvesting, receiving, or processing of groundfish is begun or resumed in an area until:
 - (A) The effective date of a notification prohibiting directed fishing in the same area under § 679.20 or § 679.21;
 - (B) The offload or transfer of all fish or fish product from that vessel;
 - (C) The vessel enters or leaves an area where a different directed fishing prohibition applies;
 - (D) The vessel begins fishing with different type of authorized fishing gear; or
 - (E) The end of a weekly reporting period, whichever comes first

moderate relative to the TAC. Catch did not approach the overfishing level (OFL). However, the status of groundfish stocks changes each year, sometimes dramatically. The thrust of rockfish management is to disassociate species complexes into their constituent species. One of the species categories under consideration in Alternatives 2 and 3, consist of multiple species. Application of relaxed MRA accounting to those species categories with small allowable biological catches (ABCs) and OFLs increases the potential for a species to reach an OFL.

Species that are considered to be the best candidates for increasing the MRA accounting interval would be those that have low management risk or do not create additional uncertainty for differentially taxing a specific species in a species complex. As a result, some species considered in the April 2006 Council motion on this MRA accounting regulatory proposal were removed from the list of potential species to consider, at the June 2006 Council meeting. Those species removed were shorttraker, roughey and Northern rockfish, as well as “Other rockfish” BS POP and Greenland turbot. The species under consideration by the Council for extended MRA accounting are yellowfin sole, rocksole, flathead sole, “other flatfish,” and arrowtooth flounder, with the option of including Pacific cod, BS POP, AI POP and Atka Mackerel.

Under Alternative 3, vessel operators would be allowed to delay MRA accounting until the offload of any product. This alternative would still trigger new MRA accounting for all conditions of a fishing trip other than the week ending criteria. This could increase or decrease the amount of species retained when that species is closed to directed fishing compared with Alternative 2 or the or Alternative 1. A longer accounting interval could easily encourage less sorting of groundfish early in a fishing trip. By the end of a fishing trip the amount of sorting may increase. It is not possible to determine if either Alternative 2 or 3 would result in a different distribution of discards or a lower amount of discards, though members of the non-AFA trawl C/P sector have expressed that it would increase groundfish retention.

Typically, vessels offload every 20 to 25 days. Absent any other trip ending events, the MRA accounting period could increase from a maximum of seven under Alternative 2 to as many as 25 days under Alternative 3. Especially in combination with elimination of the instantaneous calculation requirement, an increased accounting period would allow vessels more opportunity to encounter incidental species and accumulate basis species. NMFS and the Council created the weekly reporting period trip limit to deliberately reduce the opportunity to indirectly target incidental species. Extending MRA accounting beyond the end of a fishing trip may dilute this traditional constraint to indirect targeting.

Additional analysis was requested at the June 2006 Council meeting to explain the range of alternatives that would be available to change MRA accounting for selected species including Pacific cod with and with out the implementation of Amendment 85. Also, the Council requested a description of how Amendment 80 would impact MRA accounting (or removal of MRAs) for each of the Amendment 80 allocated and unallocated groundfish species.

None of the alternatives are anticipated to result in significant adverse impacts to the environment. The *Alaska Groundfish Fisheries Final Programmatic Supplemental Environmental Impact Statement (PSEIS, NMFS 2004a)* and the *Final Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska (NMFS 2005a)* have both concluded that there are no significant adverse impacts on the physical and biological

environment or the ecosystem from the current groundfish management regime. Also it concludes that the catch of groundfish under any of the alternatives will continue to be monitored and accounted for under specific TAC and ABC levels and the fishery will be managed accordingly.

Alternative 3 does, however, contain an MRA accounting time interval that is longer than either the present regulations impose or Alternative 2. The maximum amount of time to available to sort groundfish between offloads available, may complicate management and enforcement as noted in Section 5.6.2.8 of the EA. NMFS, Enforcement notes that this longer interval would preclude the opportunity to utilize Weekly Production Reports as a tool to identify intentional or unintentional MRA violations, as well as potentially increasing the threat of vessel operators intentionally retaining unlawful amounts of species closed to directed fishing, and the attendant mis-reporting of catch and production amounts to disguise this unlawful retention. The Alternatives 2 and 3 are unlikely to have discernable impacts on the ecosystem or endangered/threatened species, unless the amounts of species that are prohibited for retention by this sector were to dramatically increase or shift effort into critical habitat. Atka mackerel and Pacific cod are two species that are considered to be prey species for SSL in critical habitat, and selecting these two species may have implications for ESA Section 7 consultation. Some economic effects of the alternatives and other distributional impacts are discussed under the Regulatory Impact Review heading, below.

Regulatory Impact Review

The analysis of alternatives presented in the RIR provides a qualitative discussion of the management purpose of the existing MRA regulations and a range of possible operational responses of vessels to the existing MRA accounting. A number of biological, regulatory and economic factors may contribute to the currently observed groundfish retention rates and amounts, and challenges faced by the non-AFA trawl C/P sector to increase retention of some species. MRA percentages, regulating retention amounts of groundfish that may be retained when a directed fishery is closed are likely to be one of those influencing factors. Intertwined with the groundfish MRA proportions published in Table 11 at 50 CFR 679 (Appendix 2), are regulations requiring instantaneous accounting of MRAs. These regulations exist in part, to achieve some of the historical objectives of the MRA for management of BSAI groundfish. For example, MRA percentages are intended to slow fishing effort. This practice may be a tool intended to allow managers time to assess removals or to compel avoidance of species that could otherwise reach an overfishing limit. When the instantaneous MRA accounting does not serve any economic or general management or enforcement purpose, the benefit of imposing these constraints to non-AFA trawl C/Ps may be reduced.

In comparison to Alternative 1, the modification of MRA accounting examined in Alternatives 2 and 3 of this EA are intended to be less limiting to non-AFA trawl C/P retention of incidental groundfish catch if the accounting period is changed to the end of a fishing trip (Alternative 2) or to the time of offload (Alternative 3). Vessel operators have an economic incentive to maximize the value of each trip or group of trips. Both Alternatives 2 and 3 provide a greater interval of time for a vessel sorting incidentally caught groundfish species of varying value to approach the designated MRA percentage in Table 11 of 50 CFR 679 through a longer period of accounting while retaining a greater percentage of groundfish. The action alternatives could change the cost

of certain sorting operations, if operators were to have difficulty finding sufficient basis species late in a fishing trip or offload to stay within a given MRA percentage. Sorting effort might increase for operations that were particularly inefficient at projecting the distribution of species in forthcoming hauls.

The increased flexibility of a longer MRA accounting interval has the potential to improve the value of a fishing trip through increased retention of incidental species that have higher value than other species, but it also has the potential for compelling more conservative management of a species. For example, Appendix 3 describes a concern for extending Alternative 2 or 3 to certain rockfish species (e.g. shortraker rockfish⁴) if increased topping-off on higher valued incidental species were to occur. Topping-off for some species may occur later in a trip rather than accumulating them in lower amounts through the course of targeting other species. Intentional targeting behavior on a species that is fished close to the ABC could lead to overfishing concerns by increasing the overall catch of species, and subsequently contribute to closing a target groundfish species. While certain options in Alternatives 2 and 3 may encourage increased retention amounts or percentages, depending upon which species are included, the relaxed accounting regulations could encourage greater catch of incidental species that require protection. Managers can be expected to observe removals and react by restricting directed fishing, or closing a fishery that is exploiting an incidental species too quickly, at too high a rate, or that is approaching a TAC.

If the Council were to select either Alternative 2 or 3 NMFS assumes that new MRA accounting would be applied to vessels fishing CDQ allocations that are currently subject to MRA accounting (e.g. rockfish and some catches in SSL protection areas). Applying any changes to the MRA accounting period to the non-AFA trawl C/Ps in both their CDQ and non-CDQ fisheries would simplify recordkeeping, compliance, and enforcement.

The RIR encourages agencies to assess the net social effect of a Federal action. This RIR discusses some additional effects such as changes to agency costs of monitoring and enforcing removals of species under an altered MRA accounting system, potential changes to producer and consumer surplus (that are generally unlikely to change much for Alternatives 1, 2 or 3). A brief treatment of subsistence use, non-consumptive or other valuation that does not result in removal of groundfish associated with BSAI fisheries is included, though few if any incremental effects on these uses are anticipated. This proposed regulatory change would not result in any anticipated change to monitoring programs or recordkeeping and reporting. In Alternatives 1 and 3, enforcement officers may rely on both weekly production report data and daily cumulative production logbook (DCPL) data. In Alternative 2, enforcement officers are not precluded from using DCPL data, but are more likely to rely on weekly production data. The RIR identifies significant enforcement challenges to assuring compliance with the MRA accounting if extended to the time of offload. Depending on the species selected, a weekly offload period presents an enforceable option. The weekly offload option could still result in some incidence of presorting, not likely to occur under Alternative 1. Some incremental increase in management burden is possible for NMFS because of the potential for more focused tracking of removals for individual species complexes such as “other flatfish.”

⁴ Shortraker, rougheye and Northern rockfish were removed from the species options for this action at the June 2006 Council meeting.

Only very limited data exist on the use of BSAI groundfish by native cultures in this region. There is no subsistence take of any of the groundfish species that are considered in any of the alternatives. Analysis of impacts on resource use and value are also handicapped by the lack of quantitative information on how fishery harvesting and discard practices in the BSAI groundfish fisheries may impact subsistence, non-consumptive or non-use resource values in these fisheries. The economic activity generated from Groundfish harvesting by this sector is may provide some indirect regional and local impacts in certain coastal regions of the U.S. No data exists on the amount or location of purchases by area, or other distributional effects generated by the sector. The amount of economic activity, income and employment associated with the alternatives examined are indeterminate. There are no reports or data available demonstrating that these species, in the amounts currently being removed from the North Pacific or as these groundfish removals, may change under Alternatives 2 and 3, or would have a significant indirect contribution to the productivity of other species (e.g., providing prey for other living marine resources) that would impact resource use or the net benefits of fisheries in the North Pacific.

Initial Regulatory Flexibility Analysis

A portion of the analysis presented in the IRFA refers to NMFS data on gross annual receipts from 1997 to 2005. Those data are used to determine which operations are small entities for the purpose of the Regulatory Flexibility Act. NMFS considers a C/P to be a small entity if it has annual gross earnings of less than \$4.0 million. However, NMFS does not have sufficient information on the corporate organization of these companies or the gross earnings from fishing operations of these companies to make a statistically confident estimation of the number of small entities affected by this proposed action. Therefore, an IRFA was prepared for this proposed rule. A detailed description of the entities affected by the alternatives is provided in Sections 5.0 and 6.0 of this document. The effects of the two action alternatives are to generally provide increased operational flexibility to vessels in the non-AFA trawl C/P sector.

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GLOSSARY OF ABBREVIATIONS

ABC- allowable biological catch	IRFA- initial regulatory flexibility analysis
ADF&G- Alaska Department of Fish and Game	ITS- Incidental Take Statement
AFA- American Fishing Act	JVP- Joint Venture Processor
AFSC- Alaska Fishery Science Center	LLP- License Limitation Program
AI- Aleutian Islands	LOA- length overall
ALT- Alaska Local Time	Magnuson Stevens Act- Magnuson Stevens Fishery Conservation and Management Act
BS- Bering Sea	MMPA- Marine Mammal Protection Act
BSAI- Bering Sea and Aleutian Islands	MRA- maximum retainable amount
Capacity Reduction Program- BSAI Catcher Processor Capacity Reduction Program	NEPA- National Environmental Policy Act of 1969
CDQ- community development quota	NOAA- National Oceanic and Atmospheric Administration
CFEC- Commercial Fisheries Entry Commission	NPFMC- North Pacific Fishery Management Council
Council- North Pacific Fishery Management Council (NPFMC)	NMFS- National Marine Fisheries Service
C/P- catcher processor	OFL- overfishing limit
DAP- Domestic Annual Processing	OMB- Office of Management and Budget
DCPL- Daily Cumulative Production Logbook	OY- optimum yield
EA- environmental assessment	POP- Pacific ocean perch
EBS- Eastern Bering Sea	PSC- prohibited species catch
EEZ- exclusive economic zone	PSEIS- programmatic supplemental environmental impact statement
EFH- essential fish habitat	RFA- Regulatory Flexibility Act
EG- Eastern Gulf of Alaska	RIR- regulatory impact review
EIS- environmental impact statement	SAFE- stock assessment and fishery evaluation
E.O.- Executive Order	SBREFA- Small Business Regulatory Enforcement Fairness Act
ESA- Endangered Species Act	SFA- Sustainable Fisheries Act of 1996
FEIS- Final environmental impact statement	SLA- Submerged Lands Act
FMP- fishery management plan	TAC- total allowable catch
FONSI- finding of no significant impact	TALLF- total allowable level of foreign fishing
GOA- Gulf of Alaska	USFWS- United States Fish and Wildlife Service
GRS- groundfish retention standard	WAIW- Washington Inland Waters Region
IAI- Impact Assessment, Inc.	WPR- Weekly Production Report
IFQ- individual fishing quota	
IR/IU- improved retention and improved utilization, Amendment 49 to the BSAI Groundfish FMP	

Chapter 1 Introduction

This EA/RIR/IRFA evaluates an amendment to MRA regulations located in the Federal fisheries regulations for the Exclusive Economic Zone (EEZ) off Alaska at 50 CFR 679.20(e). The proposed action would modify the current accounting period calculated for MRAs of selected groundfish species caught by the non-AFA trawl C/P sector.

Actions taken to amend fishery fishing regulations at 50 CFR 679 must meet the requirements of Federal laws and regulations. These include the Magnuson-Stevens Act, the National Environmental Policy Act of 1969 (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 each 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. An EA is required by NEPA to determine whether the action considered will result in a 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 document required by NEPA. If the EA determines that the proposed action is a major or significant action, an Environmental Impact Statement (EIS) must be prepared. A description of the purpose and need for the proposed action as well as a description of alternatives which may address the problem are included in Chapter 1 of this document. Chapter 2 includes a description of the alternatives for this proposed action and Chapter 3 contains a description of the affected human environment. Chapter 4 contains information on the impacts of the alternatives on that environment, specifically addressing potential impacts on endangered species and marine mammals and cumulative effects. Executive Order 12866 requires preparation of an RIR to assess the costs and benefits of available regulatory alternatives, in order to determine whether a proposed regulatory action is “significant” as defined by the order.

Chapter 5 contains an RIR, which evaluates the economic impacts of the alternatives. Chapter 6 contains the IRFA, as required under the RFA. Chapter 7 addresses the consistency of the proposed action with other applicable law and policy.

1.1 Purpose and Need

The Magnuson-Stevens Act emphasizes the importance of minimizing bycatch, to the extent practicable, in order to achieve sustainable fisheries, and to maximize the net benefit to the Nation. To address these objectives, the Council has amended the BSAI Groundfish FMP several times to limit the bycatch of groundfish fisheries through catch limits, time and area closures, and IR/IU. Included in those amendments was Amendment 49 to the BSAI Groundfish FMP (IR/IU), implemented January 3, 1998, that required all vessels fishing for groundfish in the BSAI management area to retain all pollock and Pacific cod beginning January 3, 1998, and

retain all rock sole and yellowfin sole beginning January 1, 2003. Parts of Amendment 49 were eventually superseded by Amendments 75 and 79.

In October 2005 vessel owners in the non-AFA trawl C/P sector requested in a proposal (Appendix 1) that the Council consider changing the accounting period for MRAs from instantaneous (i.e., at anytime during a fishing trip) to the time of offload.

In February 2006, the Council requested that NOAA Fisheries provide a discussion paper for the April 2006 meeting that describes the scope of an analysis and alternatives for a regulatory amendment to modify the current accounting period required for the MRAs for selected groundfish (other than pollock) caught by the non-AFA trawl C/P sector. Representatives from the non-AFA trawl C/P sector have requested that this regulatory amendment be implemented in 2007 to reduce regulatory discard amounts. The Council also requested that the staff describe potential regulatory changes that may be considered relevant to action on Amendment 80 to further address the MRA accounting interval for these same species.

The discussion paper that followed was presented at the April 2006 Council meeting and it provided information on a proposal from members of the non-AFA trawl C/P sector to consider changing the current MRA accounting period for a select number of species. The report presents some decision points for the Council to review including (1) a problem statement, (2) components and options as well as potential alternatives that may be considered for a regulatory amendment, (3) a discussion of some management, catch accounting, and enforcement issues associated with the range of components and options developed, and (4) tradeoffs in program complexity and scheduling implications.

At the April 2006 meeting, the Council reviewed and took action on a problem statement (and requested an analysis) of three alternatives for implementing a change to the MRA accounting procedure. The proposal was requested because of the non-AFA trawl C/P sector's history of groundfish retention and utilization challenges resulting from the type of gear, multi-species catches this sector exploits, and other economic conditions this sector experiences. Compared with other sectors participating in the groundfish fisheries of the BSAI, the non-AFA trawl C/P sector has consistently had the highest discard amounts and rates. Groundfish retention rate data for the non-AFA trawl C/P sector (Table 7.) show substantial variation in the percent of groundfish retention from 1995 to 2004. In 2004, the non-AFA trawl C/P sector retained catch of groundfish was approximately 67.6 percent of total catch. Under the current management regime, and until the Groundfish Retention Standard (GRS) program is implemented in 2008 this rate could continue rising, stay the same or decrease. A groundfish retention standard (GRS) for the non-AFA trawl C/P sector in the BSAI was approved by the Secretary of Commerce in April, 2006. The GRS minimizes discards while maintaining a viable multi-species trawl fishery. While the April 2006 problem statement was intended to provide economic incentives to increase retention of groundfish, it also expressed intent to avoid exposing incidentally caught species to increased conservation concerns.

The non-AFA trawl C/P sector is defined by Congress in the Bering Sea and Aleutian Islands (BSAI) Catcher Processor Capacity Reduction Program (Reduction Program) for the longline catcher processor subsector of the BSAI nonpollock groundfish fishery (Reduction Fishery), in

compliance with the FY 2005 Appropriations Act. This program was authorized by Title II, Section 219 of the FY 2005 Appropriations Act (Act)(Public Law 108–447; 2004 enacted H.R. 4818, December 8, 2004), and in particular by Section 219(e) of the Act.

At their April 2006 meeting, the Council considered adding additional sectors to the problem statement for this proposed adjustment to MRA accounting, however, no other BSAI groundfish sectors expressed interest in expanding the analysis beyond the non-AFA trawl C/P sector. Also, because the non-AFA trawl C/P sector is seeking implementation of this action in 2007, expanding the scope to additional sectors could impact the time required to complete an analysis, submit a proposed rule and implement the program if approved by the Secretary of Commerce.

Action alternatives described in this analysis specifically address the MSA national standards to reduce discards to the extent practicable. Between 2000 and 2004, TACs for a number flatfish target species in the non-AFA trawl C/P sector have been fully utilized or even exceeded, highlighting the increasing scarcity of many discarded groundfish species. Approaching or exceeding a TAC may indicate that open access competition for available harvest is increasing. Discarding of species by some vessels that could be utilized by other vessels in the non-AFA trawl C/P sector or other sectors is potentially wasteful.

The problem statement approved by the Council is not constrained to a single accounting period. The intervals examined in this analysis range between an accounting period at the end of a fishing trip (by definition it can be no more than weekly) and at the time of offload, although others could be considered. The problem statement assumes that for species considered in this proposal, the current MRA calculation that occurs throughout the trip instantaneously compels vessels to discard incidental catch in excess of the MRA. If the calculation is performed at the end of the trip or by the time of offload there would be an opportunity for increased retention, by allowing for more flexibility in the accounting of basis species and incidentally caught species during the trip. The target species is called a basis species in regulation. Catch of species closed to directed fishing is considered incidental. Where market conditions and other economic factors are favorable for retaining incidental species, vessel operators would have greater flexibility to retain incidental species caught early in the fishing trip as the duration of the MRA accounting interval is increased.

The Council has approved the following draft problem statement for this action:

The non-AFA trawl C/P sector (authorized under the BSAI groundfish buyback program in the Consolidated Appropriations Act of 2005) participates in multispecies bottom trawl fisheries with naturally occurring incidental catch rates of nontarget groundfish that result in higher bycatch rates compared to other groundfish sectors in the BSAI. Efforts to improve retention of many groundfish species utilized by this sector is restrained by regulations at 50 CFR 679.20(e) that establish maximum retainable allowances (MRA) that are enforced at any time during a fishing trip. The sector has reported that the current instantaneous MRA accounting period forces the discard of incidentally caught species that otherwise would be retained. MRAs are a widely used groundfish management tool to reduce targeting on a species and slow harvest rates as an allocation is approached. However, sometimes species managed with MRAs must be discarded when incidental catch at anytime during a fishing trip exceed the MRA, even though economic incentives exist to retain that species and overall catch at the end of a fishing trip would not exceeded the MRA. Thus, the instantaneous period of MRA accounting forces discard of some

species, particularly at the beginning of a fishing trip, that might otherwise be retained without undermining the intent of the MRA as a tool to reduce overall harvest rates. This regulatory amendment would evaluate an extension of the MRA accounting period for multiple groundfish species to provide increased opportunity for retention of species harvested by the non-AFA trawl C/P sector and reduce overall bycatch rates in this sector, while not subjecting incidentally caught species to increased conservation concerns.

Some species considered in the April 2006 Council motion on this MRA accounting regulatory proposal were removed from the list of potential species to consider, at the June 2006 Council meeting. Those species removed were shortraker, roughey and Northern rockfish, as well as “Other rockfish” BS POP and Greenland turbot. The species under consideration by the Council for extended MRA accounting are yellowfin sole, rocksole, flathead sole, “other flatfish” a, arrowthooth flounder, with the option of including Pacific cod, BS POP, AI POP and Atka Mackerel.

Chapter 2 Description of Alternatives

This EA/RIR/IRFA evaluates three alternatives and two options for management of MRA accounting in the BSAI non-AFA trawl C/P sector. The alternatives are described below.

2.1 Alternative 1: Status Quo

Alternative 1 maintains the existing regulatory measures for MRAs, by continuing to calculate the MRA at any point during a fishing trip. This analysis will also refer to the current MRA calculation method as “instantaneous.” Regulation at 50 CFR 679.20(e) establishes the accounting procedure for MRA percentages for groundfish species or species groups that are closed to directed fishing. The MRA is calculated as a percentage of the species closed to directed fishing relative to the retained amount of other species for which directed fishing is open. Amounts of a species closed to directed fishing onboard a vessel that are below or equal to the specified MRA percentage for that species may be retained. The existing regulations apply to all groundfish vessels authorized to fish in the BSAI. Under existing regulations, BSAI pollock is the only species for which MRAs are enforced at the time of offload.

2.2 Alternative 2: Extend the MRA accounting period to the end of a fishing trip

The June 2006 Council meeting the motion for adjusting the MRA accounting interval describes Alternative 2 as follows:

Alternative 2. In the BSAI, allow the calculation of the MRA of yellowfin sole, rock sole, flathead sole, “other flatfish”, and arrowtooth flounder to occur at the end of a fishing trip.

Option: Include Pacific cod,

Option: Include Aleutian Islands Pacific ocean perch,

Option: Include Bering Sea Pacific ocean perch,

Option: Include Atka mackerel

Alternative 2 would allow the calculation of the MRA for yellowfin sole, rock sole, flathead sole, “other flatfish,” and arrowtooth flounder to occur at the end of a reporting week, for the non-AFA trawl C/P sector. An option is included to consider adding Pacific cod, Aleutian Islands Pacific ocean perch, Bering Sea Pacific Ocean perch and Atka mackerel to the list. The current regulations defining a fishing trip would remain unchanged. A fishing trip is defined at 50 CFR 679.2 as:

(1) Retention requirements (MRA, IR/IU, and pollock roe stripping).

(i) With respect to retention requirements of MRA, IR/IU, and pollock roe stripping, an operator of a catcher/processor or mothership processor vessel is engaged in a fishing trip from the time the harvesting, receiving, or processing of groundfish is begun or resumed in an area until:

(A) The effective date of a notification prohibiting directed fishing in the same area under § 679.20 or § 679.21;

(B) The offload or transfer of all fish or fish product from that vessel;

(C) The vessel enters or leaves an area where a different directed fishing prohibition applies;

- (D) The vessel begins fishing with different type of authorized fishing gear; or
- (E) The end of a weekly reporting period, whichever comes first

These modifications also would apply when the non-AFA trawl C/Ps participate in any CDQ fishery in which MRAs are used to limit retention of the selected groundfish species. Section 4.2 describes how Alternative 2 may affect the non-AFA trawl C/P sector and the affected environment.

2.3 Alternative 3: Extend the MRA accounting period to the time of offload

In June 2006, the Council also added a second alternative to its motion for adjusting the MRA accounting interval called Alternative 3 as follows:

Alternative 3. In the BSAI, calculate the period of accounting for MRA of yellowfin sole, rock sole, flathead sole, “other flatfish” and arrowtooth flounder at the time of offload.

Option: Include Pacific cod,

Option: Include Aleutian Islands Pacific ocean perch,

Option: Include Bering Sea Pacific ocean perch,

Option: Include Atka mackerel

Under Alternative 3, the accounting period for calculation of the MRAs for yellowfin sole, rock sole, flathead sole, “other flatfish,” arrowtooth flounder, Atka mackerel and Aleutian Islands Pacific ocean perch would potentially be increased, to the time period between offload events. An option for Alternative 3 would also include Pacific cod, AI POP, BS POP, and Atka mackerel. Section 4.0 discusses how the affected environment may be impacted by this approach. These modifications also would apply when the non-AFA trawl C/Ps participate in any CDQ fishery in which MRAs are used to limit retention of the selected groundfish species.

2.4 Additional alternatives considered, but eliminated from this analysis

One additional alternative was considered by the Council at the April 2006 meeting. As identified in the public record, the public was encouraged to identify any additional BSAI groundfish sectors that should be included in the proposal for increasing the accounting interval for the MRA. No interested parties identified the need for including additional sectors, and the Council retained the current focus on applying this proposed regulatory amendment to only the non-AFA trawl C/P sector.

In addition, the April 2006 Council discussion of options for the MRA accounting regulatory change included additional groundfish species that were subsequently removed at the June 2006 Council meeting. These alternatives and options, listed below included rockfish species such as shorttraker, rougheye, Northern rockfish as well as the “Other rockfish” management category, and Greenland turbot. Some of the tradeoffs of including these rejected species are addressed in Appendix 3.

Chapter 3 Affected Environment

This Chapter describes the affected human environment, including the natural and physical environment (Section 3.1) and the relevant economic and social conditions (Section 3.2). The impacts of the three alternatives on the human environment are the subject of Chapter 4. This analysis also includes background information on bycatch of groundfish in the BSAI, with particular emphasis on the non-AFA trawl C/P sector. Current MRA regulations and the application of MRAs are discussed for managed fisheries (Section 3.2), potential interactions of the fishery with threatened or endangered species (Section 3.3), and ecosystem considerations (Section 3.4).

Chapters 3 and 4 draw on information contained in the *Alaska Groundfish Fisheries Final Programmatic Supplemental Environmental Impact Statement* (PSEIS; NMFS 2004a). All proposed alternatives in this analysis are consistent with the PSEIS. The PSEIS contains detailed descriptions of features of the physical environment, threatened and endangered species, target groundfish species, prohibited species, other species, forage species, other non-specified species, essential fish habitat (EFH), seabirds, marine mammals, the socioeconomic environment, and the ecosystem. The PSEIS is available for public review on the Internet at <http://www.fakr.noaa.gov/>. Detailed information on the economic and social status of the groundfish fisheries can also be found in *Sector and Regional Profiles of the North Pacific Groundfish Fisheries – 2001* (Northern Economics, Inc. and EDAW, Inc. 2002). This document can be reviewed at <http://www.fakr.noaa.gov/npfmc>.

Detailed information on the impact of the groundfish fisheries on Steller sea lions are contained in the November 2004 PSEIS on Steller sea lion protection measures (NMFS 2001). The PSEIS includes the biological opinion on the effects of the pollock, Pacific cod and Atka mackerel fisheries on Steller sea lions and other ESA-listed species. Section 4.0 includes discussion on potential impacts of MRA accounting on management in critical habitat for Pacific cod and Atka mackerel. It is not possible at this time to determine if increased flexibility for MRA accounting of these species could be an issue for non-AFA trawl C/Ps in critical habitat. NOAA fisheries would review the potential for impacts if these species are included in any forthcoming recommendation from the Council on this program.

Groundfish TACs and catch in 2004, along with final 2004 specifications of OFLs, ABCs, and TACs for the BSAI, are discussed in the EA/FRFA for the 2004 TAC specifications for Alaska groundfish fisheries (NMFS 2004b). For detailed life history, ecology, and fishery management information regarding groundfish stocks in the BSAI, see Section 3.5.1 of the PSEIS. Additionally, the status of each target species category, biomass estimates and ABC specifications are presented both in summary and in detail in the annual BSAI stock assessment and fishery evaluation (SAFE) reports.

3.1 Natural and Physical Environment

This section summarizes the condition of components of the natural and physical environment with particular reference to the effects of groundfish discards on them. In general, the annual BSAI stock assessment treats all commercial fishing mortality as removals from the stock, whether fish are discarded or retained (NMFS 2005b). Similarly, the level of discards relative to natural sources of detritus and the absence of evidence that would relate changes in scavenger populations to discard trends suggest that the BSAI groundfish fisheries have insignificant ecosystem impacts through energy removal and redirection (NMFS 2004a).

3.1.1 Status of Groundfish Stocks in the BSAI

A description of all groundfish species harvested in the BSAI is presented in Section 3.5.1 of the PSEIS (NMFS 2004a). Additional information on the condition of these stocks is presented in the EA/FRFA for the 2005 TAC specifications for Alaska groundfish fisheries (NMFS 2005c). This report indicates that none of the groundfish stocks in the BSAI are depleted or currently overfished.

The current fisheries on these stocks are described in more detail in Section 5.6.1. In the BSAI fisheries prosecuted under the current rock sole, flathead sole, and other flatfish fisheries are almost exclusively prosecuted by C/Ps using bottom trawl gear. Although these species are open to other vessel categories and gear types, very few rock sole, flathead sole, or other flatfish are harvested by other types of vessels. Vessels participating in these fisheries generally fish for rock sole during the roe season until the first seasonal halibut bycatch cap is reached. Generally, after the rock sole roe fishery closes, these vessels shift to several different targets; notably Atka mackerel, yellowfin sole, and Pacific cod. Vessels also can go into the Gulf of Alaska (GOA) to fish for rex sole.

The directed Atka mackerel fishery is a bottom trawl fishery that occurs off the continental shelf in the Eastern Bering Sea (EBS) and in the passes between the central and western Aleutian Islands. Thirty-five species of rockfish (genus *Sebastes* and *Sebatolobus*) occur in the BSAI, of which eight are commercially important. In recent years, the only BSAI rockfish species open for directed fisheries has been the Pacific Ocean perch in the Aleutian Islands. The directed fishery for Pacific Ocean perch is mostly conducted by C/Ps using bottom trawl gear. The incidental catch of POP is predominantly by trawl gear in the following targets by decreasing order: Atka mackerel, pelagic pollock, non-pelagic pollock, Pacific cod and flatfish. In the context of the BSAI groundfish fisheries, bycatch is not known to affect the condition of groundfish stocks more than any other removal (such as retained catch). As indicated in the PSEIS, management of these stocks does not allow the fishing mortality rate to exceed the OFL.

Detailed descriptions of the management, stock status, TACs, retention, and MRAs are provided for each species considered under the action alternatives (Section 4.1). Generally, data are presented for each BSAI groundfish fishery from 1995 through 2004 or 2005. Limited catch data

are reported for earlier years in order to provide a more complete historical perspective on catch. Catch data for each fishery are provided by gear type.

A description of the BSAI groundfish fisheries may be found in the SAFE report by the NPFMC (2004e). Please see this document for further details on the groundfish fisheries in the BSAI.

3.1.2 Status of Prohibited Species in the BSAI

Prohibited species in the groundfish fisheries include Pacific salmon (Chinook, coho, sockeye, chum and pink), steelhead trout, Pacific halibut, Pacific herring, and Alaska king, Tanner and snow crab. Detailed information on the status of prohibited species is presented in Section 3.5.2 of the PSEIS (NMFS 2004a). A recent review of the status of crab stocks may also be found in the 2004 SAFE report for crab (NMFS 2004c). The effects of the groundfish fisheries in the BSAI on prohibited species are primarily managed by conservation measures developed and recommended by the NPFMC over the entire history of the FMPs for the BSAI and implemented by Federal regulation. These measures include yearly and seasonal PSC limits and area closures, gear restrictions and an incentive plan to reduce the incidental catch of prohibited species by individual fishing vessels.

Effects of prohibited species bycatch in the BSAI groundfish fisheries were evaluated in the PSEIS (NMFS 2004a). Current harvest practices have insignificant impacts on halibut and herring. However, the PSEIS noted that some prohibited species are currently in a depressed (BSAI Chinook) or overfished condition (*C. bairdi* crab, *C. opilio* crab, BSAI red king crab and BSAI blue king crab). The status of these shellfish species is also identified in the EIS for BSAI crab (NMFS 2004d). Although the fishing mortality of depressed or overfished non-target species is minor, the additional mortality resulting from groundfish fisheries, such as those in the non-AFA trawl C/P sector may not be beneficial to these stocks. When cumulative effects are considered, conditionally significant adverse impacts due to fishing mortality are expected for depressed and overfished species. Conditionally significant adverse impacts are also expected for crab species due to changes in biomass.

3.1.3 Status of Forage Fish Species

The species referred to as forage fish species are limited to those species included in BSAI groundfish FMP Amendment 36. Management concerns regarding forage fish, as well as current and planned research to address these concerns, are discussed in Section 3.5.4 of the PSEIS (NMFS 2004a). Because fishery-independent surveys for forage fish have not been implemented, biomass estimates remain uncertain. However, preliminary estimates for ecosystem models suggest that standing stocks of forage fish are stable. Current harvest practices in the groundfish fisheries result in insignificant forage fish mortality because the level of catch is very small. No comparative baseline exists to determine prey availability, habitat suitability, and spatial/temporal catch distribution impacts.

3.1.4 Status of Benthic Habitat and Essential Fish Habitat

Groundfish habitat is comprised of all the marine waters and benthic substrates in the management areas. In addition, the adjacent marine waters seaward of the EEZ, adjacent State of Alaska waters, shoreline, freshwater inflows, and the atmosphere above the waters constitute habitat for prey species, other life stages and species that move in and out of, or interact with, groundfish. Distinctive aspects of the habitat include water depth, substrate composition, substrate infauna, light penetration, water chemistry (salinity, temperature, nutrients, sediment load, color, etc.), currents, tidal action, phytoplankton and zooplankton production, associated species, natural disturbance regimes and the seasonal variability of each aspect. Substrate types include bedrock, cobbles, sand, shale, mud, silt and various combinations of organic material and invertebrates that may be termed biological substrate. Biological substrates present in management areas include corals, tunicates, mussel beds, and tubeworms. Biological substrate has the aspect of ecological state (from pioneer to climax) in addition to the organic and inorganic components. Ecological state is related to natural and anthropogenic disturbance regimes. The BSAI groundfish FMP contains a description of habitat preferences of the target species, and projects are underway to systematically present biological requirements for each known life history stage. A detailed analysis of interactions between groundfish fisheries and benthic habitat and EFH is provided in Section 3.6 of the PSEIS (NMFS 2004a) and the EA/FRFA for the 2005 TAC specifications for Alaska groundfish fisheries (NMFS 2005c). The PSEIS identifies that conditionally significant adverse cumulative effects may occur from groundfish fisheries under the preferred alternative due to mortality of Bering Sea benthic organisms. The additional external impacts described in the PSEIS preferred alternative are described as adding to the lingering past mortality impacts and contribute to impacts that are already evident.

As the non-AFA trawl C/P sector operates trawl gear in benthic habitat areas, it is possible that these operations contribute to this mortality. It is not possible to determine the extent of this fishery's contribution to changes in benthic habitat areas, or mortality, or how Alternatives 2 and 3 may impact benthic habitat areas, compared with Alternative 1.

According to the *Final Environmental Impact Statement for Essential Fish Habitat Identification and Conservation in Alaska* (EFH EIS; NMFS 2005a), fishing closures proposed in the preferred alternative 3 of the EFH EIS, are recommended for the BSAI areas that are not currently fished by non-AFA trawl C/P vessels. The EIS concludes that the effects of current fisheries on EFH are minimal because the analysis finds no indication that continued fishing activities at the current rate and intensity would alter the capacity of EFH to support healthy populations of managed species over the long term. The analysis also concludes that no Council-managed fishing activities have more than minimal and temporary adverse effects on EFH, which is the regulatory standard requiring action to minimize adverse effects under the Magnuson-Stevens Act, but the preferred alternative of closing certain areas of high coral abundance could be taken as a precautionary measure to provide additional habitat protection. The EFH groundfish closures are not anticipated to impact this action, because the closed areas under EFH are not frequently transited or fished by these groundfish C/P vessels.

3.1.5 Ecosystem Considerations

Ecosystem considerations for the BSAI groundfish fisheries are explained in detail in Appendix C of the 2005 TAC specifications (NMFS 2005c). This document provides updated information on biodiversity, essential fish habitats, sustainable yields, trophic interactions, and human considerations. This information is intended to be used in making ecosystem-based management decisions such as establishing ABC and TAC levels. Additional information on the condition of the BSAI marine ecosystems is found in Section 3.10 of the PSEIS (NMFS 2004a).

Total commercial fishing removals in the BSAI are a small proportion of the total system energy budget and are small relative to internal sources of inter-annual variability in production. Energy flow pathways do not seem to be redirected by discards and offal. Before improved retention requirements for Pacific cod and pollock were in place it was estimated that the total offal and discard production was one percent of the estimated unused detritus going to the ocean bottom. No data exist on the distribution and potential accumulation of discards on the ocean bottom of the North Pacific. In near-shore locations the Environmental Protection Agency regulates point sources of discharges from seafood processing plants. Unused fish products must be ground and distributed according to conditions of permits for National Pollution Discharge Elimination Standards, but no discharge standards are applied to C/Ps operating outside of coastal waters. Unlike point sources of fish discharges from shoreside plants, it is probable that whole discarded groundfish may be distributed over a substantial area of the ocean floor. If the distribution of groundfish discards relative to natural sources of organic material can be assumed to be similar, and considering the amounts of the non-AFA trawl C/P discards relative to natural sources, there are no available data to suggest that resulting changes in scavenger populations or benthic community impacts could result in ecosystem impacts through energy removal and redirection from these sources (NMFS 2004a).

3.1.6 Status of Marine Mammals

Marine mammals not listed under the ESA that may be present in the BSAI include cetaceans, pinnipeds and sea otters (Table 2).

Direct and indirect interactions between marine mammals and groundfish harvest occur due to overlap in the size and species of groundfish harvested in the fisheries that are also important marine mammal prey and due to temporal and spatial overlap in marine mammal foraging and commercial fishing activities. A detailed analysis of interactions between groundfish fisheries and marine mammals is provided in Section 3.8 of the PSEIS (NMFS 2004a); *Steller Sea Lion Protection Measures Supplemental EIS* (NMFS 2001) and the EA/FRFA for the 2005 TAC specifications for Alaska groundfish fisheries (NMFS 2005c). The PSEIS (NMFS 2004a) suggests that discards in the amounts returned to the BSAI groundfish fisheries are not likely to be an important source of food for other groundfish species.

3.1.7 Status of Endangered or Threatened Species

Species currently listed as endangered or threatened under the ESA that may be present in the BSAI and GOA are presented in Table 2. The group includes great whales, pinnipeds, Pacific salmon, steelhead, and seabirds. Of the species listed under the ESA and present in the action area, some may be negatively affected by groundfish commercial fishing. NOAA Fisheries is the expert agency for ESA-listed marine mammals and anadromous fish species. The U.S. Fish and Wildlife Service (USFWS) is the expert agency for ESA-listed seabirds. All BSAI and GOA fisheries must be in compliance with the ESA.

Table 2. Protected species in the BSAI and GOA

Common Name	Scientific Name	ESA Status
Northern Right Whale	<i>Balaena glacialis</i>	Endangered
Bowhead Whale ¹	<i>Balaena mysticetus</i>	Endangered
Sei Whale	<i>Balaenoptera borealis</i>	Endangered
Blue Whale	<i>Balaenoptera musculus</i>	Endangered
Fin Whale	<i>Balaenoptera physalus</i>	Endangered
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered
Sperm Whale	<i>Physeter macrocephalus</i>	Endangered
Snake River Sockeye Salmon	<i>Onchorynchus nerka</i>	Endangered
Short-tailed Albatross	<i>Phoebastria albatrus</i>	Endangered
Steller Sea Lion	<i>Eumetopias jubatus</i>	Endangered and Threatened ²
Snake River Fall Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Snake River Spring/Summer Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Puget Sound Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Lower Columbia River Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Upper Willamette River Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Threatened
Upper Columbia River Spring Chinook Salmon	<i>Onchorynchus tshawytscha</i>	Endangered
Upper Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Endangered
Snake River Basin Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Lower Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Upper Willamette River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Middle Columbia River Steelhead	<i>Onchorynchus mykiss</i>	Threatened
Spectacled Eider	<i>Somateria fishcheri</i>	Threatened
Steller's Eider	<i>Polysticta stelleri</i>	Threatened
Minke Whale	<i>Balaenoptera acutorostrata</i>	None
Killer Whale	<i>Orcinus orca</i>	None
Dall's Porpoise	<i>Phocoenoides dalli</i>	None
Harbor Porpoise	<i>Phocoena phocoena</i>	None
Pacific White-sided Dolphin	<i>Lagenorhynchus obliquidens</i>	None
Beaked Whales	<i>Berardius bairdii</i> and <i>Mesoplodon</i> spp.	None
Northern Fur Seal	<i>Callorhinus ursinus</i>	None
Pacific Harbor Seal	<i>Phoca vitulina</i>	None
Sea Otter	<i>Enhydra lutris</i>	None

¹ The bowhead whale is present in the Bering Sea area only.

² Steller sea lion are listed as endangered west of Cape Suckling and threatened east of Cape Suckling.

Section 7 consultations with respect to the actions of the Federal groundfish fisheries have been completed for all the ESA-listed species above, either individually or in groups. On November 30, 2000, an FMP-level biological opinion was issued pursuant to Section 7 of the ESA on all NOAA Fisheries-listed species present in the fishery management areas for the entire groundfish fisheries. That FMP-level biological opinion concluded that the FMPs are likely to adversely modify only the critical habitat of the Steller sea lion. On October 19, 2001, NOAA Fisheries released a biological opinion for Steller sea lions that concluded that the FMP's approach to protection measures would not be likely to jeopardize the Steller sea lion or its critical habitat. For additional information, see the Steller sea lion EIS (NMFS 2001). Additional information on all endangered or threatened species in the BSAI can be found in the PSEIS (NMFS 2004a).

3.1.8 Status of Seabirds

The impacts of groundfish fisheries on seabirds are difficult to predict due to the lack of information on many aspects of seabird ecology. A summary of known information, both general and species-specific, can be found in Section 3.7 of the PSEIS (NMFS 2004a). An analysis of the programmatic level preferred alternative for management of BSAI groundfish fisheries is in Section 4.9.7 of that document.

In 1999, the USFWS issued a biological opinion on the BSAI hook-and-line groundfish fishery and the BSAI trawl groundfish fishery for the endangered short-tailed albatross, pursuant to Section 7 of the ESA. The biological opinion included a no jeopardy determination and an incidental take statement that required immediate reinitiation of consultations if incidental take exceeds four short-tailed albatross in a two-year period. Consultations on the short-tailed albatross were not reinitiated for the year 2000 TAC specifications because the 1999 biological opinion extended through the end of calendar year 2000. In September 2000, NOAA Fisheries requested reinitiation of consultation for all listed species under the jurisdiction of the USFWS, including the short-tailed albatross, spectacled eider and Steller's eider for the GOA FMP and 2001-2004 TAC specifications. Based upon a review of the fishery action, NOAA Fisheries concluded that GOA groundfish fisheries are not likely to adversely affect either the spectacled eider or the Steller's eider or destroy or adversely modify the critical habitat that has been proposed for each of these species.

ESA-listed seabirds are under the jurisdiction of the USFWS, which has completed an FMP-level biological opinion for the groundfish fisheries (USFWS 2003a) and a project-level biological opinion for the setting of annual harvest specifications (USFWS 2003b). The annual harvest specifications include all catch and bycatch alternatives included under the GRS, and concluded that these harvest levels are unlikely to cause the jeopardy of extinction or adverse modification or destruction of critical habitat for ESA-listed birds.

Effects of discards in the BSAI groundfish fisheries on both listed and non-listed species of seabirds were evaluated in the PSEIS (NMFS 2004a). A possible effect of discarding practices is enhancement of food availability for bird populations that scavenge for food. Increased food availability might increase survival or reproduction of scavenger populations that might be

detrimental to other seabird species that have competitive interactions with scavengers. The groundfish fisheries were not expected to have population-level effects on any seabird species. Although some piscivorous bird species, such as glaucous-winged gulls, might gain food subsidies from discards, there does not appear to be a population-level effect as a result of this subsidy.

3.1.9 ESA-listed Marine Mammals

ESA-listed Steller sea lions and ESA-listed great whales occur in the BSAI management area. Direct and indirect interactions between marine mammals and the groundfish fisheries occur due to the overlap in the size and species of groundfish that are at once important marine mammal prey and fishery resources.

The Steller sea lion inhabits many of the shoreline areas of the BSAI, using these habitats as seasonal rookeries and year-round haulouts. The Steller sea lion has been listed as threatened under the ESA since 1990. In 1997 the population was split into two stocks or distinct population segments based on genetic and demographic dissimilarities, the western and eastern stocks. Because of a pattern of continued decline in the western distinct population segment, it was listed as endangered on May 5, 1997 (62 FR 30772), while the eastern distinct population segment remained under threatened status. The eastern population segment inhabits an area of Alaska approximately from Prince William Sound westward to the end of the Aleutian Island chain and into Russian waters.

Throughout the 1990s, particularly after critical habitat was designated, various closures of feeding areas around rookeries and haulouts and some offshore foraging areas limited commercial harvest of pollock, Pacific cod, and Atka mackerel--important components of the western distinct population segment of Steller sea lions' diet. In 2001 a biological opinion was released that provided protection measures that would not jeopardize the continued existence of the Steller sea lion nor adversely modify its critical habitat; that opinion was supplemented in 2003, and after court challenge, these protection measures remain in effect today.

Several species of whales use the Bering Sea as summer feeding grounds and then return to seasonal wintering and calving areas further south. The endangered North Pacific right whale is perhaps of most concern given its very small known population size. This whale moves through the Aleutian Island region annually to occupy feeding habitat in the eastern Bering Sea; it is very rare, and only up to 25 individuals have been seen annually in recent surveys.

The directed pollock fishery in the BSAI has a very minor take of all marine mammals, which is likely to have a very minor contribution to total mortality. This amount of marine mammal take is within permitted levels and does not constitute a threat to the species, as noted in the SAFE report (NPFMC 2004e). Further information on interactions between the groundfish fisheries and marine mammals may be found in the groundfish PSEIS (NMFS 2004a).

3.2 Ecosystem Considerations

Ecosystems are populations (consisting of single species) and communities (consisting of two or more species) of interacting organisms and their physical environment that form a functional unit with a characteristic trophic structure (food web) and material cycles (movement of mass and energy among groups).

Three natural processes underlie changes in population structure of species in marine ecosystems: competition, predation, and environmental disturbance. Natural variations in recruitment, survivorship, and growth of fish stocks are consequences of these processes. Human activities, such as commercial fisheries, can also influence the structure and function of marine ecosystems. Fishing may affect ecosystems by altering energy flows, changing predator-prey relationships and community structure, introducing foreign species, affecting trophic or functional diversity, altering genetic diversity, altering habitat, and damaging benthic organisms or communities.

An assessment of the ecosystem trends in the BSAI management area was undertaken by Livingston et al. (1999). The study showed a stable trophic level of catch and stable populations overall. The trophic level of the Bering Sea catch has risen slightly since the early 1950s and appears to have stabilized as of 1994 in terms of the distribution of species at a given trophic level. For example, BSAI groundfish catches in the period from 1950 to 1960 included a larger proportion of flatfish, a species group that feeds at a lower trophic level, than species such as pollock. The early 1980s to 1994 BSAI fisheries have removed greater proportion of pollock groundfish as compared with flatfish. Pollock feed on both zooplankton and other fish species (representing a higher trophic level for catches that include a larger amount of these species).

Further information on the ecosystem may be found in the Ecosystems Considerations appendix to the SAFE report (NPFMC 2005) and the groundfish PSEIS (NMFS 2004a).

3.3 Status of BSAI Industry Sectors, Participation, and Economic Information

This section discusses existing economic and social conditions of affected portions of the BSAI. Included in this description is information on the number of C/Ps participating in each BSAI fishery by sector from 1995 to 2004, information on wholesale value, total catch and retention rates by fishery and fleet distributions by retention rate during the 1999 to 2005 fishing years for each fishery.

3.3.1 Description of Data Sources and Data Reports

The data used for this analysis are from NOAA Fisheries Weekly Production Reports and blend data. Blend data are a combination of Weekly Production Reports from C/Ps and motherships and NOAA Fisheries observer data. Additionally, analysis for 2002 through 2005 may incorporate NMFS Catch Accounting data.

Observers on processor vessels report groundfish species composition, total catch, and estimates of retention and discards weekly for each separate reporting area and gear type. Total catch may be estimated using cod-end or bin volumetrics, scales, or conversion from production data. Species composition of the catch is obtained by sampling. The total catch is apportioned by species based on that sampling. The blend process combines data from the industry production reports and observer reports to make a comprehensive accounting of groundfish catch. Observer data are the source deemed reliable by NOAA Fisheries for the calculation of discards. Because observer coverage on catcher vessels is limited, discard estimates are calculated for catcher vessels as a fleet and assigned to the processors that take catcher vessel deliveries. Consequently, no discard estimates are available for individual catcher vessels.

In order to provide a comprehensive description of the groundfish fishery regarding retention rates, information is presented for all processors. BSAI groundfish fishery participants were divided into the following sectors:

Surimi and Fillet Trawl C/Ps: These vessels primarily produce surimi and fillet products from the pollock fishery. These processors are typically the largest in the C/P category.

Non-AFA trawl C/P: These vessels typically concentrate on head and gut products or kirimi. Generally, the head and gut fleet tends to focus primarily on flatfish, Pacific cod, and Atka mackerel. Unlike the surimi and fillet fleet, the head and gut fleet tends to be the smallest of the trawl C/Ps. Most of the vessels in this class can only accommodate sufficient crew and machinery to produce headed and gutted product. Various Coast Guard regulations associated with food production may also constrain the ability of this vessel class to produce other product forms. Heading and gutting of fish leaves the skin on the fish and is not included in some Coast Guard regulations for other fish processing methods that produce more intensely processed products. Most vessels in the non-AFA trawl C/P class are not load line certified, a designation

that requires certain standards for food production on a vessel. The U.S. load line regulations are found in 46 CFR Subchapter E, Load Lines (parts 41 through 47). These regulations were originally derived from the Coastwise Load Line Act and the International Voyage Load Line Act, and also incorporate the requirements of the International Convention on Load Lines. The statutory basis for the regulations comes from (46 USC Chapter 51). Without load line certification, a processing vessel cannot produce fillets. Currently there are no head and gut vessels with fish meal plants. A number of practical obstacles, as well as Coast Guard and NOAA Fisheries regulations on vessel upgrades, effectively prevent head and gut vessels from making fish meal.

Longline C/Ps: These vessels use longline gear rather than trawl or pot gear. Also known as freezer longliners, their primary target fishery is Pacific cod and they are generally limited to heading and gutting their catch.

Pot C/Ps: These vessels typically focus on the crab fisheries, but increasingly are participating in the Pacific cod fisheries. They generally use pot gear, but may also use longline gear. They produce headed and gutted or whole groundfish products, including bait for sale or their own use in the crab fisheries.

BSAI Shore-based Processors, Motherships, and Floating Inshore Processors: This category is included as a proxy for catcher vessels. Although observers report groundfish species composition, total catch, and estimates of retention and discard on a weekly basis, the level of coverage is limited because only 30 percent of catcher vessels have observer coverage. BSAI shore-based processors include the four major shore-based BSAI pollock processors in Dutch Harbor/Unalaska and Akutan and two inshore floating pollock processors—Arctic Enterprise and Northern Victor. Shore plants in the Aleutians East Borough and in the Aleutians West Census area are also included. For the purposes of this analysis, all other floating inshore plants and motherships operating in the EEZ are also included in this category.

A complete discussion of the groundfish fleet classifications can be found in *Sector and Regional Profiles of the North Pacific Groundfish Fisheries—2001* (Northern Economics, Inc. and EDAW, Inc. 2002.)

3.3.2 Participation by Processing Sector

Table 3 shows participation in BSAI fisheries by the four C/P sectors described above from 1995 to 2004. Counts of catcher vessels delivering BSAI groundfish are included rather than counts of processors since any GRS would be enforced at the point of harvest.

With the exception of pot C/Ps, the number of participants has declined in each of the sectors over the ten year period. For the surimi and fillet C/P fleet, the number of participants has declined from 33 in 1995 to 17 in 2002. Among the individual target fisheries in the surimi and fillet C/P fleet, pollock has consistently attracted the most participation. In 1995, there were 63 permits issued to vessels with pollock catches recorded in BSAI catch statistics. Shortly after the

AFA was implemented, the number of permits with recorded catches declined to 30 for the pollock fishery. Other fisheries that had consistent participation were yellowfin sole and Pacific cod, although these fisheries also saw declines in the number of permits fished.

Among the head and gut C/Ps, there has only been a slight decline in participation in some target fisheries. Overall, 32 head and gut C/Ps participated in 1995, while only 23 participated in 2004. The fisheries with the largest number of participants were yellowfin sole, rock sole, flathead sole and Pacific cod with each generally having 20 or more participants per year from 1995 to 2001.

The longline C/P fleet remained relatively stable over the 1995 to 2001 period. The lowest participation was in 1999 when only 38 longline C/Ps targeted groundfish. Participation has been strongest in the Pacific cod fishery. The highest level was in 1995 and 2001 when 42 vessels targeted Pacific cod. The turbot fishery also had high levels of participation, although it has declined in recent years. The sablefish fishery attracted a modest number of longline C/Ps during the ten-year period.

Among pot C/Ps, only the Pacific cod fishery has consistently attracted a substantial number of participants. From 1995 to 2004, there have been between 3 and 9 annual participants in this fishery.

The number of catcher vessels participating in the BSAI fisheries varied from 1995-2001 with a high of 318 in 1995 and a low of 236 in 1998. In 2001, there were 305 active catcher vessels. A more detailed description of catcher vessel activity in the BSAI can be found in Northern Economics, Inc. and EDAW, Inc. (2002).

Table 3. Participation in major BSAI fisheries in 1995-2004, by target fishery and processing sector

Target Fishery & Sector	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
	Number of Vessels										
Surimi & Fillet Trawl C/Ps											
Pollock	33	32	29	28	16	14	15	16	16	16	16
All Fisheries	33	32	29	28	16	15	16	17	17	17	17
Head & Gut Trawl C/Ps											
Atka Mackerel	14	12	8	12	16	13	13	11	14	19	19
Pacific Cod	24	26	26	21	21	22	17	21	18	19	18
Other Flatfish	29	21	18	20	24	23	20	18	16	23	18
Rockfish	14	13	10	7	12	7	7	10	11	10	6
Rock Sole	29	26	25	18	22	23	20	21	21	22	22
Yellowfin Sole	27	24	24	20	23	23	22	21	21	22	21
All Fisheries	32	32	28	23	23	24	22	22	22	23	22
Pot C/Ps											
Pacific Cod	6	9	7	5	9	9	7	5	3	3	*
All Fisheries	6	9	7	5	9	9	7	5	3	4	3
Longline C/Ps											
Pacific Cod	42	38	38	36	36	38	42	40	39	39	39
Sablefish	15	18	12	10	17	18	10	14	8	6	11
All Fisheries	45	43	42	42	38	40	45	42	40	40	40
All C/Ps	116	112	106	98	86	87	90	86	86	84	81
All Catcher Vessels	318	289	270	236	265	325	305	305	305	274	250

Sources: Processor counts are from NOAA Fisheries blend data and catcher vessel counts are from ADF&G fish-tickets. Both blend and fish-ticket data were synthesized by Northern Economics, Inc. Data for 2002 to 2004 provided by NOAA Fisheries, Inseason Management, 2005.

3.3.2.1 Vessel Owner's Residence

The registered owners of vessels in the AFA trawl C/P, freezer longline trawl C/P, and non-AFA trawl C/P sectors all list addresses in the Washington Inland Waters (WAIW) Region. Furthermore, all but one pot C/P is not owned by a resident of the WAIW region. The longline C/P class is the most diverse of all the processor classes in terms of ownership. In 2001, 28 percent of owners resided in Alaska or regions other than WAIW and the Oregon Coast Region. Within Alaska, ownership is distributed across all four regions (Alaska Peninsula and Aleutian Islands, Southcentral Alaska, Kodiak, and Southeast Alaska), with 16 of the 23 vessels owned by residents of Southcentral or Southeast Alaska.

Table 4. Ownership/management of the non-AFA trawl C/P sector, 2005

Owner/Manager	Vessel Name	Groundfish Forum Status
Arctic Sole Seafoods Seattle, WA	<i>F/T Alaskan Rose (Tremont)</i>	Member
	<i>F/T Arctic Rose (Sunk 2001)</i>	
Cascade Fishing, Inc. Seattle, WA	<i>F/T Seafisher</i>	Member
Fishing Company of Alaska Seattle, WA	<i>F/V Alaska Juris</i>	Member
	<i>F/V Alaska Voyager</i>	Member
	<i>F/V Alaska Victory</i>	Member
	<i>F/V Alaska Warrior</i>	Member
	<i>F/V Alaska Ranger</i>	Member
Fishermen's Finest Seattle, WA	<i>F/V American #1</i>	non-Member
	<i>F/V US Intrepid</i>	non-Member
F.J. O'Hara & Sons Seattle, WA	<i>F/T Defender</i>	Member
	<i>F/T Enterprise</i>	Member
Golden Fleece, Inc. South Bend, WA	<i>F/V Golden Fleece</i>	Member
Iquique U.S., L.L.C. Seattle, WA	<i>F/T Arica</i>	Member
	<i>F/T Cape Horn</i>	Member
	<i>F/T Rebecca Irene</i>	Member
	<i>F/T Unimak Enterprise</i>	Member
Jubilee Fisheries Seattle, WA	<i>F/T Vaerdahl</i>	Member
Kodiak Fish Company Bellingham, WA	<i>F/T Alliance</i>	non-Member
	<i>F/T Legacy</i>	non-Member
Trident Seafoods Seattle, WA	<i>F/T Bering Enterprise (inactive since 1997)</i>	non-Member
	<i>F/T Harvester Enterprise (inactive since 1997)</i>	non-Member
U.S. Seafoods Seattle, WA	<i>F/T Ocean Peace</i>	Member
	<i>F/T Seafreeze Alaska</i>	non-Member
	<i>F/T Ocean Alaska (Beagle)</i>	non-Member

Source: Groundfish Forum and At-Sea Processors Association, 2005

3.3.2.2 Current Ownership and Management Patterns in the Non-AFA Trawl C/P Sector

Because this action is intended to provide tools for the non-AFA trawl C/P sector with additional opportunity to increase retention of groundfish, this section provides additional information regarding the ownership of vessels in that sector. In recent years, between 22 and 26 vessels have been considered part of the non-AFA trawl C/P sector. According to the industry associations (Groundfish Forum and At-Sea Processors Association), ownership or management of the fleet is concentrated in 11 companies, as shown in Table 4.

3.3.2.3 History of the Non-AFA Trawl C/P Sector

This section contains a brief history of the non-AFA trawl C/P sectors to provide the reader with a better understanding of some of the historical factors that have contributed to the non-AFA trawl C/Ps current status. The sector began in 1976 with the establishment of the EEZ and the Americanization of the fisheries off Alaska. The following section discusses the beginnings of the non-AFA trawl C/P sector and documents the important regulatory actions over the last 25 years that shaped the current status of this sector.

An important milestone for U.S. fisheries was the establishment of the EEZ and with it, the Council management system, in 1976. In Alaska, the North Pacific Fishery Management Council was well established by 1978, and in that year approved an allocation system for groundfish that gave preferential allocation first to U.S. domestic processors (DAP), second to foreign processors utilizing U.S. fishing vessels (JVP) and lastly to fish harvested by foreign fishing vessels (TALFF; NPFMC 1996). In 1980, the U.S. Congress passed the American Fisheries Promotion Act which included the "fish and chips policy" formalizing the "Americanization" of the fisheries in the U.S. EEZ. As part of the Americanization effort, loan programs and other subsidies were established to encourage the development of U.S. flagged fishing and processing vessels. As seen in Figure 2, the Americanization of the Alaska fisheries went from almost total foreign participation in the late 1970s and early 1980s, to a period of growth and dominance of JVP operations in the mid-1980s, to a similar surge in DAP in the early 1990s. The last foreign fishery took place in 1989, and the last JVP fishery took place in 1990.

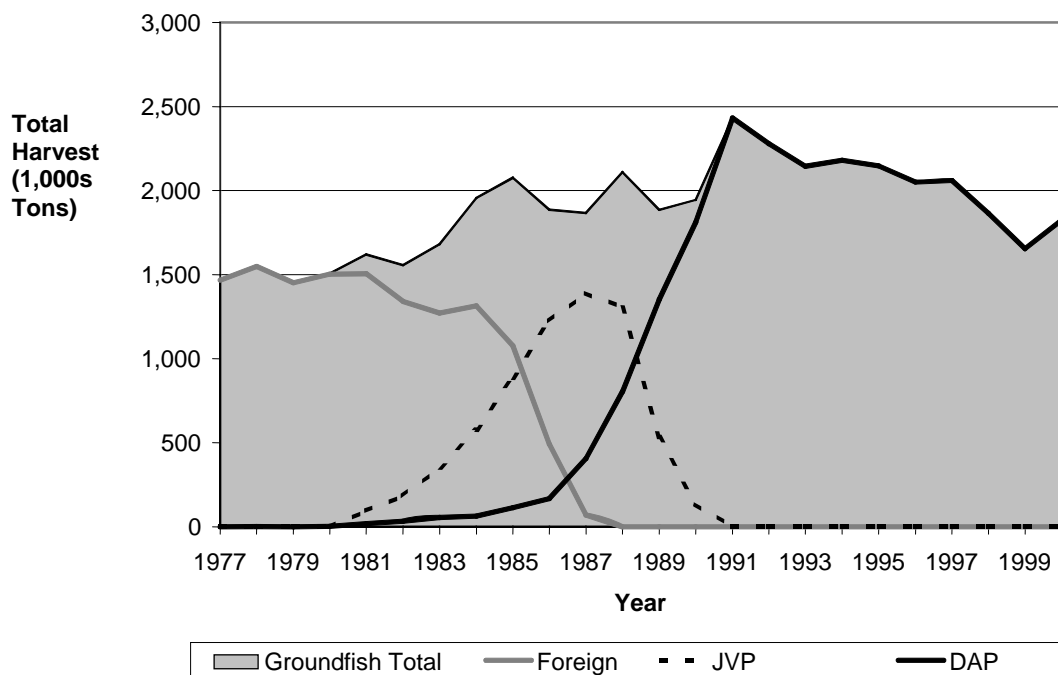


Figure 2. Americanization of the Alaska groundfish fishery, 1977-1999

Source: Economic Status of the Groundfish Fisheries off Alaska, 1991 and 1995, R.K. Kinoshita, *et al.*, April 1997; and NMFS Blend Data, June 2001.

Because the DAP in the North Pacific was largely underutilized in the early years, the fishery resource was taken on a first-come first-served basis. Whoever wished to participate could fish until the quota was taken. This inefficient allocation system evolved into a race-for-fish. Whoever had the biggest and fastest vessel would typically catch the most fish. While the negative consequences of the race-for-fish have been substantially documented (National Research Council 1999), it continues to be the principal means of allocation for vessels in the non-AFA trawl C/P sector.

Coinciding with policy of Americanization of U.S. fisheries, the western Alaska king crab fisheries experienced huge growth in catch and the number of participating vessels. The crab fisheries peaked in 1980 and subsequently collapsed the following year. The number of vessels in the Bristol Bay red king crab fishery increased from 51 in 1970 to 236 in 1979 and 1980 (ADF&G 1999). Many of these new vessels in the crab fishery were converted from vessels used to transport pipe and oil well supplies to the booming north-slope oil fields. In 1981, the crab fisheries collapsed throughout western Alaska, leaving these newly converted crab vessels with little to do. The growing groundfish fishery with its open access and race-for-fish system was a ready option, and many of these crab vessels were converted to either participate as catcher vessels in joint venture operations with foreign processing vessels or to longline or trawl C/Ps. The first U.S.-flagged trawl C/Ps were head and gut factory trawlers, and entered the fishery in 1980 (NMFS 2005b). These boats focused their effort primarily on Pacific cod, rockfish,

sablefish and flatfish. Pollock, while ubiquitous, were not generally targeted because of their relatively low value.

A key development in the history of the factory trawler was the introduction in 1983 and rapid acceptance of high-speed at-sea filleting machinery, such as the Baader 182 and other similar machinery by Toyo (Wulff 2003). These machines made at-sea processing of pollock into fillets and subsequent processing into surimi financially feasible. Vessels that were large-enough and met Coast Guard stability and loadline requirements to install this machinery, were able to tap into the huge pollock resource in the Bering Sea. Other trawl C/Ps, typically smaller vessels without loadline certifications, were limited to head and gut processing.

The 1987 Anti-Reflagging Act also contributed to the growth of the U.S.-flagged trawl C/P fleet (NMFS, 2005b). The act prohibited vessels that were not originally constructed in the United States from being re-flagged as a U.S. vessel. There was, however, a three-year window in which vessels that were already under conversion/construction were allowed to enter Alaska fisheries under the jurisdiction of the U.S. (IAI 1994).

The coincidental timing of the introduction of the Baader and the conversion provisions in the Anti-Reflagging Act led to a dramatic increase in the number of U.S.-flagged trawl C/Ps operating in the Alaskan EEZ. In 1986, NMFS reported 12 active U.S. trawls C/Ps operating in the Alaskan EEZ. However, the number of U.S. trawl C/Ps doubled in 1987 (IAI 1994), and by 1990, there was a total of 72 U.S.-flagged trawl C/Ps operating in the Alaskan EEZ. Although the exact number of non-AFA trawl C/Ps was not explicitly tracked at the time, estimates developed in 1995 for the Groundfish and Crab License Limitation program indicated that there were a total of 23 non-AFA trawl C/Ps in 1988—12 of which fished only with trawl gear and 11 of which reported fishing with both trawl and non-trawl gears. The same source indicated that in 1990, a total of 33 vessels were non-AFA trawl C/Ps, 17 of which had reported only using trawl gear.

During the same period of maturation (in the mid- to late 1980s), restrictions on the domestic groundfish fishery began to increase, due primarily to problems with incidental catches of non-target species. In 1983, Amendment 3 to the BSAI FMP established PSC policy for domestic fisheries, and defined prohibited species to include crab, halibut, herring, and salmon (NMFS 1996). In 1986, Amendment 14 to the GOA FMP established the allocation of sablefish in the GOA to the trawl sector. In the eastern GOA, 5 percent of the sablefish was allocated to trawlers for bycatch purposes only, while in the western and central GOA, 20 percent of the sablefish was allocated to trawlers for directed fishing. In 1987, the Council established bycatch limitation zones for prohibited species and established limits on the amounts of PSC that could be taken (BSAI FMP Amendments 11-12). The most far-reaching of these actions was the halibut PSC limit which, when met, closes fisheries from additional activity for the season. Other PSC limits were not as onerous, triggering area closures rather than closing entire fisheries.

By 1989, pollock roe stripping became a major issue, when trawl C/Ps moved down from the BSAI to the GOA in the spring of 1989 and harvested nearly 53 percent of the domestic apportionment of GOA pollock in a matter of weeks (NPFMC 1990). The pollock fishery in the

GOA was closed much earlier than expected and shoreside processors and harvesters, based primarily in Kodiak, expressed concern. Roe stripping is the practice of targeting roe bearing pollock before and during the spawning season and extracting the extremely valuable roe while discarding the remaining carcasses and males. By this time pollock roe production had become a key component of the entire trawl C/P sector. For the non-AFA trawl C/P vessels, processing pollock roe was the only profitable way to utilize pollock—headed and gutted pollock without roe was virtually unmarketable. In 1990, the Council approved a ban on roe stripping, which had the effect of eliminating pollock as a viable species for the non-AFA trawl C/P sector.

In 1990, the battle over roe stripping also had important implications for the ongoing allocation issue between inshore and offshore pollock processors. However, once the roe stripping regulations were approved, the Council turned its attention to the non-AFA trawl C/P fleet. Inshore-offshore allocations of pollock in the BSAI were approved by the Council in 1992. In the GOA, the Council added Pacific cod to the allocation and reserved 90 percent of the pollock and 80 percent of the Pacific cod for inshore operations. In doing so, the Council defined the inshore sector to include most small C/Ps (<125 feet LOA) as long as they stay within an 18 mt per day limit of total catch. The allocations and size limits in the GOA effectively put the GOA Pacific cod fishery off limits for all but the smallest non-AFA trawl C/Ps.

During the early and mid 1990s, the Council process was primarily focused on allocation and rationalization issues. While these issues indirectly affected the non-AFA trawl C/Ps, other sectors were affected in much more significant ways. However, an add-on to the License Limitation Program in 1995 closed the eastern GOA to trawling. While trawling catches in the eastern GOA were not large compared to non-trawl catches in the eastern GOA or to trawl catches in other areas, the non-AFA trawl C/P fleet were the primary participants trawling for high value rockfish species. The closure further limited the opportunities for the non-AFA trawl C/P sector. As a result of these restrictions, flatfish became the primary target species for the non-AFA trawl C/P sector.

Increasing dependence on flatfish species has been accompanied by additional constraints for this sector. Because these species are bottom-dwellers, flatfish fisheries are prone to high incidental catches of prohibited species such as halibut and crab. In addition, while non-AFA trawl C/P sector participants report that market prices for some flatfish fisheries have increased in the last few years, other species appear to have limited markets—particularly with regard to size and product quality. These market limitations generate retention costs and conversely, the incentive to discard lower valued species.

In the early 1990s, there was a marked increase in public awareness and concern for the problems of incidental catch, PSC, and discards of both target species and of incidental catch species. In response to the growing perception of unnecessary waste in the fisheries, the Council in 1994 initiated an analysis to improve utilization and retention, and to provide better incentives to reduce incidental catches of non-target species. The growing awareness and controversy led to a formulation of a national policy to reduce bycatch, which was included in the reauthorization of the Magnuson-Stevens Act in 1996.

The waste reduction initiatives resulted in the Council's 1996 approval of IR/IU for the BSAI (Amendment 49). A similar program was approved for the GOA in 1997 (Amendment 49). The IR/IU measures for pollock and Pacific cod were implemented in 1998 for both the GOA and BSAI. They were initially directed primarily at the surimi and fillet trawl C/Ps, which over time installed fish-meal plants and otherwise changed their fishing and processing methods to catch fewer unusable fish and to more fully utilize those fish harvested. For the non-AFA trawl C/Ps, which are generally too small to be outfitted with fish-meal plants, the IR/IU regulations were more difficult to meet. However, one outcome of the measure has been the development of a more consistent market for headed and gutted pollock in Asia—these fish are partially thawed and further processed before entering global consumer markets.

In approving the IR/IU amendment, the Council also approved IR/IU for flatfish, but recognized that the non-AFA trawl C/P sector would be unable to meet the IR/IU standard in the near term, and advised NOAA Fisheries to delay implementation of the flatfish portions of the regulations until 2003. The delay was intended to give the non-AFA trawl C/P fleet time to alter their fishing methods and gear to avoid unwanted catch and to develop markets for catches of flatfish that are unavoidable and that would otherwise be discarded.

Since 1997, the non-AFA trawl C/P sector has improved their retention and utilization. Retention by the non-AFA trawl C/P sector has been aided in recent years by unusually large flatfish sizes and a global decline in whitefish supply. In addition, the non-AFA trawl C/P sector has made significant internal efforts, beginning with the formation of Groundfish Forum, an association of non-AFA trawl C/P sector owners. During the period following passage of IR/IU, the non-AFA trawl C/P fleet led by the Groundfish Forum has taken steps to reduce their unwanted catch. Since 1997, for example, 100 percent of the vessels in the sector have participated in SeaState, an industry sponsored organization that tracks fishing areas used by participants and provides reports of areas of high rates of incidental catches. The sector has also engaged in several experimental fisheries to test new and different gear configurations in order to reduce bycatch. The sector has also tested methods to reduce halibut mortality and broaden markets for fish that had previously gone unprocessed.

At the beginning of each year, NOAA Fisheries sets the TACs for each groundfish species as well as PSC limits. When the season begins on January 20, each vessel must race to catch as much fish as possible before the season ends when the TAC or a PSC limit is reached. If an individual vessel or company slows its activity to avoid catches of unwanted fish or areas of high concentrations of PSCs, they will very likely suffer a loss of revenue, particularly if other vessels or companies do not choose to fish conservatively.

While the race-for-fish problem is endemic throughout the North Pacific, it is only one of many factors that contribute to the aggressive fishing practices of the non-AFA trawl C/P sector. Other contributing factors are listed below.

- The diversity of products produced by the non-AFA trawl C/P sector is relatively large and for some products, the number of wholesale buyers in the market is quite limited.
- The demand for many of these products is such that prices for certain products are sensitive to fluctuations in quantity.
- There are relatively few fishing vessels participating in the sector (22 in 2002, 23 in 2003 and 2004) and even fewer companies. A total of 10 companies own or operate the 23 vessels, 16 of which are owned by 4 companies.
- The larger companies may have the ability to influence markets and affect season closures.

Other groundfish sectors have also been plagued by the common property nature of the fisheries in the North Pacific. This was particularly true of the pollock industry. However, the pollock fishery was rationalized with the approval of the AFA in 1998 by the U.S. Congress. The AFA created exclusive pollock allocations to AFA eligible vessels and allowed the formation of cooperatives in both offshore and inshore sectors. Non-AFA vessels that took pollock as incidental catch were prohibited from targeting pollock, and now operate year-round under MRAs for pollock—retained pollock may not exceed 20 percent of other retained groundfish between consecutive offloads.

As a result of the AFA, the pollock industry has seen marked improvements in profitability, as well as improvements in retention and reductions in incidental catches since 1999. Improvements in retention and reductions in incidental catches have occurred because by eliminating the race-for-fish, participants are able to slow their operations, and may move to new areas if fishing yields too many non-target fish or too many small or unusable pollock.

The AFA has also resulted in an additional restriction on the non-AFA trawl C/P sector. Because of the combination of AFA and IR/IU regulations, the non-AFA trawl C/Ps must comply with potentially conflicting pollock regulations. The sector is required to keep all pollock they catch because of IR/IU, unless their pollock catch exceeds 20 percent of total retained non-pollock groundfish, at which point they must discard pollock, as long as they don't discard so much as to fall below the 20 percent standard.

Writers of the AFA anticipated that rationalizing the pollock industry could have spillover effects on other sectors, including the non-AFA trawl C/P sector. Therefore, the AFA mandated harvest sideboards, which limit the catch of non-pollock groundfish by AFA vessels to their historical levels. The AFA also called for measures to protect other processors from spillover effects and suggested that processing limits (sideboards) on non-pollock species be applied to AFA processors. In 1999, the Council initiated the analysis of processing sideboards. Of particular relevance was the concern of the non-AFA trawl C/P sector that a rationalized offshore pollock fishery, combined with the impending implementation of flatfish IR/IU, would lead to significant increases in non-pollock catches by AFA C/Ps.

By 2002, the AFA processing sideboard issue evolved into an assessment of potential alternatives to IR/IU for flatfish—the non-AFA trawl C/P sector was reasonably satisfied that

restrictions on harvest of AFA C/Ps would keep them out of the head and gut fisheries, but they also realized that IR/IU flatfish requirements could significantly increase the costs to the sector. In April 2002, public testimony provided by non-AFA trawl C/P to the Council described that some vessels in that sector would be forced to exit flatfish and other fisheries if a requirement to retain all flatfish species was imposed. These exit decisions were reported to be due to their inability, with existing technology, to consistently produce hauls of target species, with low proportions of non-target catch, and adapt to the limited space available on some vessels to hold and process these mixed species hauls.

The inability for most non-AFA trawl C/P vessels to make fish meal out of the fish they catch made it more difficult for this sector to adjust to full retention than for the surimi and fillet trawl C/Ps. There were no non-AFA trawl C/P vessels with fish meal plants, and a number of practical obstacles as well as Coast Guard and NOAA Fisheries regulations on vessel upgrades effectively prevented these vessels from making fish meal. The increase in price of Pacific cod products due to reduced Atlantic cod harvests from the Barents Sea and an improving Asian economy have also resulted in higher gross product values for the non-AFA trawl C/P sector. While headed and gutted Pacific cod harvests by Japanese and Korean vessels from Russian waters have increased competition in the marketplace, the expansion of buyers of headed and gutted product in China, Europe, and the United States has given the non-AFA trawl C/P fleet the ability to switch markets as prices change across markets.

While retention and utilization of flatfish by all sectors, including the non-AFA trawl C/Ps improved between 1995 and 2000, (See Figure 3) the non-AFA trawl C/P fleet recognized that it still did not have the capability (e.g., markets and gear) to remain viable once IR/IU was implemented in 2003. The industry proposed that alternatives to full retention of flatfish be examined, and the Council added options to the ongoing analysis of processing limits under the AFA.

In October 2002, the Council voted to delay the 2003 implementation of IR/IU regulations for flatfish in the BSAI, in order to pursue alternative means of reducing discards of flatfish and other groundfish. That action, Amendment 75 to the BSAI FMP, would have delayed implementation of IR/IU flatfish regulations until June 2004. Amendment 75 was only partially approved by the Secretary of Commerce. The approved part was the delay of imposing IR/IU requirements on catches of IR/IU flatfish in the BSAI. The part of Amendment 75 not approved was the date of June 1, 2004, on which this delay would have ended. The practical effect of this action was that the proposed FMP text was modified by removing reference to rock sole and yellowfin sole as IR/IU species, thereby delaying indefinitely the flatfish IR/IU program.

In summary, the non-AFA trawl C/Ps were among the first US-flagged fishing vessels to enter the groundfish fisheries of the North Pacific. Because of their relatively small size, non-AFA trawl C/Ps have been unable to upgrade their processing lines beyond heading and gutting, and in general are restricted from installing meal plants. Because of their limited processing abilities, early non-AFA trawl C/Ps focused on high-value groundfish such as sablefish and rockfish in the GOA and Aleutian Islands. They also participated in the higher volume flatfish and Pacific cod

fisheries in the BSAI, but they were unable to find a consistent market for headed and gutted pollock unless it was at the peak of the roe season. Pollock were generally not targeted except at the peak of the roe season because of their comparatively low value as headed and gutted product. In the mid- to late-1980s increased restrictions were applied to the domestic groundfish fisheries, due primarily to problems with incidental catches of non-target species. In 1983, the BSAI FMP established a prohibited species catch policy for domestic fisheries and defined prohibited species to include crab, halibut, herring, crab, and salmon. Beginning with Amendment 14 in the GOA in 1986, which prohibited directed fishing with trawls for sablefish, followed by the roe stripping ban in 1991, inshore-offshore in 1992, and the License Limitation Program (LLP) in 1995, the non-AFA trawl C/P sector has been excluded from some of their more profitable fisheries into the lower value flatfish fisheries, which, because the targets are on the bottom of the ocean, are prone to high incidental catches of prohibited species such as halibut and crab. In addition, flatfish fisheries have limited markets—particularly with regards to size and quality of the product. These limited markets for non-target species, mixed distribution of species, lack of selective gear, space constraints on this class of vessel, combined with MRAs that, prior to 2004, were enforced at anytime during a fishing trip, and the common-property caused race-for-fish, all contributed to the highest rates of economic and regulatory groundfish discards of any sector in the BSAI.

3.3.3 Fishery Wholesale Value of Processing Operations in the BSAI

The remaining subsections of Chapter 3 provide context for catches, retention, and discards of groundfish species by the non-AFA trawl C/P sector in comparison with other sectors in the BSAI groundfish fishery. Table 5 shows wholesale value from C/Ps by sector, including the non-AFA trawl C/Ps and the combined shore-based/floater/mothership categories, by selected BSAI fishery.

For the AFA surimi and fillet C/P fleet, the most significant contributor to wholesale value has historically been the pollock fishery. In 2001, the combined wholesale value of pollock was \$407 million out of a total wholesale value for all groundfish of \$410 million, a 95 percent contribution.

Relative to wholesale value, the non-AFA trawl C/P sector is more diversified across the fisheries than other sectors. Two primary fisheries have historically contributed relatively equal shares of the wholesale value for the non-AFA trawl C/P fleet. Atka mackerel at \$47 million and yellowfin sole at \$32 million were two of the largest contributors to total wholesale value in 2001, contributing 35 percent and 24 percent, respectively, to the wholesale value. Other fisheries that have historically contributed a smaller share of the total wholesale value for the head and gut fleet are rock sole, Pacific cod, flathead sole and other flatfish.

For the longline C/P fleet, Pacific cod has been the largest source of gross receipts, based on wholesale earnings data. In 1995, the wholesale value for Pacific cod was \$68 million, which was 89 percent of the total sector wholesale value. In 2001, the contribution from Pacific cod was 96 percent of the total wholesale value.

Total wholesale value for the pot C/P fleet was nearly all from the Pacific cod fishery. In 1995, the wholesale value from Pacific cod was approximately \$3 million and \$5 million in 2001.

Pollock has historically been the largest contributor of total wholesale value for the BSAI shore plants, stationary floating processors, and motherships. In 1995, the pollock fishery contributed 84 percent of the total wholesale value for the BSAI shore plants, floaters, and motherships, while in 2001, the contribution from pollock was 92 percent. In that year the combined wholesale value of the pollock fishery was \$504 million. Pacific cod and sablefish fisheries also contributed consistently over the seven year period.

3.3.4 Total Catch and Retention by Target Fishery in the BSAI

Table 6 summarizes the total catch in major BSAI target fisheries by sector from 1995-2004. The table demonstrates that the non-AFA trawl C/P sector is the most diversified in terms of the number of species harvested of all the sectors.

3.3.5 Participation of the Non-AFA Trawl C/Ps in the Groundfish CDQ Fisheries

The Western Alaska Community Development Quota (CDQ) Program was implemented to improve the social and economic conditions in western Alaska communities by increasing their participation in the Bering Sea and Aleutian Island fisheries. The CDQ Program provides the six non-profit managing organizations representing eligible communities (“CDQ groups”) with allocations of BSAI groundfish, halibut, crab, and prohibited species bycatch (salmon, halibut, and crab).

In 2007, a portion of 19 groundfish total allowable catch categories will be allocated to the CDQ Program as “CDQ reserves.” The CDQ reserves are further allocated among the six CDQ groups. In most cases, the CDQ groups lease their allocations to vessel owners and processors who harvest and process the groundfish CDQ on behalf of the CDQ group. The vessel owners and processors pay the CDQ groups a royalty and often also provide employment and training to community residents. CDQ groups use the royalties earned from their allocations to develop local fisheries infrastructure, to invest in fishing businesses outside the communities, and to provide education and training for community residents.

In 2005, five non-AFA trawl C/Ps participated in the CDQ fisheries on behalf of the six CDQ groups. These vessels harvested about 6,125 mt of yellowfin sole, 4,430 mt of Atka mackerel, 1,665 mt of rock sole, 629 mt of flathead sole, 608 mt of Pacific Ocean perch, and 550 mt of Pacific cod. Four non-AFA trawl C/Ps have participated in the 2006 groundfish CDQ fisheries to date, harvesting the same primary species as were harvested by these vessels in 2005. These vessels have not yet completed their 2006 CDQ fisheries, so total catch by species for the entire year is not yet available.

Table 5. Wholesale product value in major BSAI fisheries in 1995-2001, by target fishery and processor sector

	1995	1996	1997	1998	1999	2000	2001	2002	2003
Wholesale Product Value (\$Millions)									
Surimi & Fillet Trawl C/Ps									
Pollock	435.4	348.6	343.2	312.2	334.5	395.2	407.1	450.3	482.9
All Fisheries	474.5	377.4	377.8	333.3	346.4	402.0	410.3	455.1	490.2
Head & Gut Trawl C/Ps									
Atka Mackerel	43.7	71.3	35.6	21.3	25.7	23.6	46.6	25.7	24.5
Pacific Cod	10.3	8.2	9.5	7.5	20.4	21.1	17.3	24.7	28.9
Other Flatfish	14.3	14.5	10.3	18.8	19.3	23.4	15.2	10.9	7.6
Rockfish	11.7	12.2	8.2	4.0	7.2	4.5	4.0	6.8	8.1
Rock Sole	29.1	27.7	25.7	15.4	16.5	21.3	17.2	22.1	18.6
Yellowfin Sole	36.9	34.1	55.0	35.8	25.4	31.8	31.7	45.8	49.2
All Fisheries	149.4	170.8	145.4	104.6	115.4	126.7	133.4	137.9	137.1
Pot C/Ps									
Pacific Cod	2.9	6.5	3.2	3.3	4.3	3.6	4.7	2.3	1.9
All Fisheries	2.9	6.5	3.2	3.3	4.3	3.6	4.7	2.4	1.9
Longline C/Ps									
Pacific Cod	67.8	71.3	72.8	89.5	108.1	116.8	112.0	102.8	133.6
Sablefish	3.5	2.8	2.4	0.6	2.0	2.4	2.2	1.9	2.2
All Fisheries	75.7	80.6	82.6	98.9	117.1	127.6	116.7	107.9	139.5
All Shore Plants, Floaters, and Motherships									
Pollock	360.1	304.6	294.6	257.1	329.0	418.8	503.7	534.0	570.0
Pacific Cod	51.0	60.9	54.7	39.3	56.0	74.2	39.3	37.2	41.7
All Fisheries	147.8	372.7	363.0	299.5	388.5	498.0	548.3	576.5	615.9
All Sectors and Fisheries									
All Fisheries	429.3	1,008.0	972.0	839.6	971.6	1,157.9	1,213.4	1,287.8	1,391.3

Source: NPFMC Sector Profiles Database, 2001; and 2002-2003 data AFSC Terry Hiatt 2005

Table 6. Total catch in major BSAI target fisheries in 1995-2004, by target fishery and processor sector

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Target Fishery & Sector	Total Catch (1,000 mt)									
Surimi & Fillet Trawl C/Ps										
Pollock	659	612	607	416	491	610	650	527	526	657
All Fisheries	761	719	670	445	507	616	656	535	533	671
Head & Gut Trawl C/Ps										
Atka Mackerel	109	59	57	63	56	71	52	57	59	70
Pacific Cod	16	26	16	31	30	25	37	40	62	40
Other Flatfish	34	24	44	39	46	35	26	23	35	31
Rockfish	19	12	9	15	10	10	12	13	10	8
Rock Sole	42	57	24	28	46	30	42	37	47	41
Yellowfin Sole	102	172	116	90	105	97	114	99	87	110
All Fisheries	327	354	271	268	294	270	285	271	300	301
Pot C/Ps										
Pacific Cod	5	8	3	4	3	3	2	2	3	C
All Fisheries	5	8	3	4	3	3	2	2	3	3
Longline C/Ps										
Pacific Cod	117	110	120	105	117	132	126	118	120	143
Sablefish	2	1	0	1	2	0	1	1	0	1
All Fisheries	122	115	128	113	126	135	130	121	122	145
All Shore Plants, Floaters, and Motherships										
Pollock	528	482	495	539	615	750	802	790	776	805
Pacific Cod	99	94	51	56	66	39	61	68	61	53
Sablefish	2	2	1	1	1	2	2	2	1	2
All Fisheries	637	602	548	598	684	791	865	861	838	860
All Sectors and Fisheries										
All Fisheries	1,849	1,831	1,621	1,427	1,614	1,815	1,937	1,790	1,796	1,981

Source: NPFMC Sector Profiles Database, 2004

Table 7 summarizes retention rates for C/Ps by sector and a combined BSAI shore based plants/floaters/motherships category as a proxy for catcher vessels in selected BSAI fisheries from 1995 to 2004. In general, retention rates increase over this period.

For AFA surimi and fillet trawl C/Ps, retention rates for pollock (midwater) have remained relatively high, ranging from a low of 95 percent in 1995 to a high of 99 percent in 2001. In the bottom pollock fishery, retention rates fluctuated between a low of 85 percent in 1997 to a high of 97 percent in 1999. The yellowfin sole and Pacific cod fisheries reported retention rates below 70 percent in 1995, but the rates have increased to around 99 percent in the last few years.

Among the non-AFA trawl C/P fleet, retention rates have also shown improvement (Figure 3), but still lag behind the rest of the processing sectors. In 1995, the non-AFA trawl C/P sector had a retention rate of 59 percent for all fisheries combined. The only other processor sector with a combined retention rate below 90 percent in 1995 was the longline C/P sector at 84 percent. Six years later, the retention rate for the non-AFA trawl C/P improved to 75 percent, but was still lower than the next lowest rate of 85 percent for the longline C/P sector. Looking at individual fisheries, the yellowfin sole fishery retention rates improved from a low of 53 percent in 1995 to a high of 73 percent in 2001. Other fisheries, like the rock sole, flathead sole, Pacific cod, and other flatfish fisheries, had retention rates below 50 percent in 1995. With the exception of the other flatfish fishery, retention rates have climbed to above 65 percent by 2001. Retention rates for the Atka mackerel and rockfish fisheries also improved over the seven year period. The Atka mackerel fishery drifted upward from a low of 76 percent to a high of 86 percent in 2000, while the retention rate for the rockfish fishery increased from a low of 80 percent in 1996 to a high of 95 percent in 2000.

Retention rates for the longline C/Ps have not shown similar increases. Retention rates in the Pacific cod fishery have remained fairly constant, fluctuating between 84 and 88 percent. However, the turbot and sablefish fisheries have fluctuated more widely. For the pot C/Ps, retention rates for Pacific cod increased from a low of 84 percent in 1998 to a high of 99 percent in 2004.

Retention rates for BSAI shore plants, stationary floating processors, and motherships also increased over the 1995 to 2004 period. Like the other fleets, retention rates for fisheries other than pollock were much lower in 1995 and 1996, but many of these fisheries have improved over the years.

Table 7. Retention rates in major BSAI fisheries in 1995-2004, by target fishery and processor sector

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Target Fishery & Sector	Percent of Groundfish Retained									
Surimi & Fillet Trawl C/Ps										
Pollock	95.4	94.8	98.4	98.9	98.2	99.5	99.5	99.7	99.5	99.7
All Non-pollock Fisheries	72.3	70.3	82.8	90.3	91.9	93.9	83.4	90.8	92.7	79.9
All Fisheries	92.3	91.2	96.9	98.3	98	99.5	99.4	99.6	99.4	99.3
Head & Gut Trawl C/Ps										
Atka Mackerel	78.4	84.3	85.1	82.6	86.2	83.7	75.4	72.0	77.6	88.9
Pacific Cod	44.8	44.5	57.1	57.5	63.8	67.6	69.5	61.3	55.0	65.8
Other Flatfish	43.4	49.7	55.9	54.4	63.1	64.5	66.2	68.9	61.4	68.9
Rockfish	80.3	87.9	91.1	91.6	94.6	87.1	90.1	93.4	89.6	94.5
Rock Sole	45.3	46.6	60.6	53	52.9	68.6	58.0	63.7	60.5	73.4
Yellowfin Sole	54.4	65	70.5	63.8	68.4	72.2	69.5	71.0	73.0	79.6
All Fisheries	61.6	63.6	70.4	66.8	69.2	74.0	69.6	69.6	67.4	78.3
Pot C/Ps										
Pacific Cod	95.9	98.5	97.1	96	95.9	97.2	96.9	97.7	98.7	C
All Fisheries	95.8	98.5	97.1	96	95.9	97.2	96.9	97.7	98.7	98.6
Longline C/Ps										
Pacific Cod	85.8	85.2	84.3	88.2	85.2	85.8	87.1	88.1	85.9	86.1
Sablefish	53.5	52.6	72.6	39	42.1	91.5	65.4	74.8	91.3	88.2
All Fisheries	85.4	84.9	84.3	86	83.9	85.8	86.9	87.8	85.8	86.1
All Shore Plants, Floaters, and Motherships										
Pollock	98.1	98.2	99.7	99.1	99.5	99.7	99.8	99.8	99.7	99.8
Pacific Cod	69.2	63.6	85.1	74.1	85.4	89.6	84.9	86.4	87.3	88.7
Sablefish	36.8	35.1	55.3	58.4	57.5	71.1	62.4	57.3	92.9	95.9
All Non-pollock Fisheries	70.6	69.2	83.8	74.3	85.1	88.8	84	85.3	87.3	88.5
All Fisheries	93.4	92.4	98.2	96.7	98	99.2	98.6	98.6	98.8	99.1
All Fisheries	85.8	85.7	91.9	90.7	91.7	94.5	93.8	93.8	92.8	95.0

Source: NPFMC Sector Profiles Database, 2004

Total catches of groundfish by species and processing type for non-AFA trawl C/Ps from 1999 to 2005 are shown in Table 8. Table 9 shows discards by species rather than by target fishery for the years 1999 through 2004. Table 10 shows the same discard data as percentages of total catch. The non-AFA trawl C/P sector's discards of rock sole fluctuated between 1999 and 2004 from 8.6 thousand metric tons (mt) in 1999 to 23.6 thousand and 18.9 thousand mt in 2004. In the flatfish fisheries discards from the non-AFA trawl C/P sector have fluctuated but not improved during this period varying from and 11.2 thousand mt in 1999, 7.7 thousand mt in 2001, and 11.5 thousand mt in 2004. Other flatfish and groundfish species discards varied through this period without evident trends.

The AFA trawl C/P sector's discards of Atka mackerel remained relatively stable from between 400 mt to nearly zero. Yellowfin sole discards varied, but decline from 200 mt in 1999 to 80 mt in 2004. The pot C/P sector changed little in discard amounts while the longline C/P sector had increases in yellowfin sole discards in each of the three years. In total, aggregate discards declined between 1999 and 2004 (Table 9). Table 10 shows the percentage of discards by species for each sector, and Table 11 show retained catch (the difference between total catch and discarded catch).

Tables 11 and 12 can be used to calculate retention rates for subsets of species and sectors. Due to rounding errors associated with using the percentages retained and discarded, calculated retention percentages should be considered estimates. For example, the amount of retained yellowfin sole can be determined as a percentage of all flatfish caught. The calculated percentages for various sectors are as follows:

- Of 128.6 mt of discarded groundfish catch from all BSAI sources in 2004, 76.3 percent of reported discards are estimated to be from the non-AFA trawl C/P sector.
- In 2004, surimi and fillet trawl C/P sector's groundfish discards accounted for 0.5 percent of discarded catch. Flatfish accounted for approximately 68 percent of the surimi and fillet trawl C/P sector's discarded groundfish, but only 6 percent of this sector's total discards.
- In 2004, the longline C/P sector's total discards were 3.3 percent of total catches for that sector, and flatfish species accounted for approximately 13.5 percent of those discards.
- In 2004, the longline C/P sector's retention of non-pollock, non-Pacific cod fish accounted for 4.2 percent of total catch while discards in the same category accounted for 12.2 percent of total catch. Thus, the sector had an estimated non-pollock, non-Pacific cod retention rate of 25 percent.
- In 2004, the shore plant/floater/mothership sector's total discards was approximately 2 percent of that sector's total catch.
- In 2004, yellowfin sole was approximately 1.3 percent of total catches for the pot C/P sector.

As identified in Table 12, in 2004, the non-AFA trawl C/P sector retained catch of groundfish was approximately 67.6 percent of total catch. In comparison with all other combined BSAI groundfish sectors, retained catch in 2004 was approximately 3.3 percent of total catch of those sectors.

Aggregate groundfish discards for the non-AFA trawl C/P sector have declined from 33.0 percent of total catch to 22.6 percent of catch between the years 1999 to 2005 (Fig.2). Other sectors have changed little over this period.

Table 8. Total catch in BSAI fisheries in 1999-2004, by species and processor sector

	1999	2000	2001	2002	2003	2004	2005
Species & Sector	Total Catch as of Groundfish 1,000 mt						
Head and Gut Trawl C/Ps							
Atka Mackerel	55.28	47.03	61.19	44.94	52.04	54.41	60.95
Arrowtooth Flounder	9.21	10.12	11.57	9.09	9.75	14.66	11.15
Flathead Sole	15.74	17.03	15.19	12.91	11.55	14.19	12.77
Other Flatfish	13.45	14.94	9.53	13.99	11.77	11.25	13.78
Other Groundfish	7.40	9.48	9.56	10.93	7.59	7.60	6.36
Pacific Cod	25.74	28.83	25.68	33.21	29.95	37.98	31.09
Pollock	28.95	31.51	31.63	33.38	26.67	36.29	30.03
Rockfish	19.16	15.53	16.20	15.55	18.06	15.46	13.66
Rock Sole	34.92	44.00	26.68	38.06	32.98	43.89	34.71
Turbot/Sablefish	2.02	2.18	2.46	1.29	1.02	0.90	1.08
Yellowfin Sole	55.92	72.96	60.35	71.31	69.33	63.15	85.46
Surimi and Fillet Trawl C/Ps							
Atka Mackerel	1.17	0.00	0.00	0.01	0.23	0.05	0.03
Other Flatfish	2.74	2.54	1.90	1.94	1.38	1.55	2.63
Other Groundfish	1.09	4.40	1.27	1.51	0.66	0.92	1.02
Pacific Cod	13.09	5.54	4.35	4.02	3.84	3.35	5.29
Pollock	413.57	482.77	604.11	643.43	522.87	519.75	653.09
Rockfish	0.25	0.10	0.47	0.29	0.68	0.23	0.53
Rock Sole	1.35	3.27	1.35	1.60	0.78	1.68	1.00
Turbot/Sablefish	0.00	0.01	0.05	0.03	0.02	0.01	0.03
Yellowfin Sole	11.75	8.65	2.22	2.76	4.54	4.97	7.66
Pot C/Ps							
Atka Mackerel	0.00	0.00	0.00	0.00	0.00	0.00	<i>c</i>
Other Flatfish	0.00	0.00	0.00	0.00	0.00	0.00	<i>c</i>
Other Groundfish	0.10	0.10	0.04	0.03	0.02	0.01	<i>c</i>
Pacific Cod	3.40	2.77	3.02	2.07	1.55	3.23	<i>c</i>
Pollock	0.00	0.00	0.01	0.01	0.01	0.00	<i>c</i>
Rockfish	0.00	0.00	0.00	0.00	0.00	0.00	<i>c</i>
Rock Sole	0.00	0.00	0.00	0.00	0.00	0.00	<i>c</i>
Turbot/Sablefish	0.00	0.00	0.00	0.00	0.00	0.00	<i>c</i>
Yellowfin Sole	0.00	0.10	0.01	0.02	0.02	0.03	<i>c</i>
Longline C/Ps							
Atka Mackerel	0.07	0.15	0.27	0.04	0.02	0.04	0.02
Other Flatfish	1.64	2.21	1.91	1.70	1.83	2.12	2.84
Other Groundfish	12.60	15.23	15.31	14.84	15.30	16.11	20.82
Pacific Cod	89.64	96.94	107.51	102.72	93.74	95.73	114.96
Pollock	3.95	4.83	5.98	6.49	7.13	5.34	4.18
Rockfish	0.40	0.56	0.58	0.29	0.30	0.32	0.24
Rock Sole	0.06	0.03	0.03	0.04	0.04	0.03	0.05
Turbot/Sablefish	4.47	5.46	3.08	2.83	2.43	1.84	2.27
Yellowfin Sole	0.18	0.28	0.65	0.62	0.57	0.60	0.71
All Shore Plants, Floaters, and Motherships							
Atka Mackerel	0.16	0.01	0.09	0.30	1.99	1.50	<i>c</i>
Other Flatfish	2.44	3.25	1.74	2.60	3.06	3.33	<i>c</i>
Other Groundfish	3.76	1.95	2.76	2.66	2.90	2.48	<i>c</i>
Pacific Cod	42.01	56.91	36.09	55.34	65.93	56.05	<i>c</i>
Pollock	544.36	614.86	746.55	799.69	786.33	770.86	<i>c</i>
Rockfish	0.14	0.23	0.39	0.68	0.57	0.53	<i>c</i>
Rock Sole	4.69	2.33	1.41	2.16	2.36	2.16	<i>c</i>
Turbot/Sablefish	0.65	1.06	1.65	1.74	1.87	1.21	<i>c</i>
Yellowfin Sole	1.43	2.10	0.35	0.27	0.33	0.30	<i>c</i>

Source: NPFMC Sector Profiles and Catch Accounting Database, 1999-2005

Table 9. Discarded catch in BSAI fisheries in 1999-2004, by species and processor sector

Species & Sector	1999	2000	2001	2002	2003	2004	2005
Discarded catch as Groundfish 1,000 mt							
Head and Gut Trawl C/Ps							
Atka Mackerel	4.7	2.6	4.31	7.40	11.71	10.63	3.51
Arrowtooth Flounder	6.8	5.5	6.68	5.59	6.44	11.31	5.21
Flathead Sole	2.7	3.3	2.13	2.65	2.67	3.51	2.03
Other Flatfish	12.5	12.77	8.86	13.17	10.79	9.86	12.14
Other Groundfish	7.3	8.8	8.54	9.77	5.84	6.15	5.34
Pacific Cod	1.3	0.7	0.79	1.19	0.71	0.43	0.51
Pollock	14.95	14.6	14.45	15.87	13.08	19.25	13.33
Rockfish	6.8	5.5	7.59	5.10	6.64	5.97	4.34
Rock Sole	20	23.56	8.60	15.29	13.75	18.85	11.10
Turbot/Sablefish	0.4	0.28	0.49	0.32	0.20	0.30	0.11
Yellowfin Sole	11.22	12.72	7.65	10.17	10.49	11.39	7.64
Surimi and Fillet Trawl C/Ps							
Atka Mackerel	0.6	0	0.00	0.01	0.20	0.04	0.02
Other Flatfish	1.5	1.65	0.77	0.84	0.53	0.81	1.29
Other Groundfish	0.78	4.2	1.04	0.90	0.35	0.68	0.64
Pacific Cod	0.4	0.1	0.08	0.08	0.01	0.05	0.06
Pollock	2.76	1.34	0.32	0.56	0.35	0.26	1.25
Rockfish	0.1	0.1	0.37	0.25	0.35	0.08	0.21
Rock Sole	0.9	1.8	0.62	0.90	0.43	0.83	0.64
Turbot/Sablefish	0	0	0.03	0.01	0.01	0.01	0.02
Yellowfin Sole	0.87	0.74	0.10	0.33	0.12	0.44	0.65
Pot C/Ps							
Atka Mackerel	0	0	0.00	0.00	0.00	0.00	<i>c</i>
Other Flatfish	0	0	0.00	0.00	0.00	0.00	<i>c</i>
Other Groundfish	0.1	0.1	0.04	0.02	0.02	0.01	<i>c</i>
Pacific Cod	0	0	0.02	0.02	0.00	0.00	<i>c</i>
Pollock	0	0	0.01	0.00	0.00	0.00	<i>c</i>
Rockfish	0	0	0.00	0.00	0.00	0.00	<i>c</i>
Rock Sole	0	0	0.00	0.00	0.00	0.00	<i>c</i>
Turbot/Sablefish	0	0	0.00	0.00	0.00	0.00	<i>c</i>
Yellowfin Sole	0	0.1	0.01	0.02	0.02	0.03	<i>c</i>
Longline C/Ps							
Atka Mackerel	0.07	0.15	0.14	0.04	0.01	0.04	0.02
Other Flatfish	1.5	2.1	1.78	1.49	1.35	1.86	1.82
Other Groundfish	11.4	13.23	13.34	11.40	9.84	12.55	14.41
Pacific Cod	1.43	2.7	1.76	2.14	1.81	1.62	2.65
Pollock	0.6	1	0.99	0.85	0.79	0.58	0.58
Rockfish	0.24	0.35	0.40	0.18	0.15	0.18	0.09
Rock Sole	0.06	0.03	0.03	0.04	0.04	0.03	0.05
Turbot/Sablefish	0.34	0.41	0.18	0.30	0.25	0.08	0.08
Yellowfin Sole	0.18	0.28	0.63	0.61	0.56	0.46	0.59
All Shore Plants, Floaters, and Motherships							
Atka Mackerel	0.1	0.01	0.07	0.12	1.56	0.75	0.49
Other Flatfish	1.43	1.59	1.01	1.86	2.14	2.57	1.51
Other Groundfish	3.46	1.74	1.83	2.11	2.28	1.52	1.30
Pacific Cod	0.41	0.49	0.26	0.87	0.58	0.35	0.35
Pollock	11.2	5.49	1.97	4.37	2.76	3.17	2.75
Rockfish	0.06	0.15	0.18	0.35	0.35	0.16	0.25
Rock Sole	4.62	1.91	0.78	1.85	1.87	1.61	1.21
Turbot/Sablefish	0.1	0.22	0.36	0.28	0.72	0.08	0.08
Yellowfin Sole	0.2	0.3	0.26	0.24	0.22	0.15	0.14

Source: NPFMC Sector Profiles and Catch Accounting Database, 1999-2005

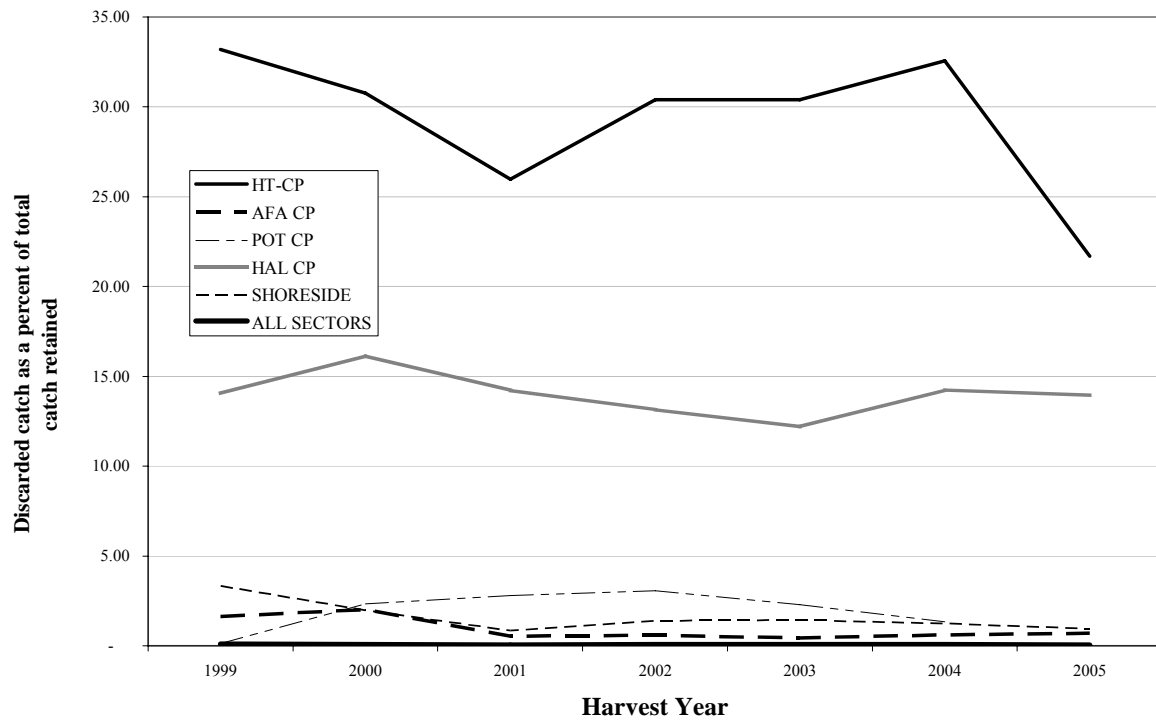


Figure 3. Groundfish discards as a percent of total catch for the non-AFA trawl C/P (HT-CP), AFA C/P, Pot C/P, Hook and Line C/P (HAL CP), and shoreside sectors.

Table 10. Discarded catch as percentage of total catch in BSAI fisheries in 1999-2004, by species and processor sector

	1999	2000	2001	2002	2003	2004	2005
Discarded catch as Percent of Total Groundfish Catch							
Species & Sector							
Head and Gut Trawl C/Ps							
Atka Mackerel	1.78	0.89	1.60	2.60	4.32	3.55	1.16
Arrowtooth Flounder	2.53	1.88	2.47	1.96	2.38	3.77	1.73
Flathead Sole	1.04	1.13	0.79	0.93	0.99	1.17	0.67
Other Flatfish	4.67	4.35	3.28	4.63	3.98	3.29	4.03
Other Groundfish	2.75	3.00	3.16	3.43	2.16	2.05	1.77
Pacific Cod	0.50	0.22	0.29	0.42	0.26	0.14	0.17
Pollock	5.57	4.97	5.35	5.58	4.83	6.42	4.43
Rockfish	2.52	1.87	2.81	1.79	2.45	1.99	1.44
Rock Sole	7.48	8.02	3.18	5.37	5.08	6.29	3.69
Turbot/Sablefish	0.16	0.10	0.18	0.11	0.07	0.10	0.04
Yellowfin Sole	4.19	4.33	2.83	3.57	3.87	3.80	2.54
Surimi and Fillet Trawl C/Ps							
Atka Mackerel	0.00	0.00	0.00	0.00	0.04	0.01	0.00
Other Flatfish	0.34	0.32	0.13	0.13	0.10	0.15	0.19
Other Groundfish	0.17	0.85	0.17	0.14	0.07	0.13	0.10
Pacific Cod	0.09	0.02	0.01	0.01	0.00	0.01	0.01
Pollock	0.62	0.27	0.05	0.09	0.07	0.05	0.19
Rockfish	0.02	0.03	0.06	0.04	0.07	0.02	0.03
Rock Sole	0.20	0.36	0.10	0.14	0.08	0.16	0.10
Turbot/Sablefish	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Yellowfin Sole	0.20	0.15	0.02	0.05	0.02	0.08	0.10
Pot C/Ps							
Atka Mackerel	0.00	0.00	0.03	0.04	0.10	0.00	C
Other Flatfish	0.00	0.00	0.01	0.00	0.00	0.01	C
Other Groundfish	0.02	0.16	1.30	1.13	0.97	0.29	C
Pacific Cod	0.10	0.16	0.80	1.01	0.00	0.02	C
Pollock	0.00	0.02	0.17	0.05	0.00	0.00	C
Rockfish	0.00	0.00	0.01	0.00	0.00	0.00	C
Rock Sole	0.00	0.03	0.01	0.00	0.01	0.01	C
Turbot/Sablefish	0.00	0.00	0.02	0.00	0.00	0.00	C
Yellowfin Sole	0.00	1.97	0.46	0.82	1.21	1.01	C
Longline C/Ps							
Atka Mackerel	0.06	0.12	0.10	0.03	0.01	0.03	0.02
Other Flatfish	1.36	1.69	1.31	1.15	1.11	1.52	1.25
Other Groundfish	10.10	10.52	9.86	8.79	8.11	10.27	9.91
Pacific Cod	1.27	2.16	1.30	1.65	1.49	1.33	1.82
Pollock	0.50	0.80	0.73	0.66	0.65	0.48	0.40
Rockfish	0.21	0.27	0.29	0.14	0.12	0.15	0.06
Rock Sole	0.05	0.03	0.02	0.03	0.03	0.02	0.04
Turbot/Sablefish	0.33	0.33	0.13	0.23	0.21	0.07	0.05
Yellowfin Sole	0.16	0.22	0.46	0.47	0.46	0.37	0.40
All Shore Plants, Floaters, and Motherships							
Atka Mackerel	0.02	0.00	0.01	0.01	0.18	0.09	0.06
Other Flatfish	0.24	0.23	0.13	0.21	0.25	0.31	0.18
Other Groundfish	0.29	0.51	0.23	0.24	0.26	0.18	0.15
Pacific Cod	0.07	0.07	0.03	0.10	0.07	0.04	0.04
Pollock	1.87	0.80	0.25	0.51	0.32	0.38	0.32
Rockfish	0.01	0.02	0.02	0.04	0.04	0.02	0.03
Rock Sole	0.77	0.28	0.10	0.21	0.22	0.19	0.14
Turbot/Sablefish	0.02	0.03	0.05	0.03	0.08	0.01	0.01
Yellowfin Sole	0.04	0.04	0.03	0.03	0.03	0.02	0.02

Source: NPFMC Sector Profiles Database, 1999-2005

Table 11. Retained catch in BSAI fisheries in 1999-2004, by species and processor sector

	1999	2000	2001	2002	2003	2004	2005
Species & Sector	Retained catch as Groundfish 1,000 mt						
Head and Gut Trawl C/Ps							
Atka Mackerel	50.58	44.43	56.88	37.54	40.34	43.77	57.44
Arrowtooth Flounder	2.41	4.62	4.89	3.50	3.31	3.35	5.94
Flathead Sole	13.04	13.73	13.07	10.26	8.89	10.68	10.74
Other Flatfish	0.95	2.17	0.67	0.82	0.98	1.39	1.64
Other Groundfish	0.1	0.68	1.02	1.16	1.75	1.45	1.02
Pacific Cod	24.44	28.13	24.89	32.01	29.24	37.55	30.58
Pollock	14	16.91	17.19	17.51	13.59	17.04	16.69
Rockfish	12.36	10.03	8.61	10.44	11.42	9.50	9.32
Rock Sole	14.92	20.44	18.08	22.77	19.23	25.04	23.61
Turbot/Sablefish	1.62	1.9	1.97	0.97	0.81	0.61	0.97
Yellowfin Sole	44.7	60.24	52.70	61.15	58.84	51.76	77.82
Surimi and Fillet Trawl C/Ps							
Atka Mackerel	0.57	0	0.00	0.00	0.03	0.00	0.01
Other Flatfish	1.24	0.89	1.13	1.10	0.86	0.74	1.34
Other Groundfish	0.31	0.2	0.23	0.61	0.32	0.25	0.38
Pacific Cod	12.69	5.44	4.27	3.94	3.83	3.31	5.24
Pollock	410.81	481.43	603.79	642.87	522.52	519.49	651.84
Rockfish	0.15	0	0.10	0.04	0.32	0.15	0.32
Rock Sole	0.45	1.47	0.74	0.70	0.34	0.85	0.35
Turbot/Sablefish	0	0.01	0.02	0.02	0.01	0.01	0.01
Yellowfin Sole	10.88	7.91	2.11	2.43	4.42	4.52	7.00
Pot C/Ps							
Atka Mackerel	0	0	0.00	0.00	0.00	0.00	C
Other Flatfish	0	0	0.00	0.00	0.00	0.00	C
Other Groundfish	0	0	0.00	0.00	0.01	0.00	C
Pacific Cod	3.4	2.77	3.00	2.05	1.55	3.23	C
Pollock	0	0	0.00	0.01	0.01	0.00	C
Rockfish	0	0	0.00	0.00	0.00	0.00	C
Rock Sole	0	0	0.00	0.00	0.00	0.00	C
Turbot/Sablefish	0	0	0.00	0.00	0.00	0.00	C
Yellowfin Sole	0	0	0.00	0.00	0.00	0.00	C
Longline C/Ps							
Atka Mackerel	0	0	0.13	0.00	0.01	0.00	0.00
Other Flatfish	0.14	0.11	0.13	0.21	0.48	0.26	1.02
Other Groundfish	1.2	2	1.98	3.44	5.45	3.57	6.41
Pacific Cod	88.21	94.24	105.74	100.58	91.93	94.11	112.31
Pollock	3.35	3.83	4.99	5.64	6.34	4.76	3.60
Rockfish	0.16	0.21	0.18	0.12	0.16	0.14	0.15
Rock Sole	0	0	0.00	0.00	0.00	0.00	0.00
Turbot/Sablefish	4.13	5.05	2.91	2.54	2.18	1.76	2.20
Yellowfin Sole	0	0	0.02	0.01	0.01	0.14	0.12
All Shore Plants, Floaters, and Motherships							
Atka Mackerel	0.06	0	0.02	0.18	0.43	0.74	0.55
Other Flatfish	1.01	1.66	0.73	0.74	0.92	0.76	1.55
Other Groundfish	0.3	0.21	0.93	0.54	0.63	0.96	1.21
Pacific Cod	41.6	56.42	35.83	54.46	65.35	55.70	50.81
Pollock	533.16	609.37	744.58	795.32	783.57	767.68	794.99
Rockfish	0.08	0.08	0.21	0.33	0.23	0.37	0.43
Rock Sole	0.07	0.42	0.63	0.32	0.49	0.55	0.40
Turbot/Sablefish	0.55	0.84	1.30	1.46	1.15	1.13	1.64
Yellowfin Sole	1.23	1.8	0.09	0.03	0.11	0.15	0.38

Source: NPFMC Sector Profiles Database, 1999-2005

Table 12. Retained catch as percentage of total catch in BSAI fisheries in 1999-2004, by species and processor sector

	1999	2000	2001	2002	2003	2004	2005
Retained catch as Percent of Total Groundfish Catch							
Species & Sector							
Head and Gut Trawl C/Ps							
Atka Mackerel	18.85	15.12	21.06	13.19	14.90	14.60	19.08
Arrowtooth Flounder	0.89	1.57	1.81	1.23	1.22	1.12	1.97
Flathead Sole	4.86	4.67	4.84	3.60	3.28	3.56	3.57
Other Flatfish	0.35	0.74	0.25	0.29	0.36	0.46	0.54
Other Groundfish	0.04	0.23	0.38	0.41	0.65	0.48	0.34
Pacific Cod	9.11	9.58	9.22	11.25	10.80	12.52	10.16
Pollock	5.24	5.76	6.36	6.15	5.02	5.68	5.55
Rockfish	4.61	3.42	3.19	3.67	4.22	3.17	3.10
Rock Sole	5.56	6.96	6.69	8.00	7.10	8.35	7.84
Turbot/Sablefish	0.61	0.65	0.73	0.34	0.30	0.20	0.32
Yellowfin Sole	16.66	20.51	19.51	21.48	21.73	17.27	25.85
Surimi and Fillet Trawl C/Ps							
Atka Mackerel	0.10	0	0.00	0.00	0.01	0.00	0.00
Other Flatfish	0.28	0.18	0.18	0.17	0.16	0.14	0.20
Other Groundfish	0.07	0.04	0.04	0.09	0.06	0.05	0.06
Pacific Cod	2.85	1.11	0.69	0.60	0.72	0.62	0.78
Pollock	92.42	99	98.06	98.06	97.67	97.55	97.10
Rockfish	0.03	0	0.02	0.01	0.06	0.03	0.05
Rock Sole	0.10	0.29	0.12	0.11	0.06	0.16	0.05
Turbot/Sablefish	0.00	0	0.00	0.00	0.00	0.00	0.00
Yellowfin Sole	2.45	1.58	0.34	0.37	0.83	0.85	1.04
Pot C/Ps							
Atka Mackerel	0.00	0	0.00	0.00	0.00	0.00	C
Other Flatfish	0.00	0	0.00	0.00	0.00	0.01	C
Other Groundfish	0.47	0.12	0.08	0.16	0.33	0.03	C
Pacific Cod	95.42	95.3	96.93	96.53	96.91	98.44	C
Pollock	0.07	0.42	0.07	0.25	0.47	0.10	C
Rockfish	0.00	0	0.00	0.00	0.00	0.00	C
Rock Sole	0.00	0	0.00	0.00	0.00	0.00	C
Turbot/Sablefish	0.07	0.2	0.12	0.00	0.00	0.07	C
Yellowfin Sole	0.00	0	0.00	0.00	0.00	0.00	C
Longline C/Ps							
Atka Mackerel	0.00	0	0.10	0.00	0.01	0.00	0.00
Other Flatfish	0.12	0.09	0.10	0.17	0.40	0.21	0.70
Other Groundfish	1.59	1.06	1.46	2.66	4.49	2.92	4.41
Pacific Cod	78.05	74.93	78.14	77.62	75.75	77.06	77.22
Pollock	3.04	3.04	3.69	4.35	5.22	3.90	2.47
Rockfish	0.14	0.17	0.14	0.09	0.13	0.11	0.10
Rock Sole	0.00	0	0.00	0.00	0.00	0.00	0.00
Turbot/Sablefish	3.66	4.02	2.15	1.96	1.80	1.44	1.51
Yellowfin Sole	0.00	0.01	0.01	0.01	0.01	0.11	0.08
All Shore Plants, Floaters, and Motherships							
Atka Mackerel	0.01	0	0.00	0.02	0.05	0.09	0.06
Other Flatfish	0.17	0.24	0.09	0.09	0.11	0.09	0.18
Other Groundfish	0.05	0.03	0.12	0.06	0.07	0.11	0.14
Pacific Cod	6.96	8.24	4.53	6.29	7.55	6.64	5.91
Pollock	89.17	89.03	94.13	91.90	90.55	91.56	92.46
Rockfish	0.01	0.01	0.03	0.04	0.03	0.04	0.05
Rock Sole	0.01	0.06	0.08	0.04	0.06	0.07	0.05
Turbot/Sablefish	0.09	0.12	0.16	0.17	0.13	0.14	0.19
Yellowfin Sole	0.21	0.26	0.01	0.00	0.01	0.02	0.04

Source: NPFMC Sector Profiles Database, 1999-2005

3.4 MRA Regulations and Management Function in BSAI Groundfish Fisheries

MRA regulations establish the calculation method and MRAs for groundfish species that are closed to directed fishing. The MRA is calculated as a percentage of the retained amount of species closed to directed fishing relative to the retained amount of basis species or species groups open for directed fishing. All MRA accounting is computed based upon processed product that is converted to round weight. Table 11 of 50 CFR 679 (see Appendix 2) lists retainable percentages for BSAI incidental groundfish species used to calculate an MRA. Amounts that are caught in excess of the MRA percentage must be discarded. Current regulations limit vessels to MRAs at any time during a fishing trip.

A fishing trip is defined at 50 CFR 679.2 as:

- (i) With respect to retention requirements of MRA, IR/IU, and pollock roe stripping, an operator of a catcher/processor or mothership processor vessel is engaged in a fishing trip from the time the harvesting, receiving, or processing of groundfish is begun or resumed in an area until
 - (A) The effective date of a notification prohibiting directed fishing in the same area under § 679.20 or § 679.21;
 - (B) The offload or transfer of all fish or fish product from that vessel;
 - (C) The vessel enters or leaves an area where a different directed fishing prohibition applies;
 - (D) The vessel begins fishing with different type of authorized fishing gear; or
 - (E) The end of a weekly reporting period, whichever comes first.

Current management function of MRAs

MRAs are the primary tool NMFS uses to regulate the catch of species closed to directed fishing. The MRA table is a matrix of proportions representing a range of rates of expected or accepted incidental catch of species closed to directed fishing relative to target species. As a management tool, MRAs rely on the ability of the vessel operator to selectively catch the target species. The target species is called a basis species in regulation. The species closed to directed fishing is the incidental species. The MRA percentages are intended to slow the rate of harvest of a species when insufficient TAC or PSC amounts are available to support a directed fishery.

NMFS prohibits directed fishing for a species to avoid reaching a TAC (typically established for conservation reason), reaching an amount or percent of groundfish included in the annual specifications for a gear and species or species group, or for a prohibited species limit (e.g., salmon, crab, halibut limits). When NMFS prohibits directed fishing, retention is allowed up to an amount calculated with the MRA. The MRA table 11 at 50 CFR 679, shows retainable proportions of incidental species relative to species open to directed fishing. Vessel operators calculate the MRA through three basic steps. First, they identify and calculate the round weight of the basis (or target) species on board. Next, they identify the appropriate fraction from the MRA table, and then multiply that rate against the round weight of the basis species. The calculated maximum amount limits retention of the incidental species. A vessel will typically discard catch of the incidental species in excess of that amount to avoid violation of current

regulation. The vessel operator calculates the MRA at any time for the duration of the fishing trip, often referred to as an “instantaneous” calculation.

A fishing trip begins with harvesting fish. By regulation, several conditions end a trip for a C/P (based on whichever condition occurs first): 1) NMFS prohibits directed fishing for any species in the Federal reporting area where the vessel is fishing, 2) the vessel offloads, 3) the vessel moves into an area where a directed fishing closure exists, 4) the vessel switches gear, or 5) the weekly reporting period ends. A trip defines the period during which a vessel operator calculates the amount of incidental species retained.

Current regulations also grant vessels not listed under the AFA, special exceptions from the MRA regulations regarding the incidental catch of pollock where, under some circumstances, the instantaneous computation of the MRA does not apply. For pollock, the MRA is calculated at the time of offload. Under current regulation, BSAI groundfish vessels may retain pollock at any rate during a fishing trip, as long as at the end of the trip they meet the required MRA proportion and as long as IR/IU requirements are met. The IR/IU regulations for pollock supersede some of the retention flexibility for current MRA requirements by mandating that vessels must retain up to 100 percent of all pollock until reaching the MRA.

For most groundfish, after NMFS prohibits directed fishing, MRAs are the predominant regulation controlling catch. The MRA rate regulates incidental species catch in other groundfish target fisheries. Incidental catches by gear and species of major non-pollock groundfish caught in the BSAI are shown in Table 13. Ideally, the application of an MRA rate slows catch of a species so that catch depletes the TAC by the end of the year. Beyond management of a TAC to obtain optimum yield, MRA calculations perform two additional functions. First, MRAs limit retention to species’ expected or accepted incidental catch rate. Alternately, the MRA functions as a trip limit for retention of incidental catch of a species. This function allows for limited targeting of a species up to the MRA (“topping off”).

For several incidental/basis species combinations, the use of low MRA rates may reduce the incentive for topping off that would occur in the absence of this tool. In these cases, the MRAs represent the expected catch of an incidental species absent deliberate action by the vessel operator to maximize that incidental catch. The requirement to not exceed MRA proportion at any time during a trip limits the vessel operators’ ability to maximize catch. This restriction is used to limit total catch of species low in TAC amount (relative to the species caught in the directed fisheries), at greater risk of being caught in excess of the overfishing level, and high value. Some rockfish species meet these criteria.

Current regulations establish a relatively high MRA for particular species. For example, a generous rate of 35 percent for Greenland turbot as an incidental species is applied to flathead sole as a basis species (see table in Appendix 2). Experience of NMFS managers demonstrated that the directed trawl Greenland turbot fishery incurred high halibut bycatch rates. In response, managers closed the directed fishery and increased the MRA for Greenland turbot relative to flathead sole. The higher MRA allows for increased indirect targeting on Greenland turbot and slowed the bycatch of halibut. In contrast to the previous example, some regulations encourage ‘topping off.’ The MRA functions as a management tool allowing catch of Greenland turbot and more moderate halibut bycatch. For other species where restricting catch to an incidental rate is not a consideration, regulations establish a default MRA rate of 20 percent.

MRAs also are used in two situations in the groundfish CDQ fisheries: (1) to regulate retention in areas closed to directed fishing for some groundfish CDQ species, but not for others, and (2) to regulate retention for groundfish species that are not allocated to the CDQ Program, but are caught incidentally in the groundfish CDQ fisheries. In the first case, some areas of the BSAI are closed to directed fishing for pollock, cod, and Atka mackerel in Steller sea lion protection areas. These closures apply to both CDQ and non-CDQ fishing for these species. Directed fishing for other species that are targeted by the non-AFA trawl C/Ps in both their CDQ and non-CDQ fisheries is allowed in these areas. If a vessel is fishing on behalf of a CDQ group inside an area closed to directed fishing for a particular groundfish species, then retention of that groundfish species is limited by MRAs. In the second case, starting in 2007, the TAC categories that will not be allocated to the CDQ Program are: sablefish from the trawl allocation of the sablefish TAC, Bogoslof pollock, BS POP, shortraker rockfish, roughey rockfish, northern rockfish, "other rockfish," "other species," and squid. Catch in the CDQ fisheries of species in TAC categories that are not allocated to the CDQ Program will be managed under the regulations and fishery status that applies to the TAC category in all BSAI groundfish fisheries. Retention will either be limited by MRAs or all catch of the species will be required to be discarded. BS POP is the only species that is under consideration for a MRA accounting period change in this action that also will be managed with MRAs in all of the CDQ fisheries. MRAs are not used to manage the CDQ allocations for the other species under consideration in this action for a MRA change (yellowfin sole, rock sole, flathead sole, "other flatfish," arrowtooth flounder, Pacific cod, Atka mackerel, or AI POP), except for the SSL protection area closures described above.

Table 13. Incidental catches of target species for AFA trawl, non-AFA trawl C/P, and fixed gear between 1999 and 2005.

Species	Gear	1999	2000	2001	2002	2003	2004	2005
Atka Mackerel	<i>AFA Trawl</i>	52	4	9	10	100	51	27
	<i>H&G Trawl</i>	1,821	579	1,615	1,647	5,308	5,256	1,873
	<i>Trawl Total</i>	1,873	583	1,624	1,657	5,408	5,307	1,900
	<i>Fixed Gear</i>	83	162	290	97	226	178	276
	TOTAL	1,956	744	1,914	1,754	5,634	5,484	2,176
Arrowtooth Flounder	<i>AFA Trawl</i>	265	401	260	262	253	252	277
	<i>H&G Trawl</i>	8,441	8,899	9,782	7,664	9,586	13,244	8,903
	<i>Trawl Total</i>	8,705	9,300	10,043	7,926	9,839	13,496	9,180
	<i>Fixed Gear</i>	1,614	1,992	1,674	1,459	1,611	1,722	2,003
	TOTAL	10,320	11,292	11,717	9,385	11,450	15,218	11,183
Flathead Sole	<i>AFA Trawl</i>	1,498	1,290	1,483	1,197	754	1,188	1,164
	<i>H&G Trawl</i>	4,944	6,261	5,222	4,418	5,114	4,790	3,485
	<i>Trawl Total</i>	6,442	7,551	6,705	5,615	5,868	5,978	4,649
	<i>Fixed Gear</i>	291	327	275	383	378	596	626
	TOTAL	6,733	7,878	6,980	5,998	6,246	6,574	5,275
Greenland Turbot	<i>AFA Trawl</i>	28	45	43	20	23	15	32
	<i>H&G Trawl</i>	1,067	1,287	1,773	856	676	595	671
	<i>Trawl Total</i>	1,094	1,332	1,816	877	698	610	703
	<i>Fixed Gear</i>	514	637	663	692	1,018	377	299
	TOTAL	1,608	1,969	2,479	1,569	1,717	987	1,002
Pacific ocean Perch	<i>AFA Trawl</i>	100	49	373	256	605	155	419
	<i>H&G Trawl</i>	1,740	1,706	1,939	1,804	2,392	2,906	2,814
	<i>Trawl Total</i>	1,840	1,754	2,313	2,060	2,997	3,060	3,232
	<i>Fixed Gear</i>	1	10	5	3	3	4	3
	TOTAL	1,841	1,764	2,317	2,063	3,000	3,064	3,235
Other Rockfish	<i>AFA Trawl</i>	21	19	11	5	17	6	7
	<i>H&G Trawl</i>	468	420	508	422	376	352	224
	<i>Trawl Total</i>	489	439	519	427	392	358	230
	<i>Fixed Gear</i>	223	302	301	363	260	223	173
	TOTAL	712	740	821	790	652	580	403
Rock Sole	<i>AFA Trawl</i>	1,354	2,837	1,272	1,663	804	1,986	1,039
	<i>H&G Trawl</i>	18,918	15,424	12,355	17,908	14,226	20,137	18,183
	<i>Trawl Total</i>	20,272	18,261	13,626	19,571	15,030	22,123	19,222
	<i>Fixed Gear</i>	65	35	37	38	43	41	57
	TOTAL	20,337	18,297	13,663	19,609	15,073	22,164	19,279
Yellowfin Sole	<i>AFA Trawl</i>	86	1,380	626	689	76	728	15
	<i>H&G Trawl</i>	5,914	10,280	7,216	7,209	9,999	8,260	11,064
	<i>Trawl Total</i>	6,000	11,660	7,842	7,898	10,074	8,988	11,079
	<i>Fixed Gear</i>	255	366	694	658	669	695	781
	TOTAL	6,255	12,026	8,536	8,556	10,744	9,683	11,860

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Chapter 4 Environmental Impacts

This section discusses the potential impacts of management under each of the proposed alternatives. Specific details with respect to the performance of the fishery under the three alternatives are noted in each section. Impacts are focused primarily on the potential for the alternatives to encourage increase in retention of a given species, change management burden or catch accounting accuracy, change the responsibilities or burden to enforcement officers or the Coast Guard to enforce MRA regulations. Some additional impacts are noted for groundfish stocks, threatened and endangered species, ecosystem impacts, as well as general economic or distributional impacts. More detail is provided on the impact of increasing the accounting interval for MRAs by species in the RIR portion of this analysis in Chapter 5. This EA/RIR/IRFA evaluates three alternatives four species options under the 2nd and 3rd alternative.

4.1 Natural and Physical Environment: Alternatives 1, 2 and 3

4.1.1 Groundfish Stocks in the BSAI: Impacts under all alternatives

As noted in Chapter 3, stock management in Alaska groundfish fisheries centers on achieving optimum yield for a species, but imposes rigid constraints for reaching the ABC or as a stock approaches an OFL. Annual harvest specifications establish individual overfishing level (OFL), acceptable biological catch (ABC), total allowable catch (TAC) for each species or species group, and prohibited species catch (PSC) limits. The ABC is a lower amount than the OFL. In the BSAI the sum of all species TACs may not exceed 2.0 million metric tons. The sum of all recommended ABCs must always be larger than or equal to the sum of the individual TACs. Inseason management objectives limit catch to the TAC and/or ABC. Preventing overfishing for any species or species group is an extremely high priority for inseason managers, and fishing in excess of the ABC is restricted by regulation.

Because of the conservative practices used for setting ABCs for groundfish in the BSAI, none of the three alternatives considered in this analysis are expected to have any significant effects on groundfish stocks in the BSAI that extend beyond the preferred alternative presented in Section 3.5.1 of the PSEIS (NMFS 2004a). Additional information on the condition of these stocks is presented in the EA/FRFA for the 2005 TAC specifications for Alaska groundfish fisheries (NMFS 2004b). This report indicates that none of the groundfish stocks in the BSAI are depleted or currently overfished under the status quo.

The species and stocks that the new MRA regulations could apply to under Alternative 2 or 3 are yellowfin sole, rock sole, flathead sole, Atka mackerel, Aleutian Islands Pacific ocean perch, Alaska plaice, arrowtooth flounder, and “other flatfish”. At the June 2006 Council meeting shortraker, roughey and Northern rockfish, along with Greenland turbot were removed from the species options for this proposed action.

In addition to the species that may be subject to changes in MRA accounting under Alternative 2 or 3, no significant impacts are likely to occur to other groundfish stocks from any of the MRA alternatives. For example, BSAI pollock or Pacific cod populations which are incidentally caught along with many of the species considered under Alternatives 1, 2 and 3 are among the two largest sources of groundfish catch in the BSAI and are neither depleted or approaching an

overfished condition. The potential result of these regulations to increase retention of one or more of the 13 species or species groups considered, may not result in any change in total removals of these or other species. To the extent that some increase or decrease in removals of these species occur, the amounts (and impacts on incidental catch of pollock and Pacific cod) are likely to be trivial compared with the magnitude of the biomass or ABCs for these species.

Furthermore, incidental catches could be either caught and processed, or caught and discarded as bycatch. There is no evidence that the potential increase in retention associated with implementing Alternative 2 or 3 (because these alternatives would at most result in a small change in retention) would have any appreciable impact on the environment. As indicated in the PSEIS, management of these stocks does not allow the fishing mortality rate to exceed the OFL. If in the event that Alternative 2 or 3 were to reduce or increase flatfish catches compared with the current fish management regime, it is unlikely that the magnitude of the catches would have any resulting stock effect on BSAI groundfish species. Currently, flatfish stocks in the BSAI are generally harvested at levels well below established ABCs and OFLs. By definition, catches below ABC are not expected to affect stock levels.

While a small increase in the proportion of groundfish retention to total groundfish catch is a possible outcome for Alternatives 2 and 3 (especially for certain flatfish species), there is no indication that flatfish or other stocks will be affected by these action alternatives. This is explored under the flatfish species effect analysis in Section 4.1.2. If retention rates and amounts caught do increase compared with the status quo, it is also possible that discard quantities may decrease. Discard quantities constitute less than one percent of the yellowfin sole survey biomass, less than two percent of the rock sole survey biomass and less than 0.1 percent of the shallow-water flatfish survey biomass. Eliminating a portion of these discard amounts is not anticipated to have a measurable effect on the health of the flatfish resources. Moreover, the species TACs would remain the same under all of the alternatives considered. To the extent that these TACs are sustainable, removals from an available TAC will have the same stock effects regardless of whether the fish harvested are retained or discarded. If a portion of those fish discarded survive, then discarding results in fewer fish being removed from the biomass. There is no conclusive information regarding how many, if any, discarded groundfish survive in the non-AFA trawl C/P sector, but post cruise observer interviews suggest that very few groundfish appear to be alive at the point of discard. Potential impacts on how the Alternatives may impact existing TACs or management of these species are considered in Section 4.1.2.

Some rockfish and other species such as Greenland turbot that were listed for analysis by the Council in April 2006 were removed at the June 2006 Council meeting. The stock status and catch data for these species are included in Appendix 3 for Alternative 2 or 3, as options that were considered and removed by the Council.

A consideration in selecting a given species to apply new MRA accounting is the potential consequence of relaxing MRA accounting on a species complex that may subsequently be split into a smaller species group. For example, in 2004 Shortraker and rougheyeye rockfish began to be managed as a separate rockfish species.

In 2005, Bering Sea rockfish were closed to directed fishing for the entire year. Catch for most rockfish species was moderate relative to the available TAC. Catch did not approach the OFL. However, the status of groundfish stocks changes each year, sometimes dramatically. If rockfish fisheries management groups are further stratified from their current species complexes into

individual species components, Alternatives 2 and 3 may result in a greater number of species categories with smaller ABCs and OFLs than under the status quo. This condition could increase the potential for a given species to reach its OFL. Thus, the species that are considered to be the best candidates for increasing the MRA accounting interval would be those that have a low probability of conservation or enforcement risk while enhancing retained catch of groundfish.

Indirect targeting of a groundfish species has been observed to drive catch levels high enough to approach ABCs in at least one recent year. When rockfish fisheries are closed to prevent overfishing, some annual revenues in this sector are likely foregone as the sector substitutes effort into the next best target alternative. For example, in the BSAI, shortraker rockfish are incidentally caught in several directed fisheries. Those fisheries include AFA pollock; IFQ sablefish and halibut; CDQ sablefish and halibut; non-pelagic trawl Pacific cod, Atka mackerel, Pacific ocean perch, and arrowtooth flounder; hook-and-line Pacific cod and Greenland turbot; and pot sablefish. While shortraker, roughey and Northern rockfish are no longer among the species under consideration by the Council for amendment of MRA accounting regulations, it is possible that BS POP might be targeted in the BS to the extent that it could be a concern to NOAA fishery management. An action to prevent overfishing of BS POP might result in curtailing or closing of some fisheries. Retaining MRA accounting for this species that are currently in regulation potentially avoids the additional conservation risk of targeting on BS POP that might be susceptible to overfishing or reaching a TAC.

Some species that were considered for inclusion in Alternative 2 and 3 but removed by the Council at the June Council meeting were not likely to contribute significantly to increased groundfish retention such as shortraker and roughey rockfish (see Appendix 3), due to small MRAs and incidental catches. Another species, Greenland Turbot is also discussed in Appendix 3, as this species was identified as not being an optimal candidate for increasing MRA accounting interval because it is not abundant in the BSAI. While removals of Greenland Turbot are tracked by inseason management under the present fishing regime (or as presumed to occur in Alternative 1), considering the small MRAs already applied to these species relaxing MRA accounting would impose additional tracking burden on managers to make sure that catches do not approach the ABC.

Under Alternative 2 and 3, it might be possible for some individual TACs to exceed those identified in the annual specifications before being identified; however, TACs for each of these species are set well below each respective ABC. As a result, catch of all groundfish species is not likely to exceed acceptable levels under these alternatives or deviate from the preferred alternative under the current BSAI groundfish fishery PSEIS (NMFS 2004a). Therefore, the impact on groundfish stocks from any of the Alternatives considered is expected to be trivial. Enforcement implications of the alternatives are included in the RIR in section 5.6.1.6. In that section, the Alternative 3 computation of MRAs at the time of offload is identified as posing enforcement difficulties for these species and potentially would reduce MRA compliance. If circumstances within days or immediately prior to offload caused the vessel operator to believe there was reduced likelihood of detection, this ability to “lawfully” have amounts of product in excess of MRAs aboard up to the time of the beginning of offload could arguably increase the likelihood of unlawful retention of groundfish in excess of MRA standards. This legal and compliance issue may factor into the efficacy of Alternative 3, but it is not possible to identify specific environmental consequences of offload-based accounting resulting from reduced compliance with MRA limits.

There are no reports or data available that demonstrate that these species, in the amounts currently being removed from the North Pacific or proposed for removal under Alternatives 2 and 3, have a significant indirect value to the productivity of other species (e.g., providing prey for other living marine resources).

4.1.2 Groundfish Impacts by Species in Alternative 2 and 3

To the extent possible with existing data, this section addresses some questions intended to assist in evaluating the tradeoffs of adjusting the MRA accounting period for each groundfish species as defined in Alternatives 2 and 3. Table 18 summarizes some of the numeric components of this data is included in the RIR Section 5.6.2. The following questions are asked for each species under consideration for the action alternatives:

- Has the non-AFA trawl C/P sector identified this species as one that would assist in improving groundfish retention?
- What is the average catch, amount of retained catch and percent of retained catch for this species? Do catch accounting data suggest there is there a residual amount of catch for a species that could be retained if markets or other incentives existed to do so?
- How does the ABC compare with average catch and recent catches? If total catches approach an ABC such that additional (perhaps small) increases in catch occurred from either of these two alternatives, would that increased catch result in some level of management concern?
- What is the TAC for this species compared with its average catch? How many times has it been closed on TAC or reached the TAC in the groundfish harvest specifications? Could removals on the order of those likely to occur under the action alternatives pose any concern for releasing reserves or for exceeding the TAC as defined in the harvest specifications?
- Is the existing MRA small (typically less than 20 percent) or large and why? Would increased exploitation or targeting of this species conflict with the intent of the MRA level set for this species?
- Is this species part of another species complex in BS or AI for the purpose of management? Does that have implications for management of longer periods of MRA accounting?
- Are there additional management concerns with extending the MRA accounting period for this species, or would this adjustment conflict with the management objective of the MRA for this species?
- Do enforcement concerns exist for extending the accounting period for the MRA computations for this species (other than those identified in Alternative 3, extension of the MRA accounting period beyond a reporting week to the time of offload)?

4.1.2.1 Effect of applying Alternative 2 and 3 MRA accounting by species

Yellowfin Sole

Changing the MRA accounting interval to the end of a fishing trip (that could span as much as a week) or to the time of offload for yellowfin sole has been identified by the non-AFA trawl C/P sector as an action that would assist in increasing groundfish retention for that sector. As noted in Table 8, total catch of yellowfin sole averaged 68,350 mt from 1999 to 2005. The retention

rate of yellowfin sole in 2005, as a percentage of total yellowfin sole catch was 85.5 percent. In 2005 yellowfin sole is the seventh largest contributor (2,624 mt) to discards occurring when that species is identified as an incidentally caught species by non-AFA trawl C/P sector. There is room for increased groundfish retention of this species at current catch levels as identified by the amount of discard in the incidental catch

Based on the 2005 SAFE report (NPFMC 2005) the OFL for yellowfin sole has been set at approximately 140,000 mt in recent years. Catch has typically stayed between 60,000 mt and 96,000 mt, providing a substantial buffer for further species exploitation up to the ABC (in the absence of other any other constraining factor such as the general BSAI groundfish 2 million mt optimum yield (OY) limit). The TAC was set at 86,075 mt in 2004 and 90,686 mt in 2005. While well-below the OFL and ABC for this species, recently the 2005 the catch of yellowfin sole slightly exceeded the TAC.

From 1995 to 2003, revenues derived from the target fisheries of yellowfin sole varied between \$24 million and \$49 million (prices in nominal amounts). Members of the non-AFA trawl C/P sector report that despite increased catch in 2004 and 2005, the prices for yellowfin sole also increased during this period. Recognizing the substantial number of economic factors that effect retention and discard decisions, representatives of the non-AFA trawl C/P sector have identified that rising prices for yellowfin sole and relaxed MRA accounting provide additional opportunities to retain this species.

Of the 16 groundfish directed fisheries for which incidental catch of yellowfin sole can occur, the associated MRAs for yellowfin sole are between 20 and 35 percent. This is a liberal MRA range compared to many other species listed in Appendix 2, and provides some opportunity for increased regulatory and/or economic retention of this species when the yellowfin sole directed fishery is closed. The stock assessment for 2005 identifies yellowfin sole as a Tier IIIa species. While this is not the highest tier for stock assessment data quality, it is not likely that the additional removals associated with the MRA adjustment would impose risk of overharvesting this species.

Alternative 3 has been identified as generating enforcement concerns for yellowfin sole, in part because this methodology precludes the opportunity to utilize Weekly Production Reports to identify intentional or unintentional MRA violations, and may increase the potential for vessel operators to intentionally retain unlawful amounts of species that are closed to directed fishing and misreport catch and production amounts to disguise this unlawful retention.

Table 14. Discarded Incidental catch of non-AFA trawl C/P sector species in fisheries (excluding discards of the primary target species) in descending amounts for the year 2005

Ranking	Incidental Catch by Species	mt	Ranking continued	Incidental Catch by Species	mt
1	Pollock	13,218	12	Pacific cod	434
2	Alaska plaice	9,799	13	Other rockfish	78
3	Rock sole	8,389	14	Greenland turbot	57
4	Other species	5,164	15	Squid	31
5	Arrowtooth flounder	4,631	16	Sablefish	29
6	Northern rockfish	2,787	17	Shortraker	5
7	Yellowfin sole	2,624	18	Rougheye	2
8	Other flatfish	2,107			
9	Pacific Ocean perch	1,222			
	<i>AI Pacific Ocean perch</i>	<i>1,132</i>			
	<i>BS Pacific Ocean perch</i>	<i>90</i>			
10	Flathead sole	1,075			
11	Atka mackerel	887			

Flathead Sole

The non-AFA trawl C/P sector has noted that including flathead sole in a regulatory amendment to increase the MRA accounting interval for selected species would assist them with increasing groundfish retention. As noted in Table 8, from 1999 to 2005 the total catch of flathead sole was averaged approximately 14,000 mt. For the same years, the retention rate of all groundfish in the BSAI flathead sole target fishery was approximately 81 percent. In 2005 flathead sole was the ninth largest contributor to the discards of the non-AFA trawl C/P sector (excluding discards when flathead sole is identified as the target species), and there is some room for increased retention of this species.

The 2005 SAFE report (NPFMC 2005) set the OFL for flathead sole at approximately 75,200 mt in 2004 and 70,200 mt in 2005. Total groundfish catch has typically been between 11,000 mt and 17,000 mt. Recognizing the many factors that control TAC setting, there is some residual or buffer for further exploitation of this species up to the ABC. The TAC was set at 19,000 mt in 2004 and 19,500 mt in 2005. While well-below the ABC for this species, recently the 2004 and 2005 catch of flathead sole approached the TAC set in the 2004-2005 harvest specifications. Small increases in retention or catch of this species that could occur under Alternatives 2 and 3 is not a concern for conservation or for impacting the ability of managers to keep catches of this species within the ABC.

Of the 16 basis species identified in the groundfish MRA table (Appendix 2) for which incidental catch of flathead sole can occur, the associated MRAs for flathead sole are between 20 and 35 percent. This is a liberal MRA range compared to most other species, and provides some opportunity for increased regulatory and/or economic retention of this species when the flathead sole directed fishery is closed.

The stock assessment for 2005 qualifies flathead sole for Tier III management. While this is not the highest tier for stock assessment data quality, it is not likely that the additional removals on the order of those associated with increasing the MRA accounting period in Alternative 2 would reduce the quality of information sufficiently to impose risk of overharvesting this species. There are no additional management or enforcement concerns with increasing the accounting interval for this species to a weekly period.

While biomass for flathead sole is identified in the stock assessment as declining, this species has the advantage of a short recruitment interval, where reproductive age generally occurs at age 3, and in some cases age-2. It is not likely relaxed MRA accounting would have any appreciable impact on the overall removals or even more frequently reaching the ABC considering the size of the stock.

Alternative 3 has been identified as generating enforcement concerns for flathead sole, in part because this methodology precludes the opportunity to utilize Weekly Production Reports to identify intentional or unintentional MRA violations, and may increase the potential for vessel operators to intentionally retain unlawful amounts of species that are closed to directed fishing and misreport catch and production amounts to disguise this unlawful retention.

Northern Rock Sole

Increasing the MRA accounting interval for northern rock sole (rock sole) has been identified by the non-AFA trawl C/P sector as an action that would increase groundfish retention. As noted in Table 8, from 1999 to 2005 the total catch of rock sole averaged approximately 36,500 mt. For the same years, the retention rate of all groundfish in the BSAI rock sole target fishery is approximately 57 percent. Rock sole is one of the larger contributors to the discards of the non-AFA trawl C/P sector, and there is some residual room for increased retention of this species.

According to the 2005 SAFE report (NPFMC 2005) the OFL for rock sole has been set between 145,000 mt and 167,000 mt between the years 2004 to 2007. In 2004 and 2005 annual catch has been approximately 40,000 mt. Considered independently of other groundfish species management in the BSAI, this represents a substantial buffer for further exploitation up to the ABC. The TAC has been set at 38,000 mt in 2004 and 40,500 mt in 2005. While well below the OFL and ABC for this species, 2004 catches approach the TAC set in the 2004-2005 specifications.

Of the 16 basis species identified in the groundfish MRA table (Appendix 2) for which incidental catch of rock sole can occur, the associated MRAs for rock sole are between 20 and 35 percent. This is a liberal MRA range compared to most other species, and provides some opportunity for increased regulatory and/or economic retention of this species when the rock sole directed fishery is closed.

The stock assessment for 2005 qualifies rock sole for Tier IIIa fishing mortality rate. While this is not the highest tier for stock assessment data quality, it is not likely that the additional removals on the order of those associated with the MRA adjustment impose risk of overharvesting this species. The current stock assessment identifies rock sole as not overfished, above target biomass, but with a declining stock size. There are no additional management or enforcement concerns with increasing the accounting interval for this species to a weekly period.

In contrast with some flatfish species that mature and recruit quickly, rock sole is identified in the stock assessment as a moderately slow growing fish. Females reach 50 percent maturity at about age 9. Spawning occurs March through June in the Bering Sea. Annual natural mortality of adults has been estimated to be about 15 percent ($M = 0.20$). Recruitment to trawl fisheries occurs at age 4, but rock sole are not fully recruited until age 11. Maximum age for rock sole is about 20 years. Despite the slow recruiting life cycle of Northern rock sole, it is not likely that the relaxation of MRA accounting proposed for Alternative 2 or 3 would have any appreciable impact on the overall removals of this species considering the size of the ABC. Relaxation of MRA accounting under Alternative 2 and 3 would place some additional burden on fishery managers to carefully track removals.

Alternative 3 has been identified as generating enforcement concerns for northern rock sole, in part because this methodology precludes the opportunity to utilize Weekly Production Reports to identify intentional or unintentional MRA violations, and may increase the potential for vessel operators to intentionally retain unlawful amounts of species that are closed to directed fishing and misreport catch and production amounts to disguise this unlawful retention.

Atka mackerel

The non-AFA trawl C/P sector has expressed moderate interest in increasing the MRA accounting interval for Atka mackerel. Not including pollock, in 2005 Atka mackerel was the tenth largest contributor to the discards of the non-AFA trawl C/P sector (excluding discards in the Atka mackerel target), and there is some residual room for increased retention of this species. Incidental catch of Atka mackerel has varied greatly, but is modest in most years compared with incidental catch of some flatfish species.

As noted in Table 8, catches of Atka mackerel from 1999 to 2005 averaged 55,600 mt. Atka mackerel retention by weight of species discarded compared with total species caught is approximately 88 percent over this time period. Atka mackerel is a small contributor to the discards of the non-AFA trawl C/P sector, and there is a small residual for increased retention in the non-AFA trawl C/P sector if total non-AFA trawl C/P catches of this species were to increase.

The 2005 SAFE report (NPFMC 2005) sets the OFL for Atka mackerel between 78,000 mt and 147,000 mt between the years 2004 and 2007. In 2004 and 2005, annual catch was approximately 60,000 mt, providing a substantial buffer for further single species exploitation up to the ABC and OFL. The TAC was set at 63,000 mt in 2004 and 2005. Catches over this time period are generally well below the OFL and ABC for this species, and have not reached the TAC set in 2004 or 2005 as listed in the 2004-2005 harvest specifications.

Of the 16 basis species identified in the groundfish MRA table (Appendix 2) for which incidental catch of Atka mackerel can occur, the associated MRAs for Atka mackerel are set at 20 percent. This is a liberal MRA range compared to some other species, and may provide some opportunity for increased regulatory and/or economic retention of this species when the Atka mackerel directed fishery is closed.

The stock assessment for 2005 qualifies Atka mackerel for Tier IIIa fishing mortality rate. While this is not the highest tier for stock assessment data quality, it is not likely that the additional removals on the order of those associated with the MRA adjustment would generate errors that could reduce the quality of information sufficiently to impose risk of overharvesting this species.

The current stock assessment identifies Atka mackerel as not overfished, above target biomass, but with a declining stock size. Atka mackerel is considered to be an important food source for SSL in some locations and at some periods of SSL maturity. There are no additional management or enforcement concerns with increasing the accounting interval for this species to a weekly period.

Atka mackerel begin to recruit to the fishery at age 2 and many survive to 14 years. Females reach 50 percent maturity at 31 cm (about 3.6 years old). It is not likely that the relaxed MRA accounting proposed for Alternative 2 or 3 would have any appreciable impact on the overall removals of this species considering the size of the stock. It is also unlikely that either Alternative 2 or 3 would appreciably increase the frequency of exceeding the TAC compared with the status quo.

Alternative 3 has been identified as generating enforcement concerns for Atka mackerel, in part because this methodology precludes the opportunity to utilize Weekly Production Reports to identify intentional or unintentional MRA violations, and may increase the potential for vessel operators to intentionally retain unlawful amounts of species that are closed to directed fishing and misreport catch and production amounts to disguise this unlawful retention.

One issue to consider in selecting this species is that it is harvested in modest amounts by the non-AFA trawl C/P sector in Steller sea lion protection areas. If the Council recommends extending the accounting interval for MRAs as identified under Alternative 2 or 3, NMFS may review whether that additional flexibility might change removals of this species from SSL protection areas. Though it is not anticipated that large scale shifts in fishing location are likely to result from these two options, NMFS would want to review potential implications for consultation under Section 7.

Aleutian Islands Pacific Ocean Perch (AI POP)

The non-AFA trawl C/P sector has previously identified interest in increasing the MRA accounting interval for AI POP. Incidental catch of AI POP has varied greatly in recent years, but is low compared with the incidental catch of many of the flatfish species (such as Alaska plaice rock sole, arrowtooth flounder, Northern rock sole, yellowfin sole, and Other flatfish). The directed AI POP fishery accounts for nearly all of the catch (70 to 80 percent) of that species in the BSAI. The remainder of AI POP catch is nearly all taken in the Atka mackerel fishery (as incidental catch). Retained catch component of AI POP in the Atka mackerel target fishery has been increasing in recent years.

Average catches of all BSAI rockfish species between years 1999 and 2005 (including AI POP) averaged approximately 17,300 mt, with 16,200 mt caught in the non-AFA trawl C/P sector (Table 8). For 1999 to 2005, AI POP comprised an average of 11,000 mt (Table 15). The AI POP was approximately 85% percent from 1999 to 2005. While the proportion of retained catch of AI POP with respect to AI POP catches and total rockfish landings suggests there may be additional room for retention of this species, the contribution of AI POP to total groundfish catch and discarded catch is small compared to total groundfish discards for the non-AFA trawl C/P sector.

The 2005 SAFE report (NPFMC 2005) set the OFL for BSAI POP between 15,800 mt and 17,600 mt for 2004 to 2007. The ABC for the AI subarea and BS subarea are set separately. In 2004 and 2005, annual catch was approximately 11,000 mt, providing a small buffer for further

single species exploitation up to the ABC and OFL. The TAC was set at 11,200 mt in 2004 and 11,072 mt in 2005. If Alternative 2 or 3 were to increase catches of POP, these alternatives have the potential to cause NMFS to set aside more POP for the ICA in the Aleutian Islands subarea. Also, an increase in catches could allow for a smaller amount of POP for the directed fishery. If NMFS does not set aside enough POP in the July directed fishery, then there is a potential of exceeding the ITAC in the September Atka mackerel fishery. Many of the vessels catching incidental catches of POP are the same vessels participating in the POP directed fishery.

Table 15. Total catch, retained catch, discards, and percent of retained catch for AI and BS POP from 1995 to 2005 in the non-AFA trawl C/P sector.

Year	1999	2000	2001	2002	2003	2004	2005
AI POP							
Total Catch	12,455	9,314	8,550	10,572	12,714	11,120	9,290
Retained Catch	10,979	8,585	7,195	9,315	10,720	9,283	8,001
Percent Retained Catch	88%	92%	84%	88%	84%	83%	86%
Discarded Catch	1,476	729	1,355	1,257	1,993	1,837	1,290
BS POP							
Total Catch	226	380	319	93	201	214	214
Retained Catch	129	206	221	73	114	138	123
Percent Retained Catch	57%	54%	69%	79%	57%	64%	57%
Discarded Catch	97	173	98	20	86	76	91

Of the 17 basis species identified in the groundfish MRA table (Appendix 2) for which incidental catch of AI POP can occur, the associated MRAs for AI POP are set at 0 to 15 percent. MRAs in this range are small compared with many other species. Even with relaxed MRA accounting proposed for Alternatives 2 and 3, MRAs set at this level provide only modest opportunity for increased regulatory retention of this species when the AI POP directed fishery is closed.

The current stock assessment identifies AI POP as not overfished, below the target biomass and with a stable stock size. There are some management concerns with this species if incidental catches were to approach the OFL. Incidental catch of POP in the Atka mackerel fishery is highly variable.

While this species has been fished to the TAC set in the harvest specifications, catches are not increasing. Alternative 3 has been identified as generating enforcement concerns for AI POP, in part because this approach precludes the opportunity to utilize Weekly Production Reports to identify intentional or unintentional MRA violations, and may increase the potential for vessel operators to intentionally retain unlawful amounts of species that are closed to directed fishing and misreport catch and production amounts to disguise this unlawful retention.

Application of MRA accounting if Amendment 80 is implemented.

The following section evaluates the effects of applying MRA accounting changes to POP in the AI prior to the approval of Amendment 80 and after Amendment 80 is approval (if it is approved by the Secretary) on both the coop and non-coop component of this sector.

- *Effects prior to the implementation of Amendment 80:* If this action is approved by the Secretary and implemented before Amendment 80, relaxed MRA accounting for AI POP may have a modest impact on overall groundfish retention in the non-AFA C/P sector. While AI POP is a significant portion of non-AFA trawl C/P sector catch, approximately 1,200 mt of incidentally caught POP are discarded between the years of 1999 to 2005. This ranks AI POP at the 9th largest source of discarded incidental catch as noted in Table 14. A separate POP TAC is set for this groundfish species in Eastern AI, Western AI, Central AI, and in a typical year, the directed groundfish fishery for AI POP occurs during the first two weeks in July (<http://www.fakr.noaa.gov/2006/status.htm>). This relatively short directed fishery is followed by an extended period of time that AI POP are on bycatch status, where trawl caught AI POP may be retained up to an MRA of 20 percent. While inclusion of this species in the MRA accounting adjustment is unlikely to significantly change overall groundfish retention, some increase in retention of POP catches may occur if expected profits from retaining this species exceed profits from retaining other combinations of groundfish. While overall catches of AI POP are small, some room exists for increased retention in the AI, as identified in table 13.
- *Post Amendment 80 for non-AFA trawl C/Ps in a coop:* As previously noted the status quo directed fishery for AI POP commences in July and extend for approximately two weeks. However, under Amendment 80, AI POP is likely to be managed under a directed fishery for the entire BSAI fishing year. Since Amendment 80 coops will be in place under this option the requirement to retain up to the MRA will be removed from regulations for the non-AFA trawl C/P sector. Thus, the option would no longer apply during this interval to Amendment 80 coops.
- *Post Amendment 80 for non-AFA trawl C/Ps not in a coop:* New MRA accounting would apply to this group. Some vessels may increase annual removals of POP, but the overall allocation relegated to the vessels that choose to not be in coops would be a substantial constraint to improving retention of this species. Consequences to the sectors other than the non-AFA trawl C/P sector could include some movement in the in-season ICA set for POP.

Bering Sea Pacific Ocean Perch (BS POP)

The non-AFA trawl C/P sector has expressed little interest in increasing the MRA accounting interval for POP in the BS. Incidental catch of BS POP is very small in this subarea compared with catch of this species in the AI subarea, though POP is caught incidentally by many non-AFA trawl C/P vessels in the BS. The potential for significant increase in groundfish retention by including this species in the MRA accounting adjustment is almost nonexistent.

The 2005 SAFE report (NPFMC 2005) sets the OFL for BSAI POP between 15,800 mt and 17,600 mt for 2004 to 2007. A separate ABC is set for the BS subarea 2,900 mt. As noted in

Table 15, average catches of BS Pacific cod between 1999 and 2005 were 235 mt. The retention rate of BS Pacific cod in the BSAI fishery was approximately 60 percent from 1999 to 2005. While the proportion of retained catch of BS POP with respect to total rockfish landings suggests that this species could provide additional room for retention of this species, the contribution of Pacific cod to total catch and retained catch in the BS is extremely small compared to total groundfish discards for the non-AFA trawl C/P sector.

Of the 17 basis species identified in the groundfish MRA table (Appendix 2) for which incidental catch of aggregate rockfish are listed (including BS POP) the MRAs are set between 0 to 15 percent. This represents the lower end of the MRA range compared to some other species, and provides minimal opportunity for increased regulatory and/or economic retention of this species.

The current stock assessment identifies BSAI POP as not overfished, below the target biomass and with a stable stock size. There are some management concerns with this species if incidental catches were to approach the OFL. Incidental catch of POP in the BS are spread among many target species.

As with many other species of rockfish, POP are slow-growing and long-lived. There is a management concern with any action that may increase exploitation of this species in the BS, as removals may provide greater influence on decisions to close some directed fisheries compared with catches of species such as yellowfin, flathead, or rock sole.

Additional enforcement issues may exist with applying Alternative 2 or Alternative 3 to BS POP. As landings of this species, even in relatively small numbers could impact the other directed fisheries, POP in the BS may be susceptible to the incentive to bias observer sampling compared with other species. Alternative 3 has been identified as generating enforcement concerns, in part because this methodology precludes the opportunity to utilize Weekly Production Reports to identify intentional or unintentional MRA violations, and may increase the potential for vessel operators to intentionally retain unlawful amounts of species such as rockfish that are closed to directed fishing and misreport catch and production amounts to disguise this unlawful retention.

Arrowtooth Flounder

Arrowtooth flounder is a flatfish species that is not open for directed fishing by trawl gear in the BSAI. Increasing the MRA accounting interval for arrowtooth flounder has been identified by the non-AFA trawl C/P sector as an action that would increase groundfish retention.

Total catch of arrowtooth flounder was approximately 18,200 mt in 2004 and 13,888 mt in 2005. The non-AFA trawl C/P sector caught approximately 11,800 mt between 1999 and 2005. For the same years, the retention rate for arrowtooth flounder in the non-AFA trawl C/P sector was approximately 38 percent. Given the low retention rate in combination with modest contribution to total discards for the non-AFA trawl C/P sector, this species may present some opportunities for increased retention defined in Alternatives 2 and 3.

According to the 2005 SAFE document (NPFMC 2005) the OFL for arrowtooth flounder has been set between 132,000 mt and 174,000 mt between the years 2004 to 2007. In 2004 and 2005, annual catch was approximately 18,200 mt, providing one of the larger buffers for further single species exploitation up to the ABC. The TAC was set at 12,000 mt in 2004 and 2005. While well-below the ABC for this species, 2004 catches exceeded the TAC set in the 2004-2005 specifications.

Of the 17 basis species identified in the groundfish MRA table (Appendix 2) for which incidental catch of arrowtooth flounder can occur in a directed fishery, the associated MRAs for arrowtooth flounder are all set at 35 percent. This is a liberal MRA range compared to most other species, and may provide some opportunity for increased retention of this species.

The stock assessment for 2005 qualifies arrowtooth flounder for Tier IIIa fishing mortality rate. Stock assessment model projections indicate that this stock is neither overfished nor approaching an overfished condition. While this is not the highest tier for stock assessment data quality, it is not likely that the additional removals on the order of those associated with the MRA adjustment would impose and risk overharvesting this species. Arrowtooth flounder are a relatively large flatfish that may live to 15 years. Size and age of sexual maturity are not known at this time. Arrowtooth flounder are distributed throughout the continental shelf through age 4. There are no additional management concerns with increasing the accounting interval for this species to a weekly period.

Alternative 3 has been identified as generating enforcement concerns for arrowtooth flounder, in part because this methodology precludes the opportunity to utilize Weekly Production Reports to identify intentional or unintentional MRA violations, and may increase the potential for vessel operators to intentionally retain unlawful amounts of species that are closed to directed fishing and misreport catch and production amounts to disguise this unlawful retention. All flatfish species are constrained by halibut usage limits, yet members of the non-AFA trawl C/P sector report that markets appear to be willing to accept additional deliveries of these species if they can be harvested. The primary constraint to additional harvest of these species is the availability of halibut PSC.

“Other Flatfish”

Increasing the MRA accounting interval for “Other flatfish,” particularly rex sole, has been identified by the non-AFA trawl C/P sector as an action that would help increase groundfish retention. In addition, the non-AFA trawl C/P sector did not identify Alaska plaice as a species that would be of interest to include in this program because markets for this species are not currently developed, leading to few opportunities for retaining it.

The “other flatfish” complex is a large groundfish complex that includes Arctic flounder, butter sole, curlfin sole, deepsea sole, Dover sole, English sole, longhead dab, Pacific sand dab, petrale sole, rex sole, roughscale sole, sand sole, slender sole, starry flounder, and Sakhalin sole. To avoid reporting data with observations of less than three harvesting or processing companies, Alaska plaice is combined with the “other flatfish” catch, retention, and discard data presented here. Alaska plaice was part of the “Other flatfish” complex till 2002. It now has its own TAC, OFL and ABC, but the Alaska plaice is managed as part of the aggregate halibut PSC for “Other flatfish”. Thus, when “Other flatfish” is closed to directed fishing based on halibut PSC, Alaska plaice is closed along with it.

Alaska plaice and the “other flatfish” complex are assigned separate MRAs in Table 11 at 50 CFR 679. As noted in Table 8, from 1999 to 2005 the total catch of “other flatfish” averaged approximately 19,150 metric tons, 12,670 mt of which was caught by the non-AFA trawl C/P sector. For the same years, the retention rate for “other flatfish” in the BSAI by the non-AFA trawl C/P sector was approximately 10 percent. “Other flatfish” as combined with Alaska plaice in Table 9 are the 4th largest contributor to the discards in the BSAI. Alaska plaice is by far the

largest component of these discards in the “Other flatfish” category. Alaska plaice discards of incidental catch are the 2nd largest source of incidentally caught discards for the non-AFA trawl C/P sector (Table 14). Based upon retained catch data, extending MRA accounting as identified in Alternatives 2 and 3 to “Other flatfish” may generate a modest opportunity for increased retention.

The 2005 SAFE document (NPFMC 2005) identified that from 2004 to 2007 the OFL for “other flatfish” was set between 18,100 mt and 28,500 mt. During this same period the OFL for Alaska plaice was set at 231,000 mt to 258,000 mt. The combined annual catch of “other flatfish” and Alaska plaice was approximately 14,910 mt in 2004 and 19,250 mt in 2005, providing a substantial buffer for further single species exploitation up to the ABC and OFL. Note that Alaska plaice is not under consideration for extended MRA accounting at this time. The TAC has been set at 38,000 mt in 2004 and 40,500 mt in 2005. While well-below the OFL and ABC for this species complex, 2004 catches exceeded the TAC set in the 2004-2005 specifications.

Of the 16 basis species identified in the groundfish MRA table (Appendix 2) for which incidental catch of “other flatfish” (including Alaska plaice) can occur in a directed fishery, the associated MRAs are between 20 and 35 percent. This is a liberal MRA range compared to most other species, and could provide some opportunity for increased regulatory and/or economic retention of this species complex when the “other flatfish” fishery is closed to directed fishing.

One management question explored for this action of liberalizing the MRA accounting calculation is the potential impact on individual species in the “other flatfish” category. A potential exists for changing the rate of removal for any given species within the “other flatfish” category. An extended period of time for sorting groundfish under Alternative 2 or 3 has the potential to change weekly decisions of how to optimize the value of retained catch. Under conditions where groundfish species in a given tow consist of widely differing market values, a longer planning horizon could shift retention decisions or even decisions regarding fishing locations in time. Changes in fishing time/location could, in turn effect species proportions removed in this category that is higher or lower compared with current fisheries and what is presumed to occur in Alternative 1. The non-AFA trawl C/P sector has identified that one species they would be likely to be retained in greater numbers from increasing the MRA accounting interval for “other flatfish” is rex sole. If the increased retention of “other flatfish” shifts effort and catches to rex sole, Alaska Fishery Science Center (AFSC) staff (Tom Wilderbuer, personal communication 2006) note that this change would be not likely to result in a concern for that individual species as long as these increases in exploitation of the species were modest. The exploitation fraction for rex sole has generally been around 0.04 or 0.05 (Table 10.6 of the SAFE report; NPFMC 2005). If the observed exploitation fraction is compared with the value NMFS identifies for the allowable fishing rate ($F_{ABC} = 0.15$), then that is likely to be a safe level of exploitation for rex sole. Butter sole is the main concern for this group and we would not want to increase their harvest. NMFS does not have individual OFL levels established for individual species of this group. In 2004, rex sole and starry flounder accounted for 84 percent of the catch of this group. If the catch composition shifts dramatically to some of the other species in the complex, the MRAs or the accounting interval would need to be re-evaluated. The current stock assessment identifies the “other flatfish” complex as not overfished, above target biomass, but with a declining stock size. There are no additional management or enforcement concerns with increasing the accounting interval for this species to a weekly period.

Little is known about the biology of species in the “other flatfish” complex. The SSC reclassified “other flatfish” as a Tier 5 species complex with an assumed natural mortality rate of 0.20. It is not likely relaxed MRA accounting proposed for Alternative 2 or 3 would have any appreciable impact on the overall removals of this species considering the size of the stock. It is not possible to determine whether the “other flatfish” complex is overfished or approaching an overfished condition because it is not managed under Tiers I-III.

Alternative 3 has been identified as generating enforcement concerns, in part because this methodology precludes the opportunity to utilize Weekly Production Reports to identify intentional or unintentional MRA violations, and may increase the potential for vessel operators to intentionally retain unlawful amounts of species that are closed to directed fishing and misreport catch and production amounts to disguise this unlawful retention.

BSAI Pacific Cod

At the June 2003 Council meeting the Council proposed to include Pacific cod in the list of species under consideration for a change to MRA accounting regulations. The Council further noted that any change to the MRA accounting for Pacific cod not become effective prior to the Secretarial approval of Amendment 85, a proposed action that would allocate a specific amount of Pacific cod to several BSAI groundfish sectors, including the non-AFA trawl C/P sector. As Amendment 85 is only a recommendation by the Council and has not been submitted to the Secretary as a proposed rule, some economic effects of this option are expanded upon in the cumulative effects portion of this analysis (Section 4.3) and under the Reasonable Foreseeable Future Actions section 4.3.2.

Increasing the MRA accounting interval for Pacific cod has been identified by the non-AFA trawl C/P sector as an action that would increase groundfish retention, if Amendment 85 was to be implemented. The EA/RIR/IRFA for Amendment 85 notes that the preferred alternative for that program could shorten the duration of the directed fishery for the non-AFA trawl C/P sector in the BSAI. If Amendment 85 were to be implemented, much of the non-AFA trawl C/P catch of Pacific cod may be taken incidentally. Presently, for much of the year, Pacific cod are open in the BSAI to directed fishing by non-AFA trawl C/P, though a number of fishing restrictions apply to trawling of this species in and near SSL critical habitat.

As noted in Table 8, from 1999 to 2005 the total catch of Pacific cod in the non-AFA trawl C/P sector averaged approximately 30,350 mt. In 2005 83% of the Pacific cod was retained, and discard amounts of incidental catches for this species was only the 12th ranked species at only 434 mt. As Pacific cod is presently a very small contributor to the discards of the non-AFA trawl C/P sector, and there would only be residual room for increased retention of this species if some action dramatically altered the status quo retention or catch of this species. Pacific cod are managed under a relatively liberal MRA of 20% in the BSAI.

Pacific cod (*Gadus macrocephalus*), also known as grey cod, are moderately fast growing and short-lived fish. Females reach 50% maturity at 67 cm (about 5.8 years old) and are highly fecund. The biomass for Pacific cod, BSAI was approximately 922,000 mt in 2005. The 2006 and 2007 final harvest specifications for groundfish in the in the BSAI (71 FR 10894, March 3, 2006) established the 2006 and 2007 Pacific cod acceptable biological catches (ABC) at 194,000 metric tons (mt) and 148,000 mt, respectively. The ABC is estimated at a Tier 3b level. The

TACs were set equal to the ABCs for Pacific cod in the BSAI. The OFL was set for years 2006 and 2007 at 230,000 mt and 176,000 mt respectively.

Stock assessment model projections indicate that this stock is neither overfished nor approaching an overfished condition. While this is not the highest tier for stock assessment data quality, it is not likely that the additional removals on the order of those associated with the MRA adjustment would impose and risk overharvesting this species. Since Pacific cod are considered to be one of the more valuable BSAI groundfish species, any distribution of catch, even small amounts have allocation implications. The cumulative effects section of this EA describes some potential effects of extending the accounting interval for applying MRAs to Pacific cod. One issue to consider in selecting this species is that it is harvested in modest amounts by the non-AFA trawl C/P sector in Steller sealion protection areas. If the Council recommends extending the accounting interval for MRAs as identified under Alternative 2 or 3, NMFS would need to review whether that additional flexibility might change removals of this species from critical habitat. Though it is not anticipated that large scale shifts in fishing location are likely to result from these two options, NMFS may wish to review the effects on prey species in these SSL protection areas.

4.1.3 Effects on Prohibited Species under All Alternatives

Overall harvests of prohibited species are not anticipated to exceed those observed in current groundfish data under any of the alternatives and there is no expected change in the health of prohibited species stocks in any of the alternatives. NMFS has no data to indicate the likelihood of changes in fishing behavior from Alternatives 2 and 3 and whether they may increase or decrease the probability of catching species that are currently depressed (BSAI Chinook) or in an overfished condition (*C. bairdi* crab, *C. opilio* crab, BSAI red king crab, and BSAI blue king crab). As previously identified, some additional review of the effects on SSL prey species may be examined in relation to the options under Alternative 2 and 3.

4.1.4 Effects on Forage Fish Species under All Alternatives

Because overall harvests of forage fish species will not be affected, none of the alternatives considered are expected to have any adverse effects on forage fish species.

4.1.5 Effects on Marine Benthic Habitat and Essential Fish Habitat (All Alternatives)

As a number of BSAI fishing sectors operate fishing gear in benthic habitat areas, it is possible that these operations contribute to changes in benthic populations. It is not possible with the information available to determine if any of the potential alternatives examined would impact benthic habitat areas compared to the status quo.

None of the alternatives would be expected to adversely affect marine benthic habitat or EFH in any manner or to any extent not already addressed in previous NEPA analyses and the EFH EIS (NMFS 2005a). The alternatives would not change the species TACs or the gear type and general location of the fisheries in which groundfish are caught. If the distribution of groundfish discards relative to natural sources of organic material can be assumed to be similar, and considering the amounts of the non-AFA trawl C/P discards relative to natural sources, there are

no available data to suggest that any of the MRA accounting changes proposed in Alternative 2 and 3 would alter scavenger populations or benthic community distribution and abundance.

4.1.6 Ecosystem Considerations for All Alternatives

High rates of groundfish discards may have potential ecosystem effects. Discarding of groundfish may affect scavenger and predator populations by increasing the available food supply. In addition, discards will contribute to the total energy flow and, though they may be small when compared to the total flow, their effect is cumulative with other forms of energy flow such as offal production from processing and naturally occurring detritus. However, the level of groundfish discards relative to natural sources of detritus and the absence of evidence that would relate changes in scavenger populations to discard trends suggest that groundfish discards have insignificant ecosystem impacts through energy removal and redirection.

To the extent that groundfish discards are concentrated in one area they could create localized ecosystem effects. The potential for such effects may require consideration of local energy flows rather than region-wide flows. Such localized ecosystem effects are currently not well understood. Furthermore, the change in the amount of groundfish removals and discards associated with either of the action alternatives, compared with the status quo is likely to be small, particularly at the ecosystem level.

4.1.7 Effects on Marine Mammals under All Alternatives

Under the MMPA, NOAA Fisheries Service classifies each U.S. commercial fishery (state and Federal) in one of three categories based on the level of incidental serious injury and mortality of marine mammals that occurs in the fishery. Each fishery is classified through a two-tiered analysis which assesses the potential impact of fisheries on each marine mammal stock by comparing serious injury and mortality levels to stock Potential Biological Removals PBRs.

Marine mammals present in the management areas of concern and their conservation status are listed in Table 2.

Take of the above listed marine mammals in trawl fisheries has been monitored through observer programs. The subject fishery (BSAI groundfish trawl) is classified as Category III. Very few marine mammals have been recorded as incidentally taken in these fisheries. However, Steller sea lion, northern fur seal, harbor seal, spotted seal, bearded seal, ribbon seal, ringed seal, northern elephant seal, Dall's porpoise, harbor porpoise, Pacific white-sided dolphin, killer whale, sea otter, walrus, and humpback whales were recorded as incidentally taken or injured in the BSAI groundfish trawl fisheries (*Federal Register*, Vol. 67, No. 12, 2002).

Because overall harvests levels of groundfish will not be affected, the number of marine mammal interactions is not anticipated to vary from the preferred action alternative for marine mammals described in the PSEIS (NMFS 2004a). Some groundfish identified a prey items for marine mammals listed as threatened or endangered are discussed below, in Section 4.1.8. As described in the PSEIS, the preferred alternative reported insignificant effects on marine mammals due to direct take or marine debris. Conditionally significant adverse impacts were reported on three primary pinniped species (Steller sea lions, northern fur seals, and harbor seals) due to harvest of prey species. Conditionally significant adverse impacts on the primary pinniped species were identified due to spatial and temporal concentration on BSAI groundfish fisheries.

Finally, no significant impacts on marine mammals due to disturbance were identified. Since the alternatives under consideration for Alternative 2 and 3 would not change the TAC, allocation, timing, or harvest methods for any of the fisheries, it is unlikely there would be adverse impacts on endangered or threatened species of marine mammals.

4.1.8 Effects on Endangered or Threatened Species under All Alternatives

Potential BSAI groundfish impacts on Steller Sea Lions and their designated critical habitat have been the subject of formal or informal consultations (NMFS 2000, NMFS 2001). Issues examined include amounts, timing, and location of prey species removals. Any Federal fisheries action under the management jurisdiction of NMFS will be considered for formal consultation under Section 7 if the action agency (Sustainable Fisheries Division) determines that the action is likely to adversely affect an ESA-listed species or modify designated critical habitat.

Atka mackerel and Pacific cod are two important Steller Sea lion (SSL) prey species currently being evaluated in the newest Biological Opinion that NMFS is preparing to assess the recovery of SSL in the Eastern Bering Sea and Aleutian Islands. The SSL Biological Opinion is scheduled for completion by NMFS in early in 2007. Atka mackerel and Pacific cod are two species included by the Council as options in Alternative 2 and 3 of this MRA accounting analysis. Alternative 2 and 3 would extend MRA accounting both outside and inside SSL critical habitat, and these two species are also caught in SSL protection areas. Because of the species involved in this amendment, and due to the structure of this management change that would relax MRA accounting regulations in and out of critical habitat, NMFS recommends that these two species not be included in the MRA accounting regulation planned for this final action.

Completion of the Biological Opinion will allow for a fuller discussion of any potential changes in removals of these species in Steller sea lion (SSL) critical habitat by time, and location. NMFS would like to invest further effort in assessing incidental catch of these species and their target and directed fisheries, as well as matching VMS data to provide better information on location of removals of Atka mackerel and Pacific cod in and out of critical habitat. These two species are valuable components in both directed and incidental fisheries. Market prices for Pacific cod in particular have increased recently, raising questions about whether increased opportunities to retain this species in SSL protection areas could result in an incentive to change fishing times or locations. A possible concern (question?) that NMFS would like to explore further with these two species, is if the longer period of time for topping off, available under Alternative 2 and especially Alternative 3, will enable vessels in this sector to fish in locations that have higher proportions of an incidentally caught species that occur in SSL protection areas.

The groundfish PSEIS (NMFS 2004a) also found that the current management regime is effective at providing protection to ESA-listed seabirds, marine mammals and salmon species, and that current fishing has no adverse impacts on these species. Direct and indirect interactions of marine mammals and seabirds with the primary target fisheries are few. Even if adjustments to MRA accounting were found to remove some amount of SSL prey species from protection areas, the likelihood of any adverse effect from these small shifts in catches are unlikely to adversely impact SSL populations or recovery.

4.1.9 Effects on Seabirds under All Alternatives

While the extending the accounting interval for an MRA may provide an opportunity for members of the non-AFA trawl C/P sector to increase retention of groundfish, any change in the amount of retention resulting from any of the alternatives is unknown. It is possible that a relaxed accounting interval may provide opportunities for some increases in total harvest of groundfish if a vessel operator is able to consistently retain up to the maximum retained catch for a species. It is also possible that total catches would not change much and less groundfish would be discarded. In any event, because Alternatives 2 and 3 do not alter MRA percentages for any of the species considered, the changes to catch or discards from the two alternatives are unlikely to alter the amounts or sources of food for seabirds. Although some piscivorous bird species, such as glaucous-winged gulls, might be gaining food subsidies from the discards associated with this fleet under the status quo, there does not appear to be a population-level effect as a result of this subsidy. There are no data available to identify if a reduction in discards from this fleet would change the abundance of food sources for either listed or unlisted seabirds.

4.2 Economic and Social Impacts: Alternatives 1, 2 and 3

This section contains a summary of the projected social and economic impacts of the alternatives under consideration. Section 5.6 of the RIR (Chapter 5) provides a detailed description of the economic and social effects of this action and alternatives, including potential effects on the management and enforcement impacts of the alternatives. A summary of that discussion is given below.

4.2.1 Alternative 1: Maintain the Status Quo

Under the no action Alternative 1, there would be no change in the way that groundfish MRAs are accounted for or managed. In 2002 the non-AFA trawl C/P sector discarded approximately 86,000 mt or 30 percent of their total catch of groundfish and in 2003 the sector discarded approximately 85,000 tons, or approximately 31 percent of total groundfish catch. This corresponds to 69 percent of total catch retained (see Table 12). In 2004 average groundfish discards for these fisheries continued to be approximately 30 percent of their total catch of groundfish. The effect of these current regulations on retention and discards of groundfish are uncertain as many other economic factors may influence the behavior of this fleet. Substantial changes in the aggregate retention rate for groundfish species for the non-AFA trawl C/P sector are not anticipated under the status quo. However, the retention of certain species may increase or decrease based on a number of economic, resource abundance, or fishery management factors. For example, changes in relative prices of a groundfish target or non-target species could alter the economic incentives to retain some species compared to other species. Little verifiable data exist on the economic effects and other distributional impacts of discard practices. Given the range of environmental issues that citizens are exposed to, it is unlikely that a large portion of U.S. households are aware of the magnitude of groundfish discards in the North Pacific or the incremental effects on those discards from this action. However, some environmental interests demonstrate awareness of BSAI groundfish discards and have generated public testimony on IR/IU proposals recommending reduction in discards in fisheries exploited by the non-AFA trawl C/P sector.

4.2.2 Alternatives 2 and 3: Change the Accounting Period for MRA of Groundfish for the Non-AFA Trawl C/P Sector

4.2.2.1 Summary of Costs, Benefits and Other Impacts of Alternatives

Economic effects of the proposed changes to MRA accounting for the alternatives are described in detail in Chapter 5. The effects described are limited to qualitative discussion of factors that could alter industry costs and revenues, as well as the distribution of impacts. This section provides a brief review of some of these economic effects as well as a discussion of some of the resource management, monitoring, and enforcement effects associated with the alternatives.

In a manner similar to the current offload-based MRA accounting period for pollock, extending the MRA accounting period for many of the species identified in the action alternatives may allow non-AFA trawl C/Ps the opportunity to increase groundfish retention. This additional flexibility would be extended to vessels that are landing CDQ species subject to MRAs. This is a relatively narrow set of species, including some rockfish and catches in Critical Habitat.

No data are available (such as the amounts of harvesting or processing inputs and costs, or marketing costs) to assist in evaluating whether the MRA regulatory changes in Alternative 2 or 3 would improve retention and increase the value of a trip or season. Where increasing the retention of a particular groundfish species is expected to generate more revenue than retaining and processing some less valued species (e.g., sculpin, rock sole or yellowfin sole, for example), members of the non-AFA trawl C/P sector may choose to change the amount and species mix of retained groundfish catch.

This is not to say, however, that retaining additional groundfish will improve net revenues—the relative benefits of retaining an incidentally harvested groundfish species and possibly displacing a more valuable product are not known. The effect of altering the instantaneous accounting period for the MRA of selected groundfish species to a longer MRA accounting interval is uncertain. The main factors that could determine the size and distribution of economic effect from either of the action alternatives on the non-AFA trawl C/P sector are: (1) the value of the incidental species retained relative to the value of groundfish sorted out and discarded from the catch, and (2) the amount of pressure vessels operators are experiencing to reduce discards.

If a groundfish species selected by the Council under Alternative 2 or 3 has a *lower* relative value than the targeted species, and vessels operate without regard to pressure to reduce discards, the change in the accounting interval is unlikely to have any significant economic effect and vessels will continue to discard these species at current levels, while remaining within the retention requirements of IR/IU regulations. If a groundfish species selected under Alternative 2 or 3 has a *higher* relative value than other species in the catch, the value to the non-AFA trawl C/P sector from the implementation of the Alternative 2 or 3 accounting intervals could increase over the status quo. In some years incidental catches of groundfish species appear to be higher during the first part of the trip compared to latter parts of the trip. Under the current regulations, vessels are likely to be forced to discard a more valuable incidental groundfish species during the early part of the trip until they have harvested and retained sufficient amounts of target species to build up a “ballast” of retained product against which they can count the retained incidental species. Then later in the trip they can “top-off” if they wish.

With Alternative 2 and 3, again assuming the incidental species is a desirable species to retain, vessels will have the option to keep that incidentally caught species in the early part of the trip, even if they have not yet caught and retained sufficient target species to comply with the MRA. Because they are able to keep all incidental species as they come on board, a need to “top-off”

later in the trip may become less likely. Thus the current action may reduce catches of some incidental species by non-AFA trawl C/Ps.

If Alternative 2 is selected, implementing a change in MRA accounting for groundfish species, along with the selection of specific species options that would avoid short term or long term impact to stock abundance or distribution, this alternative has the potential for improving the value of the species composition retained by the non-AFA trawl C/P sector. In Alternative 3, the adjustment of MRA accounting to a fishing trip except in the instance where offload exceeds a week may also provide an incentive for some operations to increase retention of the incidental species. If that were to occur, Alternative 3 could have similar impacts on the non-AFA trawl C/P sector, but as noted in section 5.6.1.6 of this document, additional concerns exist with the manageability and enforcement for that alternative. It is also possible that certain costs to firms in the non-AFA trawl C/P sector, such as the cost of sorting product or searching for locations with different species compositions may change for either Alternative 2 or 3.

Changes in amount of total catch and value of the retained catch to the sector under each of these alternatives are unlikely to be substantial, because neither of the action alternatives proposes a modification of the MRA percentage itself. It is also unlikely that any small change in the value of catches would lead to any measurable change in distributional effects at the community or regional level in employment or income. Vessels that catch and process product on board, must have sufficient labor, packing materials and other supplies to complete each trip or offload. Even if vessels in this fleet participate in slight increases in sorting of catch, it is not likely that it would be sufficient to attract an extra deck hand or additional packaging materials. Thus, the magnitude of purchases that might be changed to support the small adjustments anticipated in fishing and processing under the action alternatives are likely to be trivial, or be transferred from one region to another.

While the RIR attempts to describe general types of market effects that could be realized from the action alternatives, an RIR may also provide information on non-market effects of proposed actions. In theory, changes in welfare of persons that do not catch, process or consume fish products made from these fisheries could occur. It is not possible to assess these non-market effects (if any were to be present) in the action alternatives considered for a number of reasons. No data is available to determine if there would be improvements in welfare of U.S. citizens from the very modest changes in BSAI groundfish retention anticipated from this action. Changes in groundfish BSAI management may have sufficient potential for altering fishing practices to attract interest and review by environmental organizations. For example, bottom trawling in general is of interest to some environmental groups at the national level. The small scale of these action alternatives are not anticipated to be of substantial interest to these parties. Evidence of interest group attention to amounts of groundfish bycatch is not a quantitative or effective predictive tool for measuring resource values.

Community, low-income and minority impacts associated with Alternatives 2 and 3 are expected to be either similar to Alternative 1 or indeterminate. This is due to the small change in catch anticipated from the alternatives, and lack of information on employee makeup in the non-AFA trawl C/P sector. The effects associated with discard increases or reductions to persons who do not directly consume groundfish are likely to be comparable with Alternative 1.

NMFS data collection and accounting procedures for enumerating groundfish catches is a critical component of fishery management in the BSAI. Neither Alternative 2 nor 3 pose any likely

change to this catch accounting system. The action alternatives may require some additional inseason review of the removals from certain species. Depending on the species selected and accounting interval proposed, vessels that utilize the longer accounting period may experience some changes in the costs of holding/processing, transporting, and transferring fish. For example, as previously noted, if MRA accounting is changed for the “other flatfish” category, members of the non-AFA trawl C/P sector have noted that they may increase the retention of the rex sole component of that category.

Observed changes in catch and retention for pollock following the 2004 change in MRA accounting

Groundfish regulations at 50 CFR 679. 20(e) extending the MRA accounting interval for pollock was the first test case for relaxing accounting of MRAs for a groundfish species. In 2003 the Council proposed extending Pollock MRA accounting from any time during a fishing trip to the time of offload. In the first 6 months the new pollock MRA accounting period was implemented in 2004, both the catch of pollock, with respect to the yellowfin sole target and retained catch of pollock, declined compared to 2003 in the non-AFA trawl C/P sector. In the first 10 months of 2005 under the new MRA accounting period, the catch of pollock with respect to the yellowfin sole target declined in comparison with 2004, while the rate of pollock retention in the yellowfin sole target increased from 61 percent and 58 percent in 2003 and 2004, to 69 percent in 2005. It is possible that these increases in retention are partially due to increasing the accounting interval for pollock MRA accounting in the non-AFA trawl C/P sector. It is not possible, however, to evaluate the reasons for these changes in catch and retention amounts with only a single year’s data. Reasons for a decline in the amount of pollock caught in the yellowfin sole target may be partially attributable to increases in yellowfin sole market prices reported by some industry representatives. For these reasons, any direct linkage between the MRA policy and effect on retention of non-AFA trawl C/P sector pollock should be regarded as speculative.

As noted in the EA/RIR/IRFA for the pollock MRA (NMFS, 2004e), the offload-based accounting interval for the pollock MRA was expected to have a minimal effect on participants in the directed fishery for BSAI pollock. Participants in the directed fishery would be affected only if a change in the accounting interval resulted in a larger additional amount of pollock caught and retained by the non-AFA trawl C/P sector and an increase in this sector’s incidental catch allowance (ICA) for pollock. Some industry representatives suggest that non-AFA vessels “top off” their catches with pollock at the end of a trip in order to catch more pollock up to the MRA. However, owners of non-AFA vessels maintain that they generally prefer not to catch pollock because it has a per unit value lower than their target species. Analysis of NOAA Fisheries’ blend data does not indicate a pattern of topping off by non-AFA trawl C/P vessels. Catch and retention data for the non-AFA trawl C/P sector in 2004 and 2005 data suggest a modest increase in the retention of groundfish catch, however these data do not include a sufficient number of observations or analysis to conclude that the new MRA accounting interval has been the cause of these changes in pollock catch and retention.

4.2.2.2 Other Effects of Alternatives 2 and 3

The amount of North Pacific groundfish discards has been identified by some environmental organizations both in Alaska and in other locations as a concern. NOAA Fisheries has no empirical data to suggest that many people would assign substantial non-consumptive or non-use values to these fish if they were left undisturbed in the ocean. The value of the discarded fish as

a protein resource that could be used by hunger relief organizations also appears to be very limited.

There are no literature or data available to demonstrate that these species, in the amounts being removed from the North Pacific in Alternative 1, 2 or 3, have a significant indirect value to the productivity of other species (e.g., providing prey for other living marine resources that do have use or non-use value). However, environmental advocacy groups note that the lack of data makes it difficult to measure ecosystem effects, but does not justify the assumption of zero environmental impacts. Groundfish discards from trawl operations in the BSAI have been associated with large congregations of predaceous and scavenging seabirds. No studies exist in the BSAI of whether changes in discards alter seabird populations. In the North Sea, concerns are expressed that reduction of historic rates of discards could cause predatory scavenging birds to compete with other seabirds (Furness 1999).

4.2.3 Impacts on Threatened or Endangered Species (Alternatives 2 and 3)

The proposed action under either Alternative 2 or Alternative 3 provides additional flexibility to maximize allowable retention; and therefore, potentially change fishing behavior to increase catch of these species to the extent economic incentives exist. Pacific cod and Atka mackerel are a particular concern because these species are important prey species for Steller sea lions and may be incidentally harvested within critical habitat. The extent to which maximizing allowable retention could result in additional harvest of these two prey species in Steller sea lion critical habitat cannot be determined without additional analysis of temporal and spatial differences in haul specific catch composition. Until this analysis is done, NMFS cannot determine whether or not including these two species under either Alternative 2 or 3 may adversely impact Steller Sea lions or their critical habitat in a manner not considered under previous ESA consultations. Further, these two species generally do not produce the large quantity of discards compared with other species considered under Alternatives 2 and 3 (Table 9). In 2005, discards amounts for Atka mackerel and Pacific cod, when these species are not the target of a haul or weekly reporting period are 887 mt and 437 mt respectively (Table 14). By comparison, discard amounts for rock sole, when that species is not the target is 8,389 mt.

The Alaska groundfish fisheries are currently undergoing an ESA section 7 formal consultation, and the draft biological opinion is scheduled for release in 2007. This consultation includes an analysis of the latest information regarding Steller sea lions and the effects of fisheries on this species and its critical habitat. The resulting new biological opinion would provide information that could be used to more fully inform the decision making for this proposed action for Pacific cod and Atka mackerel. For all reasons stated above, NMFS recommends that these two species not be included in this action at this point in time.

4.2.4 Impacts of Alternative 1 (Status Quo) on the Ecosystem

An evaluation of the effects of the BSAI groundfish fishery on the ecosystem is completed annually in the *Stock Assessment and Fishery Evaluation* reports. The 2005 SAFE report concluded that the fishery does not have an adverse effect on the ecosystem (NPFMC 2005). Three areas are cited as possible ecological concerns. The fishery's concentration in space and time has been distributed to protect Steller sea lions. The fishery's contribution to BSAI groundfish discards and offal production is decreasing. Little research or data exist that assist in understanding whether these reductions contribute to the environment or change the distribution

of food sources for Steller sea lions. Data are also lacking to understand fishery effects on age-at-maturity and fecundity of food items consumed by Steller sea lions in the BSAI. Based on the analysis in the groundfish PSEIS (NMFS 2004a) and the annual TAC-setting EA (NMFS 2004b), the ecosystem impacts of Alternative 1 are determined not to be significant.

4.2.5 Impacts of Alternatives 2 and 3 on the Ecosystem

Alternatives 2 and 3, which adjust MRA accounting, are unlikely to produce population-level impacts for marine species, marine mammals, or changes to community- or ecosystem-level attributes beyond the range of natural variability for the system. MRA accounting changes proposed, at most would result in trivial change in distribution or amount of prey species removed, compared with population abundance of these species. As a result, the impacts at an ecosystem level are not considered to be significant.

4.2.6 Socio-economic Impacts

A detailed analysis of some economic and distributional effects of Alternatives 2 and 3 are presented in the RIR Section 5.0. The analysis of alternatives presented in the RIR has shown that Alternative 1, the status quo, continues to generate higher discard rates in the non-AFA trawl C/P sector than other sectors operating in the Bering Sea. Numerous biological, regulatory and economic factors may contribute to the challenges faced by the non-AFA trawl C/P sector to increase retention rates. Intertwined with the MRA proportions published in Table 11 of 50 CFR 679 (Appendix 2), regulations requiring instantaneous accounting may achieve some of the historical objectives of the MRA for management of BSAI groundfish. For example, at times MRA percentages have been established to slow fishing effort. This practice may be a tool intended to allow managers time to assess removals or to compel avoidance of species that could otherwise reach an overfishing limit. Where the incremental change in catch avoidance behavior does not serve any economic or general management or enforcement purpose, the benefit of imposing these constraints to non-AFA trawl C/Ps may be small.

In comparison to Alternative 1, the modifications of MRA accounting examined in Alternatives 2 and 3 are intended to be less limiting to non-AFA trawl C/P retention of incidental groundfish catch, particularly when the accounting period is changed to the end of a fishing trip (Alternative 2) or to the time of offload (Alternative 3). Vessel operators have an economic incentive to maximize the value of each trip or group of trips. The increased flexibility of a longer MRA accounting interval has the potential to improve the value of a fishing trip through increased retention of incidental species, but it also has the potential for compelling more conservative management of a species.

For example, the analysis in the RIR shows that if Alternative 2 or 3 were to include certain rockfish species (e.g., shortraker rockfish) it could provide increased opportunity to top-off on higher valued incidental species early in the trip compared with how they may be accumulated under the instantaneous accounting of the MRA in Alternative 1. Intentional indirect targeting behavior could increase the overall catch of species that have closed other target groundfish fisheries due to overfishing concerns in the past. While certain options in Alternatives 2 and 3 may accomplish the Council objective of increasing retention amounts or percentages, depending upon which species are included, the relaxed accounting regulations could encourage greater catch of incidental species. Of the species under consideration in Alternative 2 and 3, this is only a concern for BS POP. Because of its small TAC in the Bering Sea, NMFS managers can be

expected to closely observe removals and react by restricting directed fishing, or closing a fishery that is exploiting an incidental species that is approaching a TAC or ABC at too high a rate.

The RIR encourages agencies to assess the net social effect of a Federal action. This RIR discusses some additional effects such as changes to agency costs of monitoring and enforcing removals of species under an altered MRA accounting system and potential changes to producer and consumer surplus (that are generally unlikely to change much for Alternatives 1, 2 or 3). A brief treatment of subsistence use, non-consumptive, or non-use values associated with BSAI fisheries is included, though few if any incremental effects on these uses are anticipated. This proposed regulatory change would not result in any anticipated change to monitoring programs or recordkeeping and reporting. In Alternatives 1 and 3, enforcement officers may rely on both weekly production report data and DCPL data. In Alternative 2, enforcement officers are not precluded from using DCPL data, but are more likely to rely on weekly production data. The RIR identifies significant enforcement challenges to assuring compliance with the MRA accounting if extended to the time of offload. Depending on the species selected, a weekly offload period presents an enforceable option. The weekly offload option could still result in some incidence of presorting, not likely to occur under Alternative 1. Some incremental increase in management burden is possible for NMFS because of the potential for more focused tracking of removals for individual species complexes such as “other flatfish.”

Only very limited data exist on the use of BSAI groundfish by native cultures in this region. There is no subsistence take of any of the groundfish species that are considered in any of the alternatives. Analysis of impacts on resource use and value are also handicapped by the lack of quantitative information on how fishery harvesting and discard practices in the BSAI groundfish fisheries may impact subsistence, non-consumptive, or non-use resource values in these fisheries.

There are no literature or data available demonstrating that these species, in the amounts currently being removed from the North Pacific or proposed for removal under Alternatives 2 and 3, have a significant indirect value to the productivity of other species (e.g., providing prey for other living marine resources that do have use or non-use value).

4.2.6.1 Effects on Communities under the Status Quo and Action Alternatives

Fisheries may affect a region or a community by generating economic activity or other distributional effects relating to the amenities available to a region, community or other locality. Impacts may be derived from income to fishing industry participants either living in a region (or locality) or from purchases in various sectors of a local economy through supporting industry and business. Tools for assessing the impact of any given fishery regulation to a region or locality are limited due to the lack of economic data on this industry, and difficulty in linking various policies with changes in fishing and processing inputs and costs.

The make-up of resident and non-resident participants in fishing and seafood processing in a locality is a variable that may affect economic activity in a fishing locality. Participation by residence estimates have been generated for the non-AFA trawl C/P sector in some selected localities. Care should be taken in evaluating the importance of the participation estimates, as the quality of data available to estimate participation by residence will not fully reflect the distribution of regional and local impacts. For example, a vessel owner may not reside in the community that is used as a registered mailing address. In addition, participants in the non-AFA

trawl C/P sector likely purchase goods and services as well as hire crew from outside of their communities of residence. In addition, impacts of similar magnitudes will have differing importance with the size of the local and regional economy. Small communities could be greatly affected by impacts that are likely to go unnoticed in large cities.

Seattle Region

A substantial number of the companies in the non-AFA trawl C/P sector have corporate headquarters or local offices in Seattle. The fishing communities that are expected to benefit from this proposed action are the locations where the vessels offload, take on supplies, and where the owners and crew live. Twenty-seven catcher processors appear to be eligible for the non-AFA trawl C/P sector. Of these vessels, nearly all are based out of Seattle or other communities in Washington State. A few C/Ps are based in Rockland, Maine. Although the BSAI non-pollock groundfish fisheries may be important to the Seattle-based participants in these fisheries, the effects of these fisheries are largely overshadowed by both the large fishing and processing industry in Seattle and the Seattle economy as a whole.

Alaska Peninsula/Aleutian Islands Region

Groundfish catcher vessel ownership is lower in the Alaska Peninsula/AI region than in any other region. In recent years, none of the AFA trawl catcher vessels, which supply a very large proportion of the groundfish processed in the region, have been locally owned. Ownership is concentrated in two sectors (<60' LOA hook-and-line/pot catcher vessels and jig catcher vessels) that tend to work the nearshore fisheries in the GOA. Vessel ownership within the region is strongly clustered in Sand Point and King Cove, with a secondary cluster in Unalaska. No other community accounted for more than 3 percent of regional vessels or one percent of regional value landed by regionally owned vessels. None of the non-AFA trawl C/P vessel owners identify that they reside in this region.

Kodiak Island Region

The Kodiak Island region-owned fleet is very diverse. Some vessel sectors, especially the larger trawl vessels, have displayed remarkable stability over time. The number of smaller trawlers has declined, while fixed gear vessels have increased in number. Most of the fleet's fishing activity is in the central GOA, and product is delivered to Kodiak shoreside plants. Regional vessel ownership is heavily concentrated in the City of Kodiak. None of the non-AFA trawl C/P vessel owners identify that they reside in this region.

Southcentral Alaska Region

More groundfish catcher vessels are owned by Southcentral Alaska region residents than by residents of either the Alaska Peninsula/AI or Kodiak Island regions. Fixed gear catcher vessels predominate, and since 1995, five or fewer trawl vessels have been locally owned. In the fixed gear vessel sector, smaller vessel sectors predominate by a large margin. This pattern is due, in part, to the relatively small scale of fisheries (and processing capacity) in the Southcentral Alaska region, the diversified nature of the fisheries pursued, and the presence of relatively sheltered waters. Ownership of vessels in this region is spread throughout numerous communities in the region, but the communities representing a greater proportion of vessel owners are Homer, Anchorage, Cordova, and Seward. None of the non-AFA trawl C/P vessel owners identify that they reside in this region.

Southeast Alaska Region

The catcher vessels based in this region are more dependent on limited quantities of Pacific cod, rockfish, and sablefish pursued with longline gear than on higher volumes of groundfish pursued with trawl gear. Most locally owned vessels are relatively small and are likely to also participate in non-groundfish fisheries. Sitka, Petersburg, Juneau, and Ketchikan are the most important communities in terms of regional vessel ownership. Southeast Alaska has had the largest number of vessel owners among the Alaska regions since the late 1980s. However, the data reveal that there has been a marked decline in participation of vessels owned by residents of Southeast (and Southcentral) Alaska, while participation by other Alaska regions has remained relatively stable or increased. The regional differences may be due to the opportunistic nature of participation by small boats in groundfish and other fisheries. Residents of Southeast and Southcentral Alaska have relatively more non-fishing income-generating opportunities than individuals that can be more likely to engage in non-fishing occupations. None of the non-AFA trawl C/P vessel owners identify that they reside in this region.

Unalaska/Dutch Harbor

Unalaska is in a unique position with respect to the Bering Sea groundfish fisheries. It is the site of both the most intense onshore and offshore sector activity. Unalaska is a community whose economy is strongly tied to Bering Sea commercial fisheries in general and the groundfish fisheries in particular. Among groundfish species, pollock plays a particularly important role in local operations. The four major local seafood plants in Unalaska/Dutch Harbor are UniSea, Westward Seafoods, Alyeska Seafoods and Royal Aleutian Seafoods. Other local shoreside processors include Osterman Fish and Prime Alaska Seafoods. Some of the largest processors in Unalaska/Dutch Harbor are wholly or partially owned by Japanese companies. For example, Maruha has ownership stakes in Westward Seafoods and Alyeska Seafoods, and Nippon Suisan is owner of the UniSea plant. Royal Aleutian Seafoods and Icicle Seafoods, which owns a stationary floating processor anchored in Beaver Inlet of Unalaska Island, and two non-motorized processing barges moored in Dutch Harbor during part of the year are owned by U.S. corporations based in Seattle. These facilities process a wide variety of seafood including crab, halibut, salmon, herring, Pacific cod, pollock, and other groundfish. None of the non-AFA trawl C/P vessel owners identify that these vessels reside in this community.

Akutan

Akutan is a unique community relative to the BSAI groundfish fisheries. It is the site of one of the largest shoreside facilities that process Bering Sea pollock (the facility is owned by the Seattle-based Trident Seafoods), but it is also the site of a village that is geographically and socially distinct from the shoreside plant. This “duality” of structure has markedly affected the relationship between Akutan and the BSAI groundfish fisheries. The community of Akutan is separate and distinct from the seafood processing plant, which is located some distance away from the residential area. Interactions between the community and the plant are limited and the plant is not incorporated into the fabric of the community such that little opportunity exists for Akutan residents to participate meaningfully in the Bering Sea pollock fishery. None of the non-AFA trawl C/P vessels identify owners residing in this region.

Effects of the Alternatives on Communities

It is not possible to determine if any of the alternatives examined in this analysis are likely to impact the associated localities and communities. Twenty-seven catcher processors appear to be eligible for the non-AFA trawl C/P sector. Of these vessels, nearly all are based in Seattle. Due to the large size and diversity of Seattle’s economy, community-level impacts are not expected to

differ between Alternatives 1, 2 and 3. Significant benefits to other communities that are home to some of the other non-AFA trawl C/P fleet are not anticipated. Vessels located in those communities will continue to generate revenue from these fisheries. Changes in economic activity to a given community could result from slightly larger or a different distribution of offloaded products, but the magnitude of the change is expected to be small.

4.3 Cumulative Impacts

NEPA requires analysis of the potential cumulative effects of a proposed action and its alternatives. Cumulative effects are the combined effects on the quality of the human environment that result from the incremental impacts of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what Federal or non-Federal agency undertakes such other actions (40 CFR 1508.7, 1508.25(a), and 1508.25(c)). Cumulative impacts can result from individually minor, but collectively significant actions taking place over time. The concept behind cumulative effects analyses is to capture the total effects of many actions over time that would be missed by evaluating each action individually. At the same time, the CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action on the entire scope of the human environment, but to focus on those effects that are truly meaningful to evaluating changes likely to be caused by the proposed action.

The groundfish PSEIS (NMFS 2004a) assesses the potential direct and indirect effects of groundfish FMP policy alternatives in combination with other factors that affect physical, biological, and socioeconomic resource components of the BSAI and GOA environment. To the extent practicable, this analysis incorporates the cumulative effects analysis of the groundfish PSEIS, including the persistent effects of past actions and the effects of reasonable foreseeable future actions.

Beyond the cumulative impacts analysis documented in the groundfish PSEIS, no additional past, present, or reasonably foreseeable cumulative negative impacts on the natural and physical environment (including fish stocks, essential fish habitat, ESA-listed species, marine mammals, seabirds, or marine ecosystems) have been identified that would accrue from the proposed action. Cumulatively significant negative impacts on these resources are not anticipated with the proposed action because no negative direct or indirect effects on the resources have been identified.

There may be effects on the Bering Sea non-AFA trawl C/P sector as a result of the proposed action in combination with other actions. These effects are discussed below.

4.3.1 Past and Present Actions

This section describes the effects of the BSAI Groundfish FMP and its amendments and other pertinent external factors that could contribute to potential cumulative impacts on the Bering Sea fishery participants and groundfish stocks. Past actions are evaluated to determine whether there are lingering effects that may still result in synergistic or incremental impacts when combined with the proposed action.

American Fisheries Act and Pollock Cooperatives

The groundfish PSEIS (NMFS 2004a) noted that the availability and consistency of data limit the ability to analyze the effects of past actions on the economic condition of selected sectors of the

Alaska groundfish fishery. According to the groundfish PSEIS, analyses are also limited by the difficulty of delineating the cause-and-effect relationships between multiple factors and the resultant economic effects. Many factors substantially affect the economic status of the Alaska groundfish fishery. Changes in markets, biological conditions, and fishery management regulations can result in changes in the revenues and operating costs of firms participating in the fisheries as well as changes in fleet size and composition. Isolating the effects of a single factor is seldom possible. Nonetheless, this analysis has identified a number of actions that have contributed to the current economic status of the Bering Sea pollock fishery participants.

The mid- to late-1980s saw increased restrictions on the domestic groundfish fishery, due primarily to problems with incidental catches of non-target species. In 1983, the BSAI Groundfish FMP established a prohibited species catch policy for domestic fisheries and defined prohibited species to include crab, halibut, herring, and salmon. In 1987, the Council established bycatch limitation zones for prohibited species and established limits on the amounts of PSC that could be taken.

A sequence of Steller sea lion protection measures that began in the 1990s limited the pollock harvests of the fleet. The measures closed some of the best fishing grounds for this target species, thereby adversely affecting the sector.

In 1998, Congress passed the AFA, which limited the number of harvesting and processing vessels allowed to participate in the Bering Sea pollock fishery. The AFA also modified specific allocations of the Bering Sea pollock quota. Ten percent was allocated to the western Alaska CDQ program. Of the remaining 90 percent, 50 percent was allocated to the inshore sector, 40 percent to the offshore sector, and 10 percent to the mothership sector. Also included in the AFA was the establishment of the authority and mechanisms by which the pollock fleet can form fishing cooperatives. Finally, the AFA raised the standards for catch measurement and monitoring in the Bering Sea pollock fishery.

Disentangling the specific changes in the temporal and spatial dispersion of the eastern Bering Sea pollock fishery resulting from the sea lion management measures from those resulting from implementation of the AFA is difficult. The reduction of the capacity of the C/P fleet resulting from the AFA reduced the rate at which the C/P sector (allocated 36 percent of the eastern Bering Sea pollock TAC) caught pollock beginning in 1999, and the fleet as a whole in 2000. Because of some of its provisions, the AFA gave the industry the ability to respond efficiently to changes mandated for sea lion conservation that otherwise could have been more disruptive to the industry.

Salmon

The groundfish PSEIS describes the past and present impacts on salmon stocks. Salmon catch in the groundfish, commercial salmon, subsistence, and sport fisheries all contribute to salmon mortality. Salmon are a prohibited species group in the groundfish fishery and all salmon must be returned to the sea immediately.

The action alternatives considered in this analysis would not change any trawl regulations regarding salmon and they are not anticipated to have an impact on salmon removals. While salmon may be caught in small numbers by the non-AFA trawl C/P sector, all salmon must be discarded. No data are available that suggest the catch of salmon would change under any of the action alternatives.

4.3.2 Reasonably Foreseeable Future Actions

As discussed previously, a cumulative effects assessment should also identify reasonably foreseeable future events relevant to the proposed action. It should examine the incremental effect the proposed action might have if those reasonably foreseeable events occur. The focus must be on actions that are probable, rather than those that are merely possible. To identify actions within the purview of NOAA Fisheries and the Council that are sufficiently likely to occur (as opposed to “highly speculative” actions), this analysis examines authorized planning documents recently issued by the Council.

The groundfish PSEIS describes several factors external to the fishery management regime that have influenced the costs and revenues of harvesting sectors in the Alaska groundfish fishery and may continue to do so. These factors include foreign fishing, product prices, vessel fuel costs and market forces beyond the region that affect the costs of insurance, labor, and so forth. While these external factors could have significant economic impacts on the participants in the Bering Sea pollock fishery in the future, a discussion of those effects would be speculative.

Three reasonably foreseeable management actions relevant to this analysis were identified—the allocation of BSAI Pacific cod under Amendment 85, CDQ Program-related requirements of the MSA as a result of the Coast Guard and Maritime Transportation Act of 2006 (Coast Guard Act), creation of cooperatives for the non-AFA trawl C/P sector under Amendment 80, and protection of EFH in the Bering Sea.

Cumulative effects of Bering Sea/Aleutian Islands Pacific Cod Allocations, (Amendment 85) alternative for extending MRA adjustment for Pacific cod to the non-AFA trawl C/P sector

In April 2006 the Council recommended to the Secretary of Commerce Secretary a change to the BSAI FMP referred to as Amendment 85. In Amendment 85, current allocations of BSAI Pacific cod would be revised for trawl, jig, and fixed gear that were previously implemented in 1997 (BSAI Groundfish FMP Amendment 46). The basis for determining sector allocations was a combination of catch history in terms of use of Pacific cod as well as consideration of socio-economic factors. The sectors for which catch history would be calculated are AFA trawl C/Ps, non-AFA trawl C/Ps, AFA trawl catcher vessels, non-AFA trawl catcher vessels, longline C/Ps, longline catcher vessels ≥ 60 ft LOA, pot C/Ps, pot catcher vessels ≥ 60 ft LOA, fixed gear catcher vessels <60 ft LOA, and jig catcher vessels. Subsequent to the recommendations regarding Amendment 85, the Council also requested that BSAI Pacific cod be considered as an additional species under the draft EA/RIR/IRFA for the MRA accounting program (June 2006).

This section describes some effects of applying end of fishing trip or offload based MRA accounting for Pacific cod to the non-AFA trawl C/P sector as these effects relate to other groundfish FMP amendments proposed by the Council (but not yet in the form of a proposed rule). It addresses these effects based on three conditions. The first condition is *the status quo or pre Amendment 80 and Amendment 85 interval*, the second is *post Amendment 85 implementation (without Amendment 80)*, the third is the *post AM 85 with AM 80 implementation (both for those in and those not in an Amendment 80 coop)*. At the present time, neither Amendment 85 nor Amendment 80 have been submitted to the Secretary as a proposed rule. The general effects described address the potential for achieving bycatch reduction objectives,

the change in management response and effects on the non-AFA trawl C/P sector and other fishing sectors.

- Effects analysis prior to the implementation of Amendment 80 and prior to implementation of Amendment 85: Changing the MRA accounting period for Pacific cod prior to the implementation of Amendment 80 and 85 may have little value to the non-AFA trawl C/P sector. While Pacific cod was the third largest component of catch in the non-AFA trawl C/P sector from 1999 to 2005 at an average of 29,540 mt, Pacific cod is not discarded in large amounts. From 1999 to 2004 average discards of this species are only 840 mt. This relatively low discard rate is in part because 100 percent of Pacific cod must be retained by a C/P in BSAI groundfish fisheries when directed fishing for that species is open. That requirement includes all vessels in the non-AFA trawl C/P sector. The Pacific cod season as is generally open for directed fishing throughout the year to the non-AFA trawl C/P sector, providing substantial access to this species. Pacific cod groundfish retention and discard practices for this sector, under the current fisheries management regime along with Alternative 2 or Alternative 3 are not anticipated to vary greatly from the status quo retention for this species. The amount of this sectors ICA set by NMFS management, if the fishery is closed to directed fishing, is not likely to change much with the application of Alternative 2. This is because, this sector still operates under a race for fish, and the MRA percentage along with other economic factors is likely to be a primary limiting factor to retention of this species.
- Effects analysis post Amendment 85 (pre Amendment 80): With the implementation of Amendment 85, management of Pacific cod is assumed to reflect a change in CDQ allocations from 7.5% to 10% along with adjustments in the CDQ ICA which could vary from 0.5% to 1% of the TAC in the first year. These amounts could vary dramatically based on the portion of the ICA that is typically exploited by vessels in the CDQ fisheries. A 13.4% proportion of the Pacific cod TAC will be allocated to the non-AFA trawl C/P sector, reducing the amount of that species available to this sector. After Amendment 85 is implemented⁵ and prior to the implementation of Amendment 80, NMFS anticipates a much shorter Pacific cod directed fishery for the non-AFA trawl C/P sector. During this period BSAI Pacific cod will be maintained on bycatch status for much of the H&G sector fishing season and retained catch of Pacific cod will be limited to an MRA of 20% at any time during a fishing trip. Restricting retention of Pacific cod to a 20% MRA could impose a substantial constraint on the ability of vessels in the non-AFA trawl CP sector to achieve historical catch amounts of this species and increase discards (Figure 4).

⁵ Amendment 85 is in preparation as a proposed rule, and has not been submitted for Secretarial review at this time.

MRA accounting for the non-AFA trawl C/P sector P-Cod
if Amendment 85 approved without Amendment 80

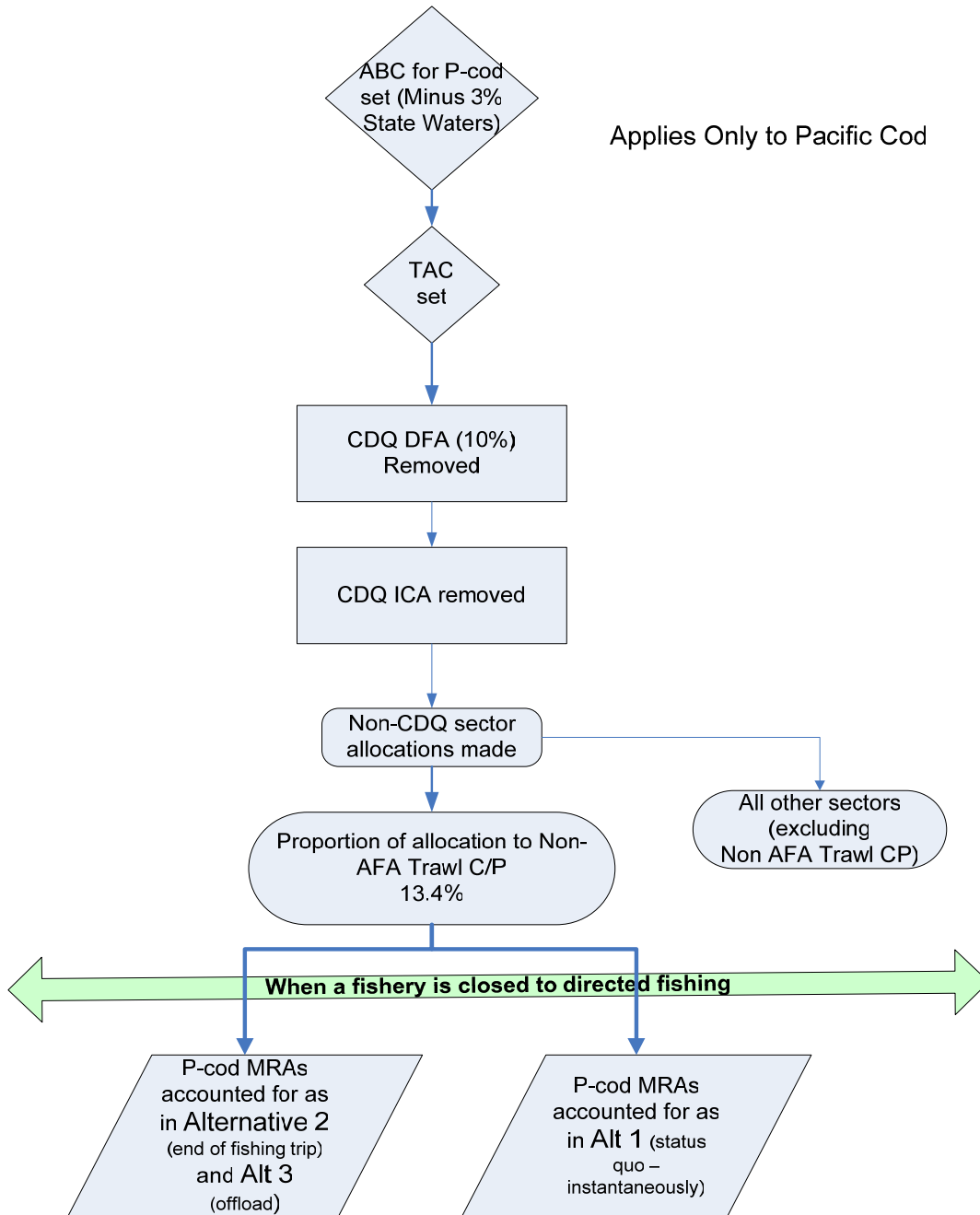


Figure 4 Management and options for applying MRAs to Pacific cod under the status quo (without Amendment 80) and with Alternative 2 and 3

Neither Amendment 85 nor Amendment 80 have been published as a proposed rule at this time, however, both of these Council recommendations are in preparation and could be submitted for Secretarial review in the future. NMFS is interested in implementing these two actions on a parallel track with a 2008 startup date, considering that each must be considered and approved by the Secretary. There is a possibility, as with any regulatory effort that NMFS may be unable to be implemented on the same day, month or year. In the event that Amendment 85 were to be implemented prior to Amendment 80, members of the non-AFA trawl C/P sector have noted specific concerns with the possible effects of independently implemented Amendment 85 Pacific cod allocations on the non-AFA trawl C/P sector. In public comment at the Council's final Amendment 85 action in April 2006 the sector expressed that Pacific cod allocations under Amendment 85 will reduce historical Pacific cod catches.

The Council could choose to either continue the present MRA accounting for Pacific cod to the non-AFA trawl C/P sector (at any time during a fishing trip) or extend the interval and flexibility of accounting to the time of offload or end of fishing trip (Figure 5). Under these conditions, an MRA accounting change associated with Alternative 2 or 3, (including the option for Pacific cod), could assist certain members of the H&G sector by not requiring them to meet the instantaneous discard requirement for Pacific cod. It is difficult with data available to verify that Alternative 2 or 3 would lead to increases in retention for this species, but if NMFS management determines that allocations under Amendment 85 will dramatically reduce the duration of the directed fishery for this species, it is likely that opportunities to retain Pacific cod will decline.

If Amendment 85 is implemented prior to Amendment 80, and if the Secretary includes Pacific cod in Alternative 2 or 3, the effects of each of these alternatives may be slightly different for the non-AFA trawl C/P sector. NMFS believes that the directed fishery for Pacific cod could become abbreviated under Amendment 85, and that Pacific cod could become scarce for the non-AFA trawl C/P sector as an incidental species. This scarcity could increase pressure to retain every possible catch amount of Pacific cod up to the MRA. Alternative 3 with its offload based structure, would allow for more time to select locations to fish Pacific cod early in a fishing trip and achieve the highest possible amount retained up to the MRA by the end of a fishing trip. Alternative 2, in contrast would provide less time for seeking locations with greater amounts of Pacific cod (at most for one week).

Impacts of implementing Alternative 2 and 3 on other sectors operating in the BSAI are equally difficult to predict. With the MRA change for Pacific cod and with only Amendment 85 in place, if members of the H&G sector were to choose to do more topping off of Pacific cod, other stakeholders have expressed some concern regarding the likely amount of Pacific cod that could be left for rollovers back to fixed gear vessels such as longliner CPs. If members of the non-AFA trawl C/P sector engage in more frequent topping off on Pacific cod under this option, compared with the previous option (where Amendment 85 is not implemented) one potential outcome is that higher non-AFA trawl C/P sector catches could effect the in-season ICA set for Pacific cod. While management response and harvest feedbacks from this option are difficult to project, if amounts of Pacific cod available for rollovers to other sectors were to decline, some stakeholders in the Pacific cod fishery suggest that relaxed MRA accounting may impact the sequential inseason decisions of NMFS management built into the proposed rule for

Amendment 85. That proposed rule incorporates an iterative process for assessing Pacific cod rollovers from non-AFA trawl C/P Pacific cod residuals, by applying any anticipated residual amount, first, to the remaining trawl sectors, and then to other non trawl sectors. Under those conditions, it is possible that a relaxed MRA accounting could result in a smaller amount of rollover available to these other sectors. Since the amount of Pacific cod that any non-AFA trawl C/P could retain is still limited by an MRA percent, these amounts, at most, are likely to be small.

- *Effects analysis post Amendment 80 (post 85) & for those in coops:* As identified in Figure 5, MRAs will no longer be applied to Pacific cod harvested by the qualifying Amendment 80 sector vessels if Amendment 80 is implemented based on the Council's June 2006 Amendment 80 motion. Removal of MRAs for this sector, render the analysis of any MRA accounting changes moot. Under Amendment 80 Pacific cod would always, essentially be managed under a directed fishery, and when the Pacific cod allocation is reached for the Amendment 80 coops, all fisheries that may remove Pacific cod incidentally will be closed for the coops. Thus, there is no change to applying the MRA accounting adjustment once coop caught fish begin to be harvested under Amendment 80. Under Amendment 80, coop management is anticipated to provide the non-AFA trawl C/P sector with a more effective set of tools for retaining a given Amendment 85 allocation of Pacific cod than without Amendment 80.

MRA accounting for the non-AFA trawl C/P sector P-Cod
if Amendment 80 and Amendment 85 are approved by Secretary

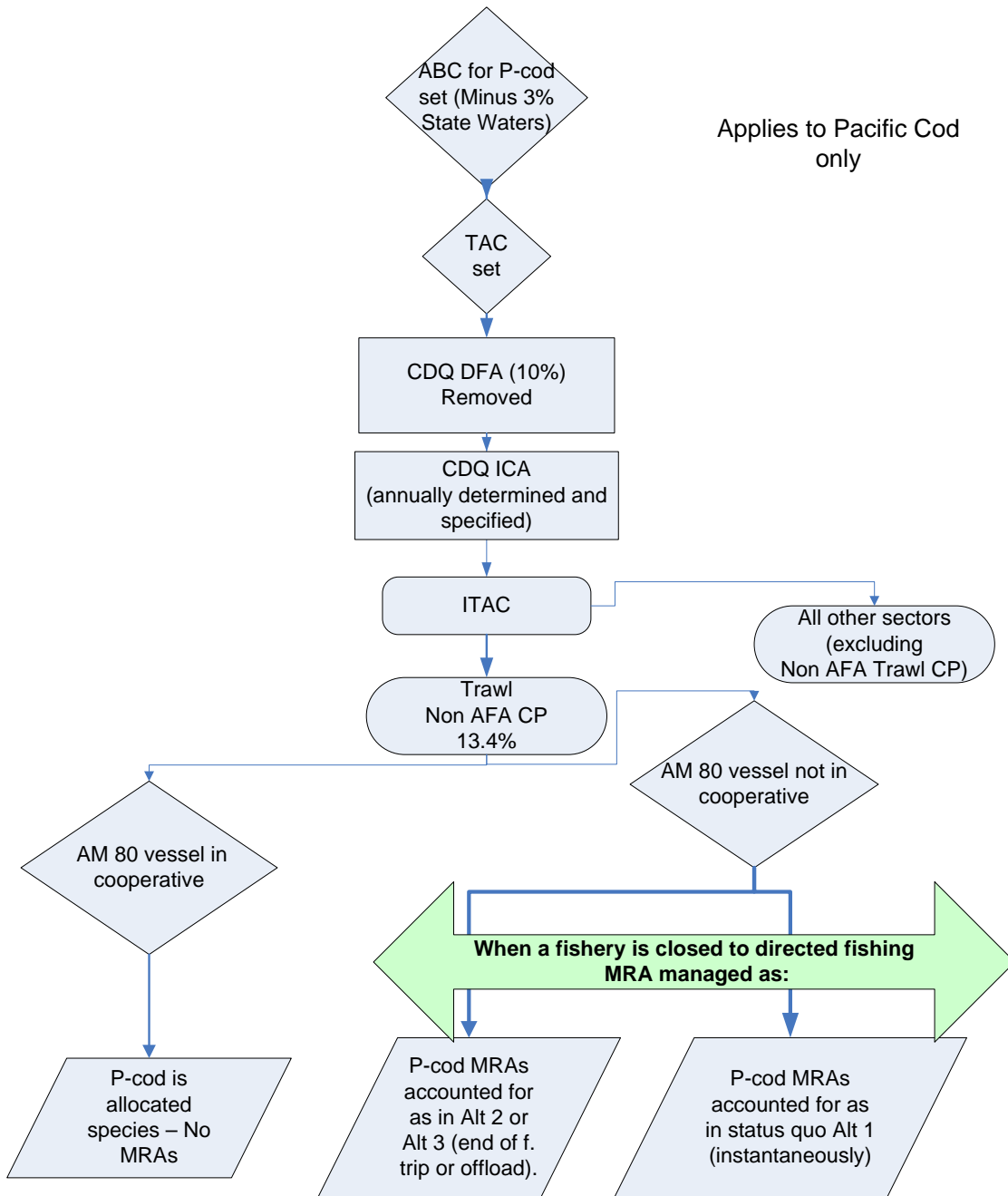


Figure 5 Management and options for applying MRAs to Pacific cod under Alternative 2 and 3 with implementation of Amendment 80.

- Effects analysis post Amendment 80-&85 with MRA adjustment for non-AFA trawl C/Ps not in Cooperative: As depicted in Figure 5, new MRA accounting would also apply to non-AFA trawl C/P vessels that choose to fish in the limited access fishery (and not join a coop). It would be difficult for these vessels to increase annual removals of P-Cod, without being constrained by the portion of the allocation to the sector that is reserved for these vessels. For this component of the Amendment 80 sector, the Council could either choose to retain status quo MRA accounting, or select Alternative 2 or 3. As with any of the previous action alternatives/options, it is very difficult to project a probable management response to this combination of Amendment 80 and Amendment 85 programs. One potential consequence of extending this MRA accounting under Alternatives 2 and 3 to the non-coop members of the Amendment 80 may want NMFS managers to shift the in-season ICA set for Pacific cod to a smaller amount compared with the amount observed in current fisheries.

In the event that the BSAI Pacific cod ABC and TAC are apportioned between the BS and the AI management areas, the Council is also considering establishing a protocol that would continue to maintain the benefits of sector allocations and minimize competition among gear groups. The Council also stated an objective of considering differences in dependence among gear groups and sectors that fish for Pacific cod in the BS and AI; and to ensure that the distribution of harvest remains consistent with biomass distribution and associated harvest strategy. That action is not anticipated to change the effects of MRA accounting identified in this analysis.

Amendment 80 with the modification of MRA accounting period for the non-AFA trawl C/P sector (excluding Pacific Cod)

Alternative 1 (no action) under Amendment 80

With the exception of pollock and selected groundfish caught by vessels fishing CDQ allocations, all groundfish species in the BSAI are managed under MRA accounting that is applied any time during a fishing trip. Groundfish caught by the CDQ program are exempted from these regulations except for rockfish and certain species caught in critical habitat. As previously noted, current MRA regulations create conditions where it is possible that certain groundfish species are discarded at amounts that could be increased when a species on MRA status is a valuable component of catch.

The extent with which historical discards reported in this analysis could be attributed to the existing MRA policy under the status quo and what would likely continue to occur under Alternative 1 is impossible to determine. Once Amendment 80 is implemented, vessels operating in cooperatives would not be restricted by MRAs for those species, as regulations for the MRA for each allocated species would be removed. Groundfish species that are not allocated or those that are not included in the MRA adjustments could continue to be discarded at amounts commensurate with the status quo.

The Groundfish retention standard that will be implemented in 2008 is anticipated by the non-AFA trawl C/P sector to provide additional pressure to avoid discards, particularly by the time the GRS is approaching the maximum GRS of 85 percent in 2011. One way of avoiding discards

may be to relocate tows and fishing to areas with species mix that produces lower profits but provides a species mix with higher overall retention. The implementation of the GRS with the present flexibility of relaxed MRA accounting may contribute to some incremental costs of the GRS. Any changes in fishing costs or revenues from these combined effects are impossible to quantify with existing data.

Alternative 2 and 3 under Amendment 80

Prior to implementation of Amendment 80 the Council could apply proposed MRA accounting Alternatives 2 or 3 to (a) species that are proposed to be allocated under Amendment 80 (Figure 6) or (b) species that are not proposed for allocation under Amendment 80 (Figure 7) or (c) a mix of selected species that are either proposed for or not proposed for inclusion in Amendment 80. In any of these cases, TAC setting and management should be similar to the status quo, with ABCs established by the Groundfish Plan Team, TACs recommended by the Council, CDQ directed fishery allowances and ITAC being set in the Specification process (see Figure 6 and Figure 7).

Prior to and after implementation of the proposed Amendment 80, if Alternative 2 or 3 are selected, it would be applied to any vessel that is catching CDQ species where MRAs currently apply to that program, under either of these action alternatives. For example, MRAs apply in a few situations to CDQ catches, such as to BSAI Rockfish.

MRA's applied to the non-AFA trawl C/P sector for any species, other than Pacific cod, Prior to Amendment 80 approval or if not approved by Secretary

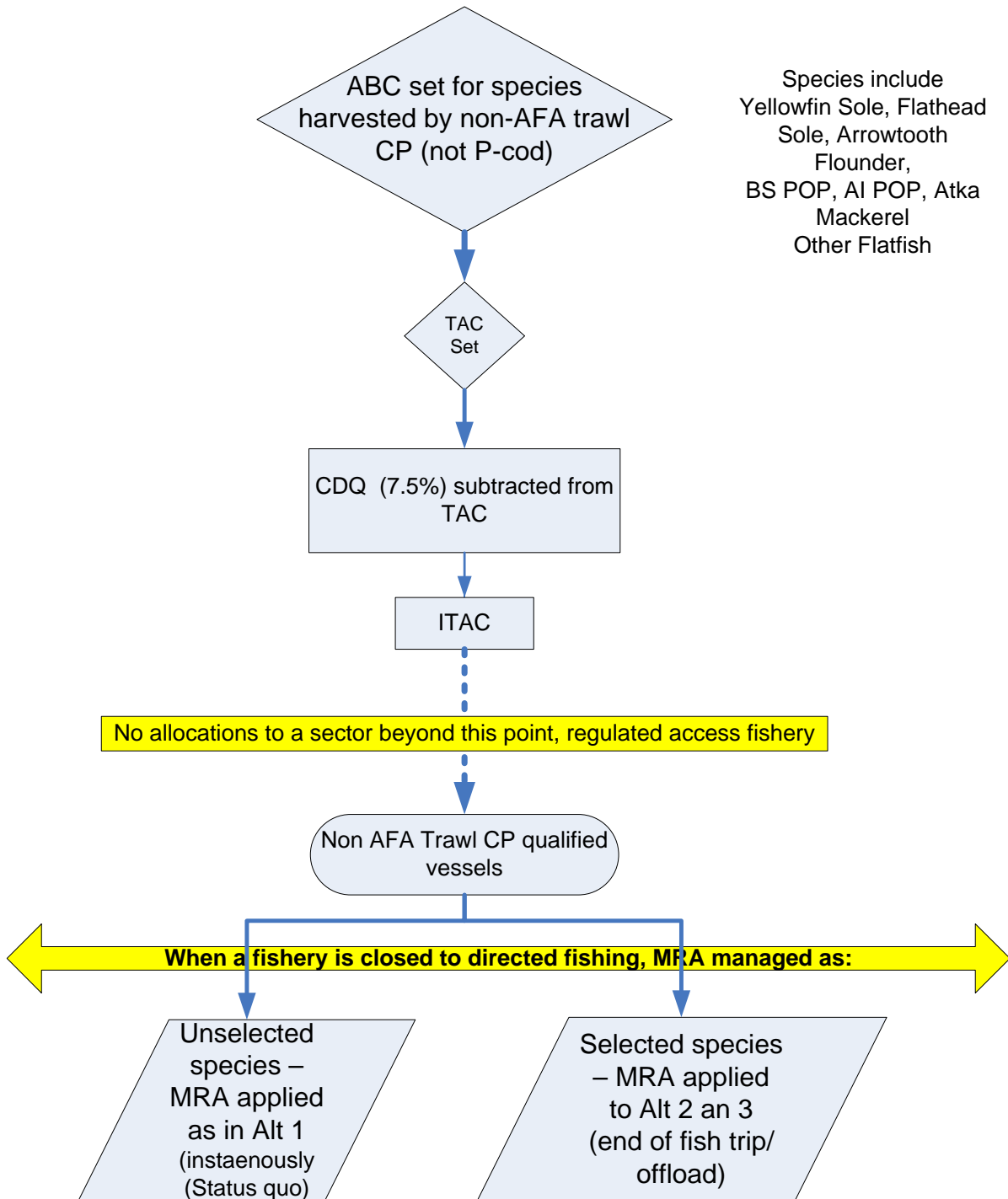


Figure 6 Management and options for applying MRAs to Pacific cod under Alternative 2 and 3 with implementation of Amendment 80 and Amendment 85.

Once Amendment 80 is implemented, non-AFA trawl C/Ps that choose to operate in a cooperative, will no longer be regulated by MRAs for the groundfish species allocated through Amendment 80 (Figure 8). Cooperative allocations of groundfish allocated to the non-AFA trawl C/P sector would be managed as “hard caps” by internal agreements within the cooperatives. NMFS would not directly manage cooperative allocations using directed fishery closures for these Amendment 80 species, and the exceedence of a coop allocation for a species would be referred to NMFS Enforcement. Thus, the rulemaking that would implement Amendment 80 is assumed to remove the applicability of MRAs to vessels participating in a cooperative for the species allocated under Amendment 80 (yellowfin sole, rock sole, flathead sole, Atka mackerel, and AI POP). This action would be necessary regardless of any change to the MRA accounting period under consideration through Alternative 2 and 3.

MRAs would continue to apply to all groundfish caught by the component of the Amendment 80 sector that are not in a cooperative (non-allocated groundfish) unless otherwise modified by the Council (Figure 7). For these Amendment 80 qualified vessels not in cooperatives, the Council does have a choice of retaining existing MRA accounting for these allocated species or extending accounting to the end of a fishing trip or time of offload (Alternative 2 and 3, respectively).

Cooperatives would also be expected to manage their aggregate catches of unallocated species to meet both directed and incidental catch needs, and curtail catching these species in accordance with regulations on species under bycatch status. MRA accounting for certain unallocated species caught by participants in cooperatives would continue to be applied for some species such as “Other flatfish,” BS POP and Arrowtooth flounder. The Council may consider changing MRA accounting for these non-allocated species (Figure 7) under Alternatives 2 and 3 for vessels in a coop and Amendment 80 sector vessels not in a coop.

Species allocated to the Amendment 80 sector, but caught by vessels that choose not to coop, would continue to be managed by NMFS using directed fishing closures and species-specific MRA restrictions (Figure 8). For these non-coop vessels, however, the Council could also select certain species to apply new MRA accounting standards, in accordance with Alternative 2 and 3, while continuing MRA accounting for other species at status quo. Considering the list of MRA species considered in the Councils June motion the effect on the environment, and BSAI groundfish sectors involves substantial uncertainty. As noted in the EA Section 4.1.2, some effects, such as providing more opportunity for improving retention or creating additional burden on management of this sector are possible to consider in a qualitative manner and on an individual species basis.

In general, if a given species caught during a fishing trip (or offload period under Alternative 3) is more highly valued than other species in the mixed trawl catches, a potential could exist for higher retention of that species up to the MRA. For the vessels not in a coop but operating under Amendment 80 and considering that these operations would be able to fish off an open access pool of AM 80 species, it is possible that there could be a more acute race for non allocated species by these vessels. Relaxed MRA accounting could help a vessel in that situation to flexibly take advantage of the available MRA for a species by retaining more of that species. Of the species included in the options for Alternative 2 and 3 we are not aware of fundamental changes in business practices in the non-AFA trawl C/P sector with the possible exception of more intensive sorting of catch to aid in approaching the allowed MRA. Circumstances also may exist where less sorting is required when a selected species does not have to be discarded up to the MRA at the beginning of a fishing trip.

Relaxed MRA accounting under Alternative 2 or 3 could also increase the value of the groundfish removed and retained by this component of the sector, but as previously noted, it is impossible to conclude that changes in profits by these vessels would be improved by this measure. Any improvement in gross revenues could be offset by other costs, though profit seeking companies would theoretically engage in selective sorting only when they expected generate some net benefit from that activity.

MRAs applied to the non-AFA trawl C/P sector for non-Allocated Amendment 80 species only, other than Pacific cod, If Amendment 80 approved by Secretary

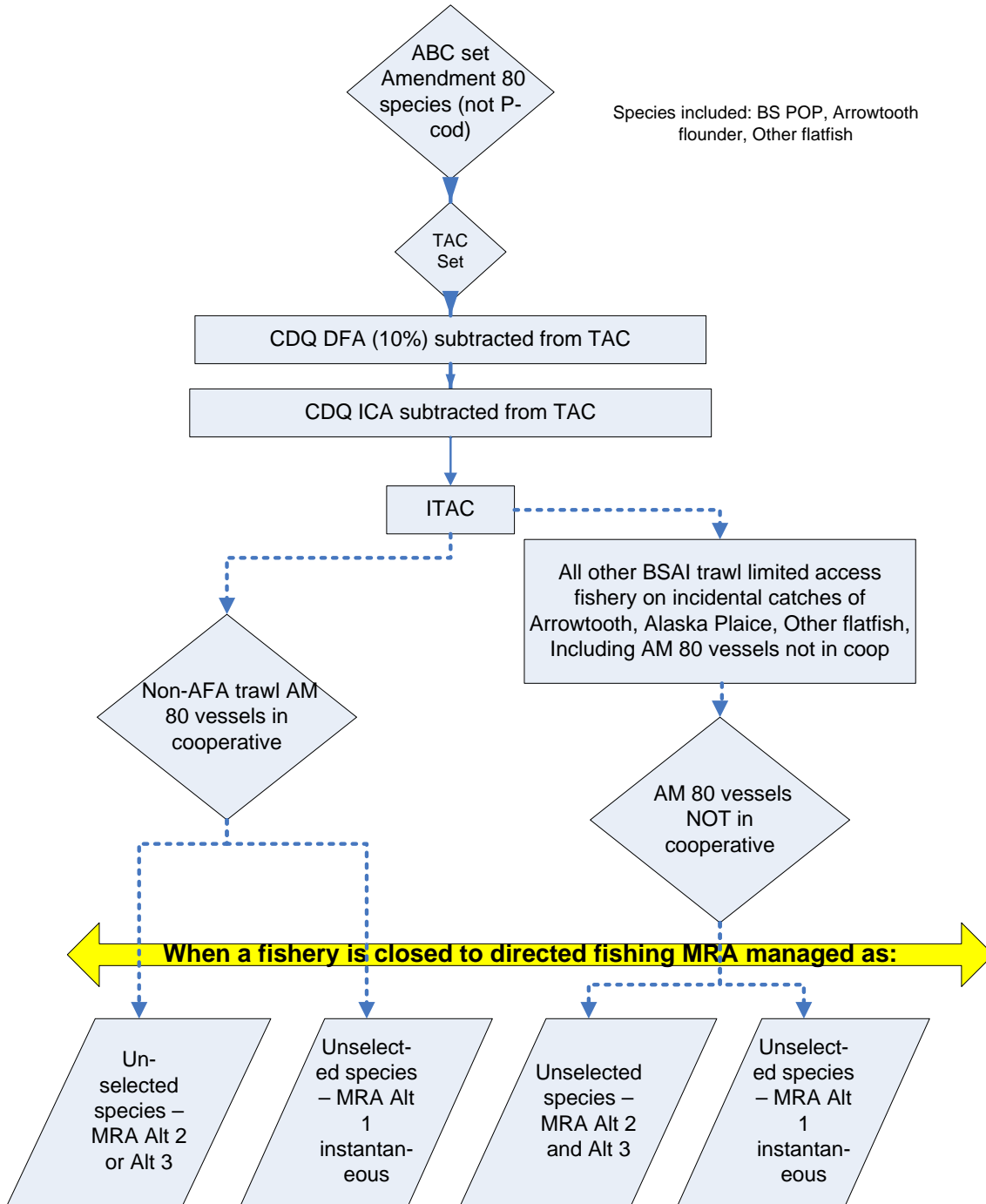


Figure 7 Diagram showing when MRAs apply to vessels in the non-AFA trawl C/P sector under Amendment 80 for un-allocated species,

MRAs applied to the non-AFA trawl C/P sector for directly allocated Amendment 80 species, other than Pacific cod,
If Amendment 80 approved by Secretary

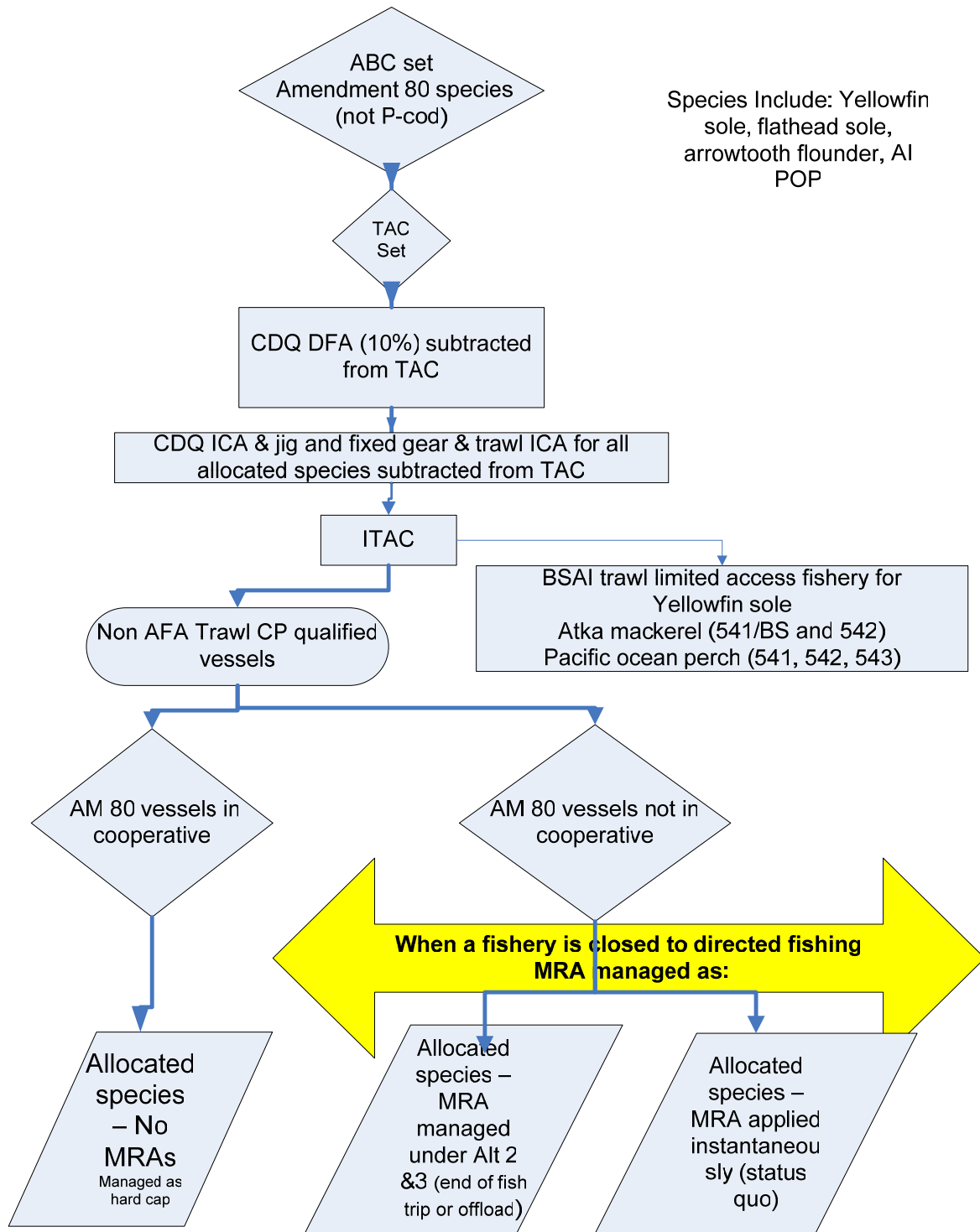


Figure 8 Diagram showing when MRAs apply to vessels in the non-AFA trawl C/P sector under Amendment 80 for allocated species only, assuming allocated species are managed under “hard caps.”

CDQ Program-related requirements of the MSA and as a result of the Coast Guard Act and other possible regulatory amendments

On July 11, 2006, the President signed the Coast Act. Section 416(a) of the Coast Guard Act revises section 305(i)(1) of the MSA by replacing all of the existing language in this section with new language. Section 305(i)(1)(B)(iv) of the MSA now requires:

REGULATION OF HARVEST.—The harvest of allocations under the program for fisheries with individual quotas or fishing cooperatives shall be regulated by the Secretary in a manner no more restrictive than for other participants in the applicable sector, including with respect to the harvest of nontarget species.

BSAI fisheries operating under individual fishing quotas include halibut, fixed gear sablefish, and crab. The only BSAI fishery under which fishing cooperatives currently are authorized is the Bering Sea pollock fishery. However, if Amendment 80 is approved, cooperatives will be authorized for the non-AFA trawl C/Ps. The authorization of cooperatives for this sector will trigger application of the “regulation of harvest” requirements of the MSA. Under Alternatives 1, 2, and 3 of this action, the calculation of MRAs for the non-AFA trawl C/Ps would be the same for each species in question in both the CDQ and non-CDQ fisheries. As described in Section 3.4 of this analysis, there are only a few circumstances under which MRAs are used in the CDQ fisheries for the species that are the subject of Alternatives 2 and 3. However, requiring the same calculation method in the CDQ and non-CDQ fisheries in which these vessels participate would be consistent with the MSA requirement that the regulation of harvest in the CDQ fisheries be no more restrictive than in the non-CDQ fisheries. In addition, to not allow the additional flexibility of Alternatives 2 and 3 for the calculation of retainable amounts in the CDQ fisheries could be considered a more restrictive regulation than that which applies to the non-CDQ fisheries, which would be inconsistent with the MSA.

Another proposal from the Council recently discussed at the October 2006 Council meeting, which is not derived from the Coast Guard bill, proposes to change CDQ quota transfer regulations in a fishing season. A proposed rule may be prepared by NMFS in the future to make it easier for a CDQ group to transfer quota to another CDQ group. That rule may also consider extending the length of time for some CDQ catch accounting. It is unlikely that this regulatory amendment to relax CDQ quota transfer standards could cause any change to MRA regulations, but both programs involve some relaxation of different components of NMFS catch accounting. The CDQ proposal would only impact accounting for CDQ catch (regardless of the type of gear used), and Alternatives 2 and 3 of this action focus only on adjusting MRA accounting when a directed fishing is closed for a groundfish species to the non-AFA trawl C/P sector.

4.3.3 Summary of Cumulative Effects

Past FMP amendments for allocating pollock and IR/IU have had a profound impact not only on the Bering Sea pollock fishery participants, from the mid- to late-1980s but other trawl fisheries. Fisheries exploited by the non-AFA trawl C/P sector have realized a number of incidental take and bycatch restrictions, due primarily to problems with high incidental catches of non-target

species. A number of Steller sea lion protection measures limited the pollock harvest by closing some of the more productive fishing grounds, thereby adversely affecting the sector. In 1998 Congress passed the AFA, which restricted access to the Bering Sea pollock fishery and allocated Bering Sea pollock between different components of the pollock fleet and the western Alaska CDQ program. The AFA also authorized the development of fishing cooperatives among the pollock fleet. Finally, the AFA raised the standards for catch measurement and monitoring for the Bering Sea pollock fishery.

As noted in section 4.3.2 the Council has recommended that non-AFA trawl C/P sector receive an explicit allocation of Pacific cod in Amendment 85 that may be managed within an Amendment 80 cooperative. This could result in a substantial reduction in the length of the Pacific cod directed fishery for this sector. Relaxing of the MRA accounting as proposed in Alternative 2 and 3 could assist the non-AFA trawl C/P sector in flexibility utilizing the available Pacific cod allocation of 13.4 percent of TAC that is proposed for allocation to the sector, prior to implementation of Amendment 80.

In February 2005, the Council took action to conserve EFH in the AI and GOA from potential adverse affects of fishing. Six designated areas with substantial concentrations of coral would be closed to all bottom contact gear, including trawling by the non-AFA trawl C/P sector. These locations are not frequently used by these trawl areas, and there are no anticipated impacts of these closures on any of the alternatives considered.

The cumulative effects of all actions considered in this analysis—past, present, and future—could be an increasingly restrictive regulatory environment resulting in lower harvests and gross revenues and/or higher operating costs. The relaxation of some MRA accounting could provide some increased in fishing revenues for the non-AFA trawl C/P vessels and increased opportunity, under some circumstances to increase groundfish retention. Each potential species considered for MRA accounting change are likely to have a different effect on the manageability of the BSAI fisheries, and possibly a small change in access to harvest of other groundfish species for other BSAI sectors as well.

4.4 Environmental Analysis Conclusions

As stated in Section 1.1 of this EA, the purpose of this action is to meet the requirements of the Magnuson-Stevens Act's national standards for fisheries conservation and management. The Magnuson-Stevens Act emphasizes the importance of minimizing bycatch, to the extent practicable, in order to achieve sustainable fisheries, and to maximize the net benefit to the nation.

Three alternatives have been evaluated for all direct, indirect, and cumulative effects on resources, species, and issues within the action area. The impacts of each alternative are assessed above in Chapter 4 of this EA and conclude that none of the alternatives or options under Alternative 2 and 3 are likely to have significant impacts on the BSAI ecosystem. It also concludes that species selection and the length or flexibility of MRA accounting are important factors in assessing impacts of the Alternatives on in season fishery management decisions, and potentially the allocation of some groundfish species. Individual species selection could also have some impact on openings and closing dates for avoidance of approaching a TAC or ABC.

While overfishing risk is small with selection of any of the options, additional enforcement concerns exist with use of the offload based MRA accounting Alternative 3.

The significance of impacts of the actions analyzed in this EA is determined through consideration of the following information, as required by NEPA and 40 CFR 1508.27.

Context

The setting of the proposed action is the groundfish fisheries of the BSAI. Any effects of this action are limited to this area. The changes to Chum and Chinook Salmon Savings Areas affect individuals directly and indirectly participating in the groundfish fisheries and those who use the ocean resources. Because this action has impacts that may go beyond the bounds of the BSAI, this action may have impacts on society as a whole or regionally.

Intensity

A listings of variables to consider when determining the intensity of the impacts are included in 40 CFR 1508.27(b) and in the NOAA Administrative Order 216-6, Section 6. Each consideration is bolded and addressed below in order as it appears in the regulations.

Adverse or beneficial impact determinations for marine resources, including sustainability of target and nontarget species, damage to ocean or coastal habitat or essential fish habitat, effects on biodiversity and ecosystems, and marine mammals.

Neither the management measures under Alternative 1 (status quo), nor under Alternative 2 and 3 are anticipated to have any additional effects to ocean or coastal habitat, essential fish habitat, biodiversity and ecosystems, or marine mammals, which have not been analyzed in previous documents.

Public health and safety are indeterminate under Alternative 2 and 3, but unlikely generate any additional risk to health and safety. Under these alternatives, some vessels may have greater flexibility to retain groundfish. No information exists regarding whether travel time, fishing time, or sorting time of groundfish for the non-AFA trawl C/P sector will change under any of the action alternatives. It is unlikely that this action would alter the amount of time spent exposed to potentially dangerous conditions, and likely result in little change to public health and safety.

Cultural resources and ecologically critical areas: These actions take place in the geographic areas of the Bering Sea, generally from 3 nm to 200 nm offshore. The land adjacent to these areas contains cultural resources and ecologically critical areas. The marine waters where the fisheries occur contain ecologically critical areas. Any potential effects on the unique characteristics of these areas have been mitigated by a number of protection measures implemented in the groundfish fisheries (e.g., Steller sea lion protection measures, a ban on bottom trawling for pollock, a trawling ban in the Southeast Outside District of the GOA).

Controversiality: These actions are intended to reduce the incidental catch of groundfish. Nationally, bycatch reduction programs have been the subject of some controversy because of the lack of economic data on how groundfish removals and other fishing practices associated with these fisheries are perceived by persons that are not directly involved in the production and

consumption of BSAI groundfish. Differences of opinion exist among various industry, environmental, management, and scientific groups on the appropriateness and effectiveness of certain bycatch reduction measures.

Risks to the human environment, including social and economic effects: Risks to the human environment from the BSAI groundfish fisheries are described in detail in the PSEIS (NMFS 2004a). Risks to the human environment from this action are described in this EA. Alternative 2 has the potential to increase value of the mixed species production from a non-AFA trawl C/P vessel. It is not possible to determine if it would have any impact on vessel safety and product quality. Alternative 3 may provide similar effects, but it should be noted that Chapter 5 identifies potential enforcement and management issues with the longer accounting interval.

Future actions related to this action may result in cumulatively significant impacts and are addressed in Chapter 4.3.2 of this EA. The analysis identified two reasonably foreseeable management actions: 1) new BSAI Pacific cod allocations recommended by the Council for the non-AFA trawl C/P sector and 2) a proposed cooperative for the non-AFA trawl C/P sector (Amendment 80) to manage allocations of groundfish and assist the sector in reduction of bycatch. The analysis of the cumulative effects in Chapter 4 did not identify any significant incremental effects of the current action as a result of the foreseeable future actions. Pursuant to NEPA, appropriate environmental analysis documents will be prepared to inform the decision makers of potential impacts of future actions on the human environment, and mitigation measures are likely to be implemented, if necessary, to avoid potentially significantly adverse impacts.

Cumulatively significant effects, including those on target and nontarget species: Cumulative impacts of the alternatives on each of the environmental resource components are analyzed in Chapter 4.0 of this EA. The cumulative effects of this action, when added to past, present, and reasonably foreseeable future actions were insignificant.

With the exception of many components of the proposed Amendment 80, a number of the reasonably foreseeable future actions cited above may have some negative effects on the economic performance of the non-AFA trawl C/P sector. The cumulative effects of all actions—past, present, and future—suggest an increasingly restrictive regulatory environment resulting in lower harvests and gross revenues and/or higher operating costs for the non-AFA trawl C/P sector. This action would relax a restriction on the non-AFA trawl C/P sector.

Districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places: This action will have no effect on districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places, nor cause loss or destruction of significant scientific, cultural, or historical resources.

Impact on ESA-listed species and their critical habitat: Section 7 consultations have been undertaken for species that are listed under the ESA and present in the BSAI management area, with respect to the impact of the Federal groundfish fisheries.

An FMP-level Section 7 consultation biological opinion was completed for the groundfish fisheries in November 2000 (NMFS 2000b). Species considered in this biological opinion are limited to those under NMFS' jurisdiction and include most of the endangered and threatened species occurring in the action area, including marine mammals, and Pacific salmon.

Under NMFS' FMP-level biological opinion (NMFS 2000), the western distinct population segment of Steller sea lions was the only ESA-listed species identified as likely to be jeopardized by the groundfish fisheries. A subsequent biological opinion on the Steller sea lion protection measures was issued in 2001. The 2001 Biological opinion found that the groundfish fisheries conducted in accordance with the Steller sea lion protection measures were unlikely to cause jeopardy of continued survival and recovery or adverse modification or destruction of critical habitat for Steller sea lions. This action would be implemented within the protection measures.

Atka mackerel and Pacific cod are two important Steller Sea lion (SSL) prey species currently being evaluated in the newest Biological Opinion that NMFS is preparing to assess the recovery of SSL in the Eastern Bering Sea and Aleutian Islands. The SSL Biological Opinion is scheduled for completion by NMFS in early in 2007. Atka mackerel and Pacific cod are two species included by the Council as options in Alternative 2 and 3 of this MRA accounting analysis. Alternative 2 and 3 would extend MRA accounting both outside and inside SSL critical habitat, and these two species are also caught in SSL protection areas. Because of the species involved in this amendment, and due to the structure of this management change that would relax MRA accounting regulations in and out of critical habitat, NMFS recommends that these two species not be included in the MRA accounting regulation planned for this final action until the results of the Biological Opinion become available.

The effects of the groundfish fisheries on ESA-listed salmon are discussed in Section 3.5. An ESA consultation for Chinook salmon in the BSAI was reinitiated in 2004 and continued into 2005, after the 2004 and 2005 fisheries exceeded the Incidental Take Statement (ITS) approved under the biological opinion. In July 2004, the Northwest Region of NMFS upheld the ITS, and concluded that the fishery is not likely to further impact ESA-listed salmon at present; however, the consultation noted the continued need to monitor Chinook bycatch in the BSAI trawl fisheries. The Council has continued to consider new actions to minimize salmon bycatch. While no changes to Chinook bycatch or other salmon fisheries are anticipated from the action alternatives, the continuing consultation includes the effect of this action.

Listed seabirds are under the jurisdiction of the USFWS which has completed FMP-level (USFWS 2003a) and project level biological opinions (USFWS 2003b) for the groundfish fisheries. Both biological opinions concluded that the groundfish fisheries and the annual setting of harvest specifications were unlikely to cause the jeopardy of extinction or adverse modification or destruction of critical habitat for ESA-listed seabirds.

NMFS is currently consulting with the USFWS on northern sea otters and may consult on Northern right whales after designation of critical habitat for this cetacean. No other consultations are required for this action because it would not modify the actions already analyzed in previous biological opinions, and are not likely to adversely affect ESA-listed species beyond the effects already analyzed.

This action poses **no known violation by NMFS of Federal, State, or local laws or requirements for the protection of the environment.** Implementation of this action would be conducted in a manner consistent, to the maximum extent practicable, with the enforceable provisions of 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.

The potential increase in harvest level was used as an indicator of the potential for **the introduction and spread of non-indigenous species**. While CPUE could increase under Alternatives 2 and 3, the overall total catch of groundfish is not expected to increase. None of the alternatives are expected to substantially increase fishing, processing, or shipping practices above status quo levels. Therefore, none of the alternatives impose significant effects on the introduction or spread of non-indigenous species into the BSAI.

Selection of a Preferred Alternative

The Council has not identified a preferred alternative for this action at this time, but has narrowed the list of candidate species to consider including in Alternative 2 or 3 to include Rock sole, yellowfin sole, flathead sole, Atka mackerel, BS POP, AI POP, other flatfish, Arrowtooth flounder and Pacific cod.

Chapter 5 Regulatory Impact Review

5.1 Introduction

This RIR examines the costs and benefits of a proposed regulatory amendment to change the accounting interval for MRAs for several species harvested by the non-AFA trawl C/P sector in the BSAI area. This chapter includes the following:

- (1) a description of the requirements of an RIR;
- (2) a description of the non-AFA trawl C/P sector catch and retention for flatfish during periods that directed flatfish fisheries are open and closed
- (3) the management of major fisheries that may be regulated by the proposed action alternatives and a description of these fisheries;
- (4) changes in non-AFA trawl C/P retention and catch in the pollock fishery prior to and after extending the MRA accounting interval;
- (5) a description of management and enforcement issues associated with the components that consider two potential intervals for increasing MRA accounting; and
- (6) a species specific comparison of some factors for evaluating tradeoffs to include or exclude a given species in an adjustment of MRA accounting.

5.2 What is a Regulatory Impact Review?

The preparation of an RIR is required under E.O. 12866 (58 FR 51735; October 4, 1993). The requirements for all regulatory actions specified in E.O. 12866 are summarized in the following statement:

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 nonetheless essential to consider. Further, in choosing among alternative regulatory approaches agencies should select those approaches that maximize net benefits (including potential economic, environmental, public health and safety, and other advantages; distributive impacts; and equity), unless a statute requires another regulatory approach.

E.O. 12866 requires that the Office of Management and Budget (OMB) review proposed regulatory programs that are considered to be “significant.” A “significant regulatory action” is one that is likely to

- 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, local or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

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

5.3 Statutory Authority

Under the Magnuson-Stevens Act, the United States has exclusive fishery management authority over all marine fishery resources found within the EEZ. The management of these marine resources is vested in the Secretary of Commerce (Secretary) and in the Regional Fishery Management Councils. The groundfish fisheries in the EEZ off Alaska are managed under the FMP for Groundfish of the BSAI.

The authority to alter the application of MRAs to groundfish fisheries, including changing MRA percentages or the accounting period for which MRAs are calculated is granted to NMFS under the Magnuson-Stevens Act. To the extent that MRAs may slow bycatch, the statutory authority for bycatch reduction measures is specifically addressed in Sec. 600.350 of the Magnuson-Stevens Act. That section establishes National Standard 9—Bycatch, which directs the Councils to minimize bycatch and to minimize mortality of bycatch when it cannot be avoided.

5.4 Purpose and Need for Action

Background information on the problem statement and why it should be addressed are discussed in Section 1.1 of the EA. The problem statement for this action is as follows:

Problem Statement (draft): The non-AFA trawl C/P sector (authorized under the BSAI groundfish buyback program in the Consolidated Appropriations Act of 2005) participates in multispecies bottom trawl fisheries with naturally occurring incidental catch rates of nontarget groundfish that result in higher bycatch rates compared to other groundfish sectors in the BSAI. Efforts to improve retention of many groundfish species utilized by this sector is restrained by regulations at 50 CFR 679.20(e) that establish maximum retainable allowances (MRA) that are enforced at any time during a fishing trip. The sector has reported that the current instantaneous MRA accounting period forces the discard of incidentally caught species that otherwise would be retained. MRAs are a widely used groundfish management tool to reduce targeting on a species and slow harvest rates as an allocation is approached. However, sometimes species managed with MRAs must be discarded when incidental catch at anytime during a fishing trip exceed the MRA, even though economic incentives exist to retain that species and overall catch at the end of a fishing trip would not exceeded the MRA. Thus, the instantaneous period of MRA accounting forces discard of some species, particularly at the beginning of a fishing trip, that might otherwise be retained without undermining the intent of the MRA as a tool to reduce overall harvest rates. This regulatory amendment would evaluate an extension of the MRA accounting period for multiple groundfish species to provide increased opportunity for retention of species harvested by the non-AFA trawl C/P sector and reduce overall bycatch rates in this sector, while not subjecting incidentally caught species to increased conservation concerns.

5.5 Alternatives Considered

The alternatives selected by the Council at the June 2006 Council meeting are discussed in detail in Chapter 2 of this EA/RIR/IRFA; they include the three following alternatives.

Alternative 1. No action, and no change in MRA accounting period.

Alternative 2. In the BSAI, allow the calculation of the MRA of yellowfin sole, rock sole, flathead sole, “other flatfish”, and arrowtooth flounder to occur at the end of a fishing trip.⁶

Option: Include Pacific cod,

Option: Include Aleutian Islands Pacific ocean perch,

Option: Include Bering Sea Pacific ocean perch,

Option: Include Atka mackerel

Alternative 3. In the BSAI, calculate the period of accounting for MRA of yellowfin sole, rock sole, flathead sole, “other flatfish”, arrowtooth flounder, Atka mackerel and Aleutian Islands Pacific ocean perch at the time of offload.

Option: Include Pacific cod,

Option: Include Aleutian Islands Pacific ocean perch,

Option: Include Bering Sea Pacific ocean perch,

Option: Include Atka mackerel

5.6 Analysis of the Alternatives

This section of the analysis provides data on fishery resource use, management and factors that may bear on the potential costs and benefit of each of the proposed alternatives on the BSAI non-AFA trawl C/P fishery. Section 5.6 of this EA/RIR/IRFA provides a brief summary of relevant characteristics of the fishery. A detailed description of the fishery can be found in the *Alaska Groundfish Fisheries Final Programmatic Supplemental Environmental Impact Statement* (Groundfish PSEIS; NMFS 2004b). Sections 3.1 through 3.5 of this EA/RIR/IRFA present the necessary background for this analysis of alternatives and will not be repeated here. However, a brief overview of potentially affected fisheries is presented here in section 5.6.1.2.

5.6.1 Alternative 1 MRA accounting

Alternative 1 is the no-action alternative. For practical purposes, much of Alternative 1 cannot be differentiated from the status quo for the non-AFA trawl C/P sector or other sectors in the BSAI. This alternative is the baseline alternative against which the costs and benefits of each action alternative has been compared. Alternative 1 would retain the current definition of a fishing trip and maintain the current method for calculation of the MRA for all groundfish fisheries.

⁶ The following regulation defining a fishing trip in current regulations would still apply to Alternative 2:
(A) or on the effective date of a notification prohibiting directed fishing in the same area under § 679.20 or § 679.21;
(B) or the vessel enters or leaves an area where a different directed fishing prohibition applies. For example, when a vessel engages in directed fishing in the AI from the BS (or BS to the AI).
(C) The vessel begins fishing with different type of authorized fishing gear; or
(D) The end of a weekly reporting period, whichever comes first.

5.6.1.1 Current MRA regulations and definition of a fishing trip under the status quo (Alternative 1)

MRA regulations located at 50 CFR 679.20(e) establish the calculation method and MRAs for groundfish species that are closed to directed fishing. The MRA is calculated as a percentage of the retained amount of species closed to directed fishing relative to the retained amount of basis species or species groups open for directed fishing. Appendix 2 (see Table 11 in CFR 679) lists retainable percentages for BSAI groundfish species. Amounts that are caught in excess of the MRA percentage must be discarded. Under existing regulations, BSAI pollock is the only species for which MRAs are enforced at the time of offload.

A fishing trip is defined at 50 CFR 679.2 as:

(i) With respect to retention requirements of MRA, IR/IU, and pollock roe stripping, an operator of a catcher/processor or mothership processor vessel is engaged in a fishing trip from the time the harvesting, receiving, or processing of groundfish is begun or resumed in an area until

(A) The effective date of a notification prohibiting directed fishing in the same area under § 679.20 or § 679.21;

(B) The offload or transfer of all fish or fish product from that vessel;

(C) The vessel enters or leaves an area where a different directed fishing prohibition applies;

(D) The vessel begins fishing with different type of authorized fishing gear; or

(E) The end of a weekly reporting period, whichever comes first.

5.6.1.2 Alternative 1: Description of fisheries under the status quo/no action alternative

Provided below is a brief description of the current management of the non-pollock groundfish fisheries. It includes a description of the fisheries, description of the non-AFA trawl C/P sector, the fishery value for the BSAI groundfish fisheries, community information, and background information on the Western Alaska CDQ program. Overall, maintaining status quo is likely to result in the continuation of existing fishing practices and patterns.

Current Management of the Fisheries

The BSAI management area encompasses the U.S. EEZ of the eastern Bering Sea and that portion of the North Pacific Ocean adjacent to the Aleutian Islands west of 170° W. longitude. The northern boundary of the Bering Sea is the Bering Strait, defined as a straight line from Cape Prince of Whales to Cape Dezhneva, Russia.

Trawl fisheries are managed under season apportionments of either target species (in the case of cod, pollock, and Atka mackerel) or under seasonal apportionment of PSC established in the annual harvest specifications (such as for flatfish species). The TAC specifications for the primary allocated species and PSC specifications are recommended by the Council at its December meeting. The recommendations are based on Stock Assessment Fishery Evaluation

(SAFE) reports prepared by Council BSAI Groundfish Plan Team. The Secretary, after receiving recommendations from the Council, determines up to 2 years of TACs and apportionments. The TAC for each of the allocated species is reduced by 15 percent to form the reserve and CDQ allocations. One-half of the reserve is used for CDQ allocations. The remaining portion of the reserve is used for a) correction of operational problems in the fishing fleets, to promote full and efficient use of groundfish resources; b) adjustments of species TACs according to the condition of stocks during fishing year; and c) apportionments.

Since 1994, the Atka mackerel quota has been split during the annual specifications into three separate area allocations based on the most recent biomass estimates. The three areas are the Bering Sea/eastern Aleutian Islands (Bering Sea and Area 541), the central Aleutian Islands (area 542), and the western Aleutian Islands (Area 543). In 1999, Area 542 and Area 543 were further split into critical habitat and non-critical habitat area due to Steller sea lion concerns. In addition, up to 2 percent of the Atka mackerel TAC in the Bering Sea/eastern Aleutian Islands subarea can be allocated to vessels using jig gear in the areas noted above. In 2005, the Council recommended and NMFS approved allocating 1 percent to vessels using jig gear.

A Federal groundfish license is required for vessels participating in any Federal BSAI groundfish fishery, other than fixed gear sablefish. Those exempt from the license requirement are vessels fishing in State of Alaska waters, vessels less than 32 ft LOA, or jig gear vessels less than 60 ft LOA using a maximum of 5 jig machines, one line per machine, and a maximum of 15 hooks per line. The LLP limits the number, size, and specific operation of vessels that may be deployed in certain groundfish fisheries under the Council's jurisdiction. For a person to qualify for an LLP license, the person must own a vessel that has documented harvests of groundfish during two periods; the general qualification period, and the endorsement qualification period. In addition to the area/species endorsements, the LLP license is designated for use on either a C/P or catcher vessel. The vessel length category may also have a specific endorsement. LLP licenses may be transferred subject to the vessel designations and area/species endorsements.

Table 16 shows the number of LLP licenses issued for the BSAI by trawl sector. There are 64 trawl licenses designated as C/Ps that are endorsed for the BSAI area. Twenty of these licenses are currently registered to AFA trawl C/P vessels operating in the BSAI. The remaining 44 trawl C/P licenses are either currently registered to non-AFA trawl C/P vessels that currently operate in the BSAI and/or GOA or they are registered to other vessels but are not being used in either area. Of the 44 non-AFA trawl C/P licenses, 22 also have GOA endorsements. There are 152 trawl licenses designated for catcher vessels that are endorsed for BSAI area. One hundred and two of these licenses are currently registered to AFA trawl catcher vessels leaving 50 licenses that are registered to Non-AFA Trawl catcher vessels.

Table 16. Number of BSAI trawl LLP licenses by sector

Sector	Number of LLP Licenses			
	BS only	AI only	BSAI	Total
<i>Catcher/Processor</i>				
AFA	1	0	19	20
non-AFA	6	1	37	44
Total	7	1	56	64
<i>Catcher Vessel</i>				
AFA	59	0	43	102
non-AFA	44	2	4	50
Total	103	2	47	152

Source: NMFS Groundfish LLP database. Current as of July 13, 2005.

Inseason management debits both directed harvest and incidental harvest against the TAC for groundfish species to ensure they are not overharvested. The directed fishery for any groundfish species is closed when the directed fishing amount is harvested, reserving the remainder of the TAC for incidental catch in other groundfish fisheries. NOAA Fisheries allows vessels to retain incidental catch of groundfish species (if the TAC has not been reached) taken in other directed fisheries that are open, up to the MRA. If the fishery is closed to directed fishing and the TAC is reached, NMFS issues a prohibition on retention for that species and all catch of that species must be discarded.

If a fishery is closed to directed fishing for one of these species, the ABC has been taken, and the harvest is approaching the OFL, NOAA Fisheries can close target fisheries that incidentally harvest that species if it perceives any potential threat of reaching the OFL. Pacific halibut, Pacific herring, Pacific salmon and steelhead, king crab, and Tanner crab are prohibited species and should be avoided while fishing for groundfish and must be returned to the sea with a minimum of injury except when their retention is authorized by other applicable law. PSC is apportioned between target fishery categories; trawl and non-trawl fisheries. The halibut PSC limit for trawl gear is currently 3,675 mt. The PSC limits for *C. bairdi* and *C. opilio* crab are dependent upon their abundance, while the PSC limit for red king crab depends on the number of mature female red king crabs.

All vessels participating in the groundfish fisheries are required to retain all catch of pollock and Pacific cod when directed fishing for those species is open, regardless of gear type employed and target fishery. When directed fishing for an IR/IU species is prohibited, retention of that species is required only up to any MRA in effect for that species. Each of these species must be retained in a directed fishery. No discarding of whole fish of these species is allowed, either prior or subsequent to that species being brought on board the vessel, except as required in the regulations. At-sea discarding of any processed product from any IR/IU species is also prohibited, unless allowed by other regulations. At 50 CFR 679, Pollock and Pacific cod are the only current IR/IU species

The no action alternative also includes the modified BSAI pollock MRA, which was implemented in June 2004. Under this revision, the accounting period for the pollock MRA in the BSAI was modified from accounting at anytime during a fishing trip to accounting at the time of offload.

All IR/IU species caught in the BSAI must either 1) be processed at sea subject to minimum product recovery rates, or 2) delivered in their entirety to onshore processing plants for which similar processing requirements are implemented by State regulations. The no action alternative in this analysis assumes the GRS will be implemented in 2008. The GRS is phased in over a four-year period beginning in 2008, starting at 65 percent and increasing to 85 percent in 2011. The GRS only applies to the non-AFA trawl C/P vessels greater than or equal to 125 ft LOA. The standard would be applied (and subject to enforcement for violations) at the end of the year. In 2002, the overall groundfish retention rate of the non-AFA trawl C/P vessels greater than or equal to 125 ft LOA was 71 percent.

As noted in the EA/RIR/IRFA for the pollock (NMFS 2004e) MRA accounting final rule new pollock offload accounting in the BSAI was anticipated to reduce discards of pollock. That analysis also noted that when the GRS program for the non-AFA trawl C/P sector was implemented, relaxed pollock MRA accounting may also provide more flexible means of dealing with groundfish retention standards that exceed historical groundfish retention rates. The GRS requirement to increase retention of groundfish has been reported by the non-AFA trawl C/P sector as providing additional pressure to retain and utilize a greater amount of catch for many groundfish species.

5.6.1.3 Alternative 1: Description of fisheries and management under the No Action Alternative

In the BSAI fisheries prosecuted under the status quo, the rock sole, flathead sole, and other flatfish fisheries are almost exclusively prosecuted by C/Ps using bottom trawl gear. Although the fisheries are open to other vessels categories and gear types, very few rock sole, flathead sole, other flatfish are harvested by other types of vessels.

Vessels participating in these fisheries generally fish for rock sole during the roe season until the first seasonal halibut bycatch cap is reached. Generally, after the rock sole roe fishery closes, these vessels shift to several different targets; notably Atka mackerel, yellowfin sole, and Pacific cod. Vessels also can go into the GOA to fish for rex sole.

The directed Atka mackerel fishery is a bottom trawl fishery that occurs off the continental shelf in the EBS and in the passes between the central and western Aleutian Islands. Thirty-five species of rockfish (genus *Sebastes* and *Sebatolobus*) occur in the BSAI, of which eight are commercially important. In recent years, the only BSAI rockfish species open for directed fisheries has been the Pacific ocean perch complex which includes Pacific ocean perch, sharpchin, northern, shorttraker, and roughey rockfish. In the BSAI, directed fisheries for these are mostly conducted by C/Ps using bottom trawl gear and hook and line catcher vessels.

Provided below are detailed descriptions of the species that could be included in this proposed program to modify MRA accounting. Generally, data are presented for each BSAI groundfish fishery for 1995 through 2003. In some cases, Catch by gear type and retention and data are reported for earlier years in order to provide a longer historical time series.

The most recent descriptions of the BSAI groundfish fisheries are from the *Stock Assessment and Fishery Evaluation Report for the Groundfish Resources of the Bering Sea/Aleutian Islands Regions* (SAFE report; NPFMC 2005). Please see this document for further details on the groundfish fisheries in the BSAI.

Yellowfin Sole Fishery

Yellowfin sole is one of the most abundant flatfish species in the EBS and is the target of the largest flatfish fishery in the United States. The resource inhabits the EBS shelf and is considered one stock. Abundance in the AI region is low. The directed fishery typically occurs from spring through December. Yellowfin sole have annually been caught with bottom trawls on the Bering Sea shelf since the fishery began in 1954. Yellowfin sole were overexploited by foreign fisheries in 1959-62 when catches averaged 404,000 mt annually. As a result of reduced stock abundance, catches declined to an annual average of 117,800 mt from 1963-71 and further declined to an annual average of 50,700 mt from 1972-77. The lower yield in this latter period was partially due to the discontinuation of the Soviet fishery. In the early 1980s, after the stock condition had improved, catches again increased, reaching a recent peak of over 227,000 mt in 1985. During the 1980s, there was also a major transition in the characteristics of the fishery. Yellowfin sole were traditionally taken exclusively by foreign fisheries and these fisheries continued to dominate through 1984. However, U.S. fisheries developed rapidly during the 1980s in the form of joint ventures, and during the last half of the decade began to dominate as the foreign fisheries were phased out of the EBS. Since 1990, only domestic harvesting and processing has occurred.

The 1997 yellowfin sole catch of 181,389 mt was the largest since this fishery became completely domestic. Catch decreased to 101,201 mt in 1998. The 2001 catch totaled 63,400 mt and 55,400 mt were caught in 2002 through the middle of September. The 2002 catch was 48 percent of the ABC and 64 percent of the TAC. The yellowfin sole harvest in 2002 was constrained by two seasonal closures due to the attainment of halibut PSC limits: from May 11-May 21 and from June 15- June 30. In addition, zone 1 was closed on May 21 for the remainder of 2002 to prevent exceeding the 2002 bycatch allowance of red king crab specified for the yellowfin sole target fishery.

The catch information presented above also includes yellowfin sole which were discarded. The rate of discard has ranged from a low of 14 percent of the total catch in 2001 to 30 percent in 1992. The trend has been toward greater retention of the catch in recent years. Discarding primarily occurs in the yellowfin sole directed fishery, with lesser amounts in the Pacific cod, rock sole, flathead sole, and “other flatfish” fisheries. Table 8 provides catch of yellowfin sole by target fishery in the BSAI by gear from 1995 to 2004. Table 8 provides annual catch of rock sole by trawl sector from 1995 to 2004.

Flathead Sole Fishery

Hippoglossoides spp. (including flathead sole and Bering flounder) are managed together in the BSAI and were formerly a constituent of the “other flatfish” group. In June 1994 the Council requested that the Plan Team assign a separate ABC for flathead sole in the BSAI, rather than combine flathead sole with other flatfish as in past assessments. This request was based on a

change in the directed fishing standards to allow increased retention of flatfish. Annual catches averaged 17,700 mt from 1990-2002. The resource remained lightly harvested as the 2003 catch through 20 September was only 70 percent of the 2003 TAC of 17,000 mt. Although flathead sole receive a separate ABC and TAC, they were and are still managed in the same PSC classification as rock sole and “other flatfish” and receive the same apportionments and seasonal allowances of prohibited species. In recent years, the flathead sole fishery has been closed prior to attainment of the TAC due to the bycatch of halibut. Substantial amounts of flathead sole are discarded overboard in various EBS target fisheries. A substantial portion of the discards in 2002 occurred in the Pacific cod, pollock, and rock sole fisheries.

Rock Sole Fishery

The northern rock sole is distributed primarily on the EBS continental shelf and in much lower amounts in the AI region. Rock sole are important as the target of a high value roe fishery occurring in February and March, which accounts for the majority of the annual catch. Rock sole catches from 1989 -2003 have averaged 49,480 mt annually. The 2003 catch of 35,395 mt was only 32 percent of the ABC of 110,000 mt (80 percent of the TAC). The 2004 catch total was 47,600 mt through September 4. Rock sole are lightly harvested in the BSAI. During the 2004 fishing season rock sole harvesting was periodically closed in the BSAI due to halibut bycatch restrictions on February 24.

Although female rock sole are highly desirable when in spawning condition, large amounts of rock sole are discarded overboard in the various Bering Sea trawl target fisheries. From 1987 to 2000, rock sole were discarded in greater amounts than they were retained. The past three years indicate increased utilization of the catch. Fisheries with the highest discard rates include the rock sole roe, yellowfin sole, flathead sole, Pacific cod, and bottom pollock fisheries.

Atka Mackerel Fishery

Atka mackerel became a reported species group in the BSAI Groundfish FMP in 1978. The Atka mackerel fishery is highly localized and usually occurs in the same few locations each year. The schooling and semi-pelagic behavior of the Atka mackerel make it particularly susceptible to trawl gear fished on the bottom and trawling occurs almost exclusively at depths less than 200 m. In the early 1970s, most Atka mackerel catches were made in the western Aleutian Islands (west of 180° W. longitude). In the late 1970s and through the 1980s, fishing effort moved eastward. A majority of these landings occurred near Seguam and Amlia Islands. In 1984 and 1985 the majority of landings came from a single 1/2° latitude by 1° longitude block bounded by 52° 30' N. and 53° N. latitude, and 173° W. longitude in Seguam Pass (73 percent in 1984, 52 percent in 1985).

Prior to 1992, ABCs for Atka mackerel were allocated to the entire Aleutian management district with no additional spatial management. However, because of increases in the ABC beginning in 1992, the Council recognized the need to disperse fishing effort throughout the range of the stock to minimize the likelihood of localized depletions. In 1993, an initial Atka mackerel TAC of 32,000 mt was caught by March 11, almost entirely south of Seguam Island (Seguam Bank). This initial TAC release represented the amount of Atka mackerel which the Council thought

could be appropriately harvested in the eastern portion of the AI subarea (based on the assessment for 1993; Lowe 1992) since there was no mechanism in place at the time to spatially allocate TACs in the AI to minimize the likelihood of localized depletions.

In mid-1993, however, Amendment 28 to the BSAI Groundfish FMP became effective, dividing the AI subarea into three districts at 177° W. and 177° E. longitudes to spatially apportion TACs. On August 11, 1993, an additional 32,000 mt of Atka mackerel TAC was released to the Central (27,000 mt) and Western (5,000 mt) districts. Since 1994, the BSAI Atka mackerel TAC has been allocated to the three regions based on the average distribution of biomass estimated from the AI bottom trawl surveys. Amendment 34 allocates up to 2 percent of the Atka mackerel TAC specified for the eastern BSAI to vessels using jig gear.

In June 1998, the Council passed a fishery regulatory amendment that proposed a four-year timetable to temporally and spatially disperse and reduce the level of Atka mackerel fishing within Steller sea lion critical habitat in the AI. Temporal dispersion was accomplished by dividing the BSAI Atka mackerel TAC into two equal seasonal allowances, an A-season (January 1 through April 15), and a B-season (September 1 to November 1). Spatial dispersion was accomplished through a planned 4-year reduction in the maximum percentage of each seasonal allowance that could be caught within critical habitat in the Central and Western AI. This was in addition to bans on trawling within 10 nm of all sea lion rookeries in the Aleutian Islands Subarea and within 20 nm of the rookeries on Seguam and Agligadak Islands (in statistical area 541), which were instituted in 1992. The goal of spatial dispersion was to reduce the proportion of each seasonal allowance caught within critical habitat to no more than 40 percent by the year 2002. No critical habitat allowance was established in the Eastern Subarea because of the year-round 20 nm trawl exclusion zone around the sea lion rookeries on Seguam and Agligadak Islands that minimized effort within critical habitat. The regulations implementing this four-year phased-in change to Atka mackerel fishery management became effective on January 22, 1999, and lasted only 3 years (through 2001). In 2002, new regulations affecting management of the Atka mackerel, pollock, and Pacific cod fisheries went into effect. Furthermore, all trawling was prohibited in critical habitat from 8 August 2000 through 30 November 2000 by the Western District of the Federal Court because of violations of the ESA.

As part of the plan to respond to the Court and comply with the ESA, NOAA Fisheries and the Council formulated new regulations for the management of Steller sea lion and groundfish fishery interactions that went into effect in 2002. The objectives of temporal and spatial fishery dispersion, cornerstones of the 1999 regulations, were retained. Season dates and allocations remained the same (A season: 50 percent of annual TAC from January 20 to April 15; B season: 50 percent from September 1 to November 1).

However, the maximum seasonal catch percentage from critical habitat was raised from the goal of 40 percent in the 1999 regulations to 60 percent. To compensate, effort within critical habitat in the Central (542) and Western (543) Aleutian Islands fisheries was limited by allowing access to each subarea to half the fleet at a time. Vessels fishing for Atka mackerel are randomly assigned to one of two teams, which start fishing in either Area 542 or 543. Vessels may not switch areas until the other team has caught the critical habitat allocation assigned to that area. In the 2002 regulations, trawling for Atka mackerel was prohibited within 10 nm of all rookeries in

Areas 542 and 543; this was extended to 15 nm around Buldir Island and 3 nm around all major sea lion haulouts. Steller sea lion critical habitat east of 178°W in the Aleutian Islands Subarea including all critical habitat in statistical area 541 and a 1° longitude-wide portion of statistical area 542, is closed to directed Atka mackerel fishing.

Pacific Ocean Perch Fishery and Other Rockfish Fisheries

Pacific ocean perch (POP) and four other associated species of rockfish (northern, rougheye, shorttraker, and sharpchin rockfish) were managed as a complex in the BS and AI subareas from 1979 to 1990. Known as the POP complex, these five species were managed as a single entity with a single TAC. In 1991, the Council separated POP from the other red rockfish in order to provide protection for red rockfish from possible overfishing. Of the five species in the former POP complex, Pacific Ocean perch has historically been the most abundant rockfish in this region and has contributed most to the commercial rockfish catch. Since 2001, POP in the BSAI area have been assessed and managed as a single stock. Separate TACs are applied to the AI and BS for POP. Because AI stocks are more abundant than the BS, a one to three week non-AFA trawl C/P directed fishery for this species in the AI subarea. No directed fishery exists for POP in the BS subarea, though POP are caught in many other BS directed fisheries.

POP were highly sought by Japanese and Soviet fisheries and supported a major trawl fishery throughout the 1960s. It is likely that these stocks were not productive enough to support such large removals. Catches continued to decline throughout the 1960s and 1970s, reaching their lowest levels in the mid 1980s. With the gradual phase-out of the foreign fishery in the U.S. EEZ, a small joint-venture fishery developed but was soon replaced by a domestic fishery by 1990. In 1990, the domestic fishery recorded the highest POP removals since 1977.

Estimates of retained and discarded POP from the fishery have been tracked in NMFS data since the early 1990s. The EBS region generally shows a higher POP discard rate than in the AI region. For the period from 1990 to 2003, the POP discard rate in the EBS averaged about 33 percent, and the 2003 discard rate was 52 percent. In contrast, the discard rate from 1990 to 2002 in the AI averaged about 15 percent. AI POP discard data from 2003 has continued to be close to that long term 1990 to 2002 average at a 16 percent.

There has been little change in the distribution of observed AI POP catch from the foreign and joint venture fisheries (years 1977-1988) and the domestic fishery (years 1990-present) with respect to fishing depth and management area. Management Area 541 contributes the largest share of the observed catch in each fishery, with 46 percent and 41 percent in the foreign/joint venture and domestic fisheries, respectively. In contrast, Area 543 contributes the largest share of the catch in the 2002 fishery due to the spatial allocation of harvest quotas. Although the catch by management area between the two time periods was similar, variations appeared to occur within each of these periods. For example, Area 543 contributed a large share of the catch in the late 1970s foreign fishery, as well as the domestic fishery from the mid-1990s to the present. In the late 1980s to the early 1990s, Area 541 contributed a large share of the catch, and prompted management changes to spatially allocate POP harvest.

The extent to which the patterns of observed catch can be used as a proxy for patterns in total catch is dependent upon the degree to which the observer sampling represents the true fishery. In particular, the proportions of total POP caught that were actually sampled by observers were very low in the foreign fishery, due to low sampling ratio prior to 1984.

5.6.1.4 Vessel Safety under Alternative 1

Though not as large in size and production capacity as vessels operating in the pollock AFA fisheries, non-AFA trawl C/Ps vessels fish and process in the BSAI fish in a broad range of conditions. Closures of directed flatfish fisheries may occur throughout the spring, summer, and fall. Closing a fishery will frequently result in shifting fishing effort to new locations. Fishing in new locations or at different times of a year may have implications for vessel safety, though overarching Coast Guard safety laws and regulations apply to this fleet as long as they fish in waters of the U.S. NMFS does not have access to data that would allow for evaluation of location/time fishing decisions. Even if that data was available, safety consequences of fishing decisions related to Alternative 1 is not possible to relate to vessel response to status quo regulations.

5.6.1.5 Potential effects on quality of groundfish species harvested by the non-AFA trawl C/P sector under Alternative 1

Several factors affect the quality of seafood produced by the non-AFA trawl C/P sector. Contributing factors include the current groundfish market, location of harvest, the general regulated fishing access regime, and specific IR/IU and other bycatch regulations. For example, regulatory initiatives such as Amendment 49 and Amendment 79 proposed by the Council and implemented by NOAA Fisheries contain various incentives to retain certain groundfish species, and avoid other species in amounts and at times that differ from that would be chosen by vessels if these policies were not in place. It is possible that current regulations on instantaneous accounting of MRAs (among hundreds of other regulations) may exert some influence on fishing activity, product processing and preservation, and marketing. It is not feasible to assess how one single variable impacts the intermediate or final product condition from this fleet. Members of the non-AFA trawl C/P sector report that some of their efforts to research and test market new products have been successful, and species such as yellowfin sole have experienced some changes in prices according to wholesale price data collected by NMFS from weekly production reports and other data sources. Again, it is nearly impossible to trace these types of market changes to quality variables that may have changes due to past or current regulatory policies.

Most groundfish caught by the non-AFA trawl C/P sector are processed by removing the head and entrails, and freezing the fish into blocks. Fish product quality diminishes with increased handling, sorting, and storage temperatures. No data or anecdotal information exists to suggest that the instantaneous MRA accounting interval contributes to major changes in the quality of groundfish products.

5.6.1.6 Enforcement under Alternative 1

Currently, for non-AFA C/P trawl vessels, compliance with MRA regulations are enforced by both NOAA Fisheries Enforcement and the US Coast Guard. Principally, MRAs are enforced during dockside and at-sea boardings, by inspecting the Daily Cumulative Production Logbook

(DCPL), other vessel records, and assessing products aboard the vessel. Under existing regulations, the longest period a single fishing trip may last is seven days, corresponding to a weekly reporting period. Compliance with MRA regulations may be checked based upon the cumulative ratios of basis and bycatch species during any day of a fishing trip, and/or the cumulative amounts reported on the trip-ending DCPL days, which will also be reported in the Weekly Production Report (WPR).

Auditing compliance with MRA requirements can also be conducted without boarding a vessel. NOAA Office for Law Enforcement agents and officers enforce MRA requirements by auditing WPRs for C/P vessels operating in fisheries, areas, or time periods where compliance may be in question. Weekly Production Reports are required to be submitted to NOAA Fisheries by 1200 Alaska Local Time (ALT) on Tuesday following the end of the reporting week, which ends at 2359 ALT on Saturday. This auditing ability is possible because under existing regulations, the end of the reporting week always represents the end of a “fishing trip.” By utilizing WPRs, compliance with MRAs can be conducted immediately following the completion of the fishing week reporting and timely submission of the WPR. While it is more desirable to conduct compliance auditing of MRAs with both the records and product available on the vessel, analysis of WPRs may develop indicators and result in a boarding of the vessel to determine compliance with MRA requirements.

This ability to conduct timely auditing of week-long fishing trips has many benefits. On several occasions, timely audits of WPR data by NOAA Fisheries Enforcement have documented ongoing MRA violations. Vessel representatives can be immediately notified. Contacts with these representatives revealed that the vessel operator or company personnel were sometimes unaware that a species was closed to directed fishing, and corrective action was taken to mitigate further violations.

5.6.1.7 Alternative 1: Variables effecting catching and processing operations and cost/revenue implications for the no action alternative

An estimate of the value of trawl fisheries under Alternative 1, or for other groundfish fishing in the BSAI (specifically an estimate of producer and consumer surplus), is not available for the non-AFA trawl C/P sector or other BSAI groundfish sectors. The primary reason for this is the lack of routine data collection on prices and quantities of industry inputs. Also missing are standardized records of prices and quantities of products that can be related to fishing and processing inputs and decisions.

Certain management features of the non-AFA trawl C/P fisheries provide some insight into the economic status of this sector. For example, members of the non-AFA trawl C/P sector participate in a regulated access fishery that shares common traits of many fisheries that operate under a “race for fish” management regime. This partially restricted entry system often results in fishing and processing sectors with small capital returns and a larger fleet than necessary to prosecute a fishery. Given the type of entry system, management regime, and variability in biological and long term stock size for these fisheries, there is substantial uncertainty regarding the economic condition of this sector under Alternative 1. Under the no action alternative, the

producer surplus to the non-AFA trawl C/P sector could remain similar or vary widely compared with recent years in response to many biological or economic factors.

One regulatory factor that could introduce changes from the current fishing regime for this sector is the implementation of the Amendment 79 GRS in 2008. In the initial year of the GRS, a substantial monitoring program is required for each vessel greater than or equal to 125 ft LOA. The initial costs for including flow scales and observer requirements for this program are estimated to be from tens of thousands to hundreds of thousands of dollars per vessel. Producer surplus for the non-AFA trawl C/P sector could decline due to changes in the initial investment and operating costs of the monitoring provisions.

While 2008 is the first year of implementation for the GRS, a first year groundfish retention rate of 65 percent only applies to vessels greater than or equal to 125 ft LOA. The GRS percentage does not exceed historical retention rates for most vessels in this size class until 2009. During that year, it is possible that some vessels in the sector may be compelled to retain fish that are of a size or sex ratio that are in less demand (e.g., female rock sole produce higher prices than male rock sole during the roe season).

If the conditions observed in recent fishing years continue, the non-AFA trawl C/P sector under Alternative 1 will likely continue to focus their fishing effort on several flatfish species, Atka mackerel, AI POP, and Pacific cod in the BSAI. It is also likely that participants in this sector will continue to race for fish and some fisheries will prematurely close due to halibut PSC overages. Sector discard rates will likely improve, but overall the retention rates, while likely to rise under the GRS could easily continue to lag behind the remaining the BSAI sectors.

No new management measures approved by the Secretary are expected to dramatically alter wholesale product revenues reported by the non-AFA trawl C/P sector in NMFS production data in year 2007 compared with previous years (all other economic factor remaining equal). But average groundfish revenues could eventually decline in the no action (Alternative 1) case after 2007 with the implementation of the GRS. These changes in revenue could occur if lower valued products are produced as a result of retaining fish that would otherwise be discarded because of economic reasons (e.g., fish of sizes that are in less demand or that are without roe). Unless final markets change through supply movements, prices of substitutes, consumer preferences, or other external factors, consumer prices are not anticipated to be greatly altered under current management, and consumer surplus is likely to remain at its current level, to the extent that further dissipation of rents in this fishery do not occur. Since the initial product sold by members of this sector is delivered to Asian markets, little (if any) of the effect on consumers is likely to affect U.S. consumers unless final products are eventually sold in the United States. Prices paid by consumers are not expected to increase or decrease under the status quo.

Potential profits (or surplus) to producers in the non-AFA trawl C/P sector under the status quo are limited to some degree by the race for fish under the current LLP fishery and existing regulation, including IR/IU restrictions. Some non-AFA trawl C/P sector participants report that they are compelled to race for groundfish against other participants within and outside their sector while the fisheries are open. Under the race for fish, the quality of the groundfish harvested may be negatively impacted as participants adopt fishing techniques to maximize catch

rates. Diminished product quality can lead to dissipation of a portion of the resource rents. On many vessels, there are periods of the fishing season where fishermen harvest fish at a rate that exceeds the rate at which the plant can process the fish. If fish are held too long prior to processing, quality will decline. Generally, participants in the non-AFA trawl C/P sector are equipped to produce whole and head-and-gutted frozen products. Production of these products is likely to continue, unless future fishery and processing activities change under the no action alternative. In addition, participants in the non-AFA trawl C/P sector must comply with the GRS, which also could limit production efficiency. The magnitude of any negative effect on returns to this sector depends on the profits (gains or losses) arising from retaining fish that would have been discarded (if not for the current fishery regulations such as Amendment 49 and the GRS).

5.6.2 Alternatives 2 and 3: Resource use, safety implications, management, implications for catching and processing, and resulting changes in costs and benefits from action alternatives

Substantial data on resource use and other economic information are required to project a change in producer surplus for a fishery policy. Some of the information that would aid in understanding potential changes to producer surplus of Alternative 2 and 3 for the non-AFA trawl C/P sector includes the following:

- (1) How will the industry (or sector) fishing and processing operations change with respect to use of fishery resources under the new policy and regulations?
- (2) What is the management response to any new fishing regulations and/or the anticipated change in fleet operations and fishing behavior from the action?
- (3) What, if any potential feedbacks exist to resource populations, future catch and quality of catch from the projected change in resource use?
- (4) How do inputs used by industry change in the course of harvesting and processing groundfish fishery from the action?

In addition to this basic use and management response data, substantial information on the quantities and prices of both inputs used by producers, as well as the products produced would be needed to model and/or project changes in producer surplus. Much of this required information does not exist for this sector or is not sufficiently quantifiable to project changes in surplus to producers. This section provides a draft of the regulatory text under consideration for this action, and a general qualitative discussion of use and management variables associated with Alternatives 2 and 3.

5.6.2.1 Draft and preliminary regulatory text for Alternatives 2 and 3

Alternatives 2 and 3 would retain the existing definition of a fishing trip (see 5.6.1.1), but instead of calculating the MRA at any point during a fishing trip, Alternative 2 would require calculation of the MRA for selected species at the end of a fishing trip. The species that are under consideration for adjustment of MRA accounting include yellowfin sole, flathead sole, other flatfish, arrowtooth flounder, and rock sole. Additional species included in the options for both Alternatives 2 and 3 include AI POP, BS POP, Atka mackerel, and Pacific Cod. Alternative 3 would calculate the MRA at either the time of offload of any groundfish, or at the end of a

fishing trip. An intentional feature of MRA accounting intervals under Alternatives 2 and 3 is the continuation of the definition of a fishing trip. The current definition of a fishing trip supports a number of enforcement needs for management of groundfish in the North Pacific.

For Alternative 2, the accounting interval corresponds to a fishing trip. The largest interval of time that a non-AFA trawl C/P vessel would have to account for an MRA would be one week:

Under Alternative 2, the regulatory text could be revised to read:

50 CFR 679.20 (e) (3)

(iv) For all catcher/processor vessels not listed in § 679.4(1)(2)(i) and using trawl gear, the maximum retainable amounts for (/list specific species/) harvested in the BSAI is calculated at the end of each fishing trip.

For Alternative 3, the longest interval of time that the MRA could be accounted for, is at the time of “offload”:

50 CFR 679.20 (e) (3)

(iv) For all catcher/processor vessels not listed in § 679.4(1)(2)(i) and using trawl gear, the maximum retainable amounts for (/list specific species/) harvested in the BSAI is calculated at the end of each fishing trip as defined at § 679.2(1)(i)(A), (C), and (D), or at the time of offload of any fish or fish products from the vessel.

5.6.2.2 Recent changes to pollock MRA accounting interval regulations (potential relevance to Alternative 2 and 3)

Regulations changing the accounting interval for pollock are the only test case of relaxed accounting of MRAs for a groundfish species. This action was proposed by the Council in 2003. While many economic and biological factors may impact the vessel operator’s decision to retain groundfish, the 2004 regulations extending the accounting interval for the BSAI pollock fishery provide a test case for a similar MRA accounting adjustment. The EA/RIR/IRFA for the pollock MRA projected that under conditions where retention of pollock could increase profitability of non-AFA trawl C/P sector deliveries, the policy of extending the accounting period was likely to increase retention of pollock. This program was implemented on June 14, 2004, and during 2005, retention of pollock increased in some months (Figure 4). While the reported 2005 increases in non-AFA trawl C/P sector pollock retention may not be directly transferred to the species considered in Alternatives 2 and 3, they suggest a potential connection between relaxed MRA accounting intervals and improved retention.

NOAA Fisheries catch data for pollock shows that incidental catch of this species by non-AFA trawl C/Ps from January through October 2005 was 22,600 mt, which was less than the same time period in 2004 (26,300 mt; Figure 9). The total groundfish catch in the non-pollock fisheries for January through April is about 236,000 mt for both 2004 and 2005, indicating an average incidental catch rate of pollock in those fisheries of about 10 percent. Roughly 40

percent of the pollock incidental catch occurs in the Pacific cod target and the remainder in the yellowfin sole, rock sole, and flathead sole fisheries (in descending order).

The current exception for instantaneous MRA accounting is for pollock where the accounting of pollock MRAs occurs at the time of offload. Under AFA, NMFS closes pollock to directed fishing for all vessels except those authorized under the AFA and the CDQ program.

If the MRA is calculated at the time of offload, vessel operators have the option to retain and utilize additional pollock. Choosing to retain incidental species at an early point in a trip could increase the probability that a maximum amount of incidental species could eventually be caught for each trip. Front loading assumes enough basis species are required to be caught by the trip’s end; otherwise, incidental species are discarded.

For non-pollock species, the current status of instantaneous accounting limits the amount of indirect targeting of highly valued incidental species. The proportions that constitute many MRAs were designed to reflect the upper end of expected incidental catch rates.

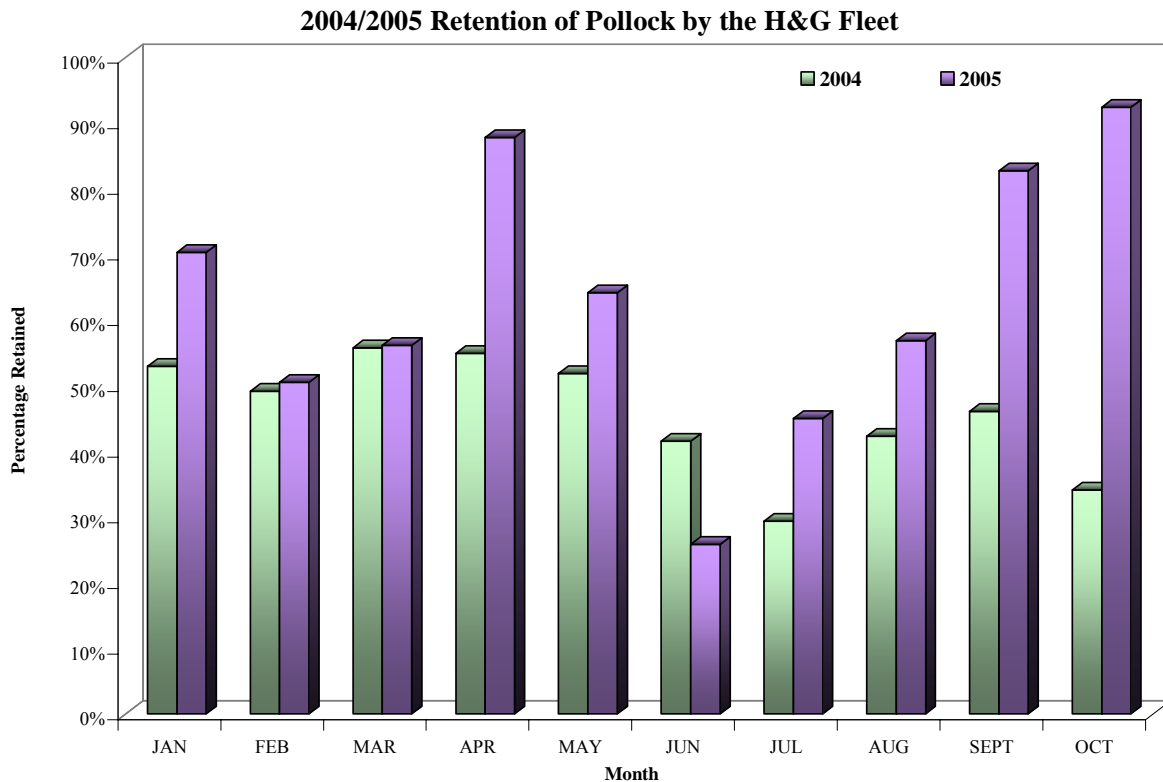


Figure 9 Monthly retained catch of pollock by the non-AFA trawl C/P sector, 2004-2005.

5.6.2.3 Incidental Catch of non-pollock species in the non-AFA trawl C/P sector

The NOAA Fisheries catch reporting system stratifies all groundfish catch by an “incidental” or “target” designation. This estimate is generated by an algorithm that assigns a target by

estimated weight of the most prevalent species retained (with the exception of pollock targets) for each haul and fishing trip. Target and incidental catch estimated in this manner may vary from the amount of incidentally caught species in a directed fishery. For the non-AFA trawl fisheries, the predominant species identified as a target in the catch accounting algorithm is often a species open to directed fishing. The amount and proportion of incidentally caught species vary greatly by individual target in the non-AFA trawl C/P sector. A species that is represented by a high percentage of incidental catch along with a low retention rate may be considered by members of the non-AFA trawl C/P sector to be a desirable candidate for extending MRA accounting.

Table 17 shows the percentage of incidental bycatch of groundfish in the non-AFA trawl C/P sector by target fishery between years 1999 and 2005 by area. In the BSAI rocksole target fishery, Alaska plaice, flathead sole, and Greenland turbot are the largest sources of incidental catch at 16.8 percent, 14.4 percent, and 11.3 percent, respectively. In the yellowfin sole target fishery, flathead sole, Alaska plaice, and Pacific cod are the largest sources of incidental catch at 10.4 percent, 9.2 percent, and 7.1 percent respectively. In the flathead sole target fishery, pollock, arrowtooth flounder, and yellowfin sole are the largest sources of incidental catch at 16.6 percent, 11.5 percent, and 9.9 percent, respectively. Other fisheries such as Atka mackerel and POP have relatively smaller incidental catches in the non-target fisheries. In the Atka mackerel target fishery, northern rockfish and POP are the largest sources of incidental catch at 6 percent and 4 percent, respectively. In the AI POP target fishery, pollock, and Atka mackerel and arrowtooth flounder are the largest sources of incidental catch at 4 percent, 3 percent and 3 percent respectively. As there is no directed fishery on POP in the BS and POP is rarely a target species in that area, no data are included on this area species combination.

Table 17. Percentage of incidental catches by target fishery between 1999 and 2005.

Incidental Catch Species	Target Fishery								
	Mackerel EAI	Mackerel CAI	Mackerel WAI	Pacific ocean perch EAI	Pacific ocean perch CAI	Pacific ocean perch WAI	Flathead Sole	Rock Sole	Yellowfin Sole
Alaska Plaice	0.08	0.00	0.00	0.00	0.00	0.00	2.56	2.27	7.07
Atka Mackerel	--	--	--	6.20	3.10	1.16	0.10	0.05	0.04
Arrowtooth Flounder	4.19	0.21	0.23	5.46	3.02	1.76	11.85	1.10	0.66
Other Flatfish	1.17	0.00	0.04	0.09	0.04	0.06	0.41	2.04	0.42
Flathead Sole	0.46	0.00	0.02	0.07	0.00	0.01	--	1.99	1.68
Greenland Turbot	0.13	0.34	0.03	3.77	0.09	C	0.59	0.01	0.00
Northern Rockfish	2.60	5.61	8.20	0.40	0.54	2.06	0.00	0.00	0.00
Other Species	1.49	0.86	0.75	0.59	1.13	0.73	5.97	2.20	2.19
Pacific Cod	5.33	3.37	2.89	3.83	0.34	0.33	9.42	11.29	3.84
Pollock	2.94	0.53	0.52	3.14	6.90	3.12	16.68	16.82	10.41
Pacific Ocean Perch	3.57	2.11	6.29	--	--	--	0.11	0.00	0.01
Other Rockfish	0.83	0.23	0.12	0.23	0.55	0.46	0.12	0.00	0.00
Rocksole	0.80	0.23	0.11	0.26	0.05	0.01	6.27	--	9.27
Sablefish	0.24	0.00	C	0.52	1.40	0.02	0.07	0.01	0.00
Squid	0.01	0.01	0.03	0.08	0.07	0.08	0.01	0.00	0.00
Shortraker/Rougheye Rockfish	0.01	0.02	0.08	0.73	1.85	1.74	0.00	0.00	0.00
Yellowfin sole	0.19	0.00	0.00	0.00	0.00	0.00	9.90	14.42	--

5.6.2.4 Alternatives 2 and 3: Analysis of species managed under the action alternatives for changing MRA accounting

While a small increase in the proportion of groundfish retention to total groundfish catch is a possible outcome for Alternatives 2 and 3, (especially for certain flatfish species) there is no indication that flatfish stocks will be affected. In the event that retention rates and retention amounts increase in Alternative 2 or 3 compared with the with recently observed fisheries or Alternative 1, and discard quantities decrease, total discards generated by this fleet are not likely to be changing the long term yield of flatfish stocks. These discards constitute less than one percent of the yellowfin sole survey biomass, less than two percent of the rock sole survey biomass and less than 0.1 percent of the shallow-water flatfish survey biomass. For this reason, even eliminating these discard amounts may have little or no measurable effect on the health of the flatfish resources. Moreover, the species TACs would remain the same under all of the alternatives considered. To the extent that these TACs are sustainable, removals from an available TAC will have the same stock effects regardless of whether the fish harvested are retained or discarded. If a portion of the discarded groundfish survives, then discarding results in fewer fish being removed from the biomass. There is no conclusive information regarding how many, if any, discarded groundfish survive in the non-AFA trawl C/P sector. Post cruise observer interviews suggest that only very small amounts of groundfish from trawl operations appear to be alive at the point of discard.

Potential impacts on how the alternatives may impact existing TACs or management of these species is considered in Chapter 4. All rockfish species other than AI POP and BS POP were removed from the alternatives and options by the Council at the June 2006 Council meeting because (As discussed in Appendix 3). The analysis of BS POP in Chapter 4 suggest that relaxed MRA accounting could provide increased opportunity to top-off on POP in the BS rather than accumulating them in an incidental manner. POP are incidentally caught in several directed fisheries. Those fisheries include AFA pollock, IFQ sablefish and halibut, CDQ sablefish and halibut; non-pelagic trawl Pacific cod, and arrowtooth flounder; hook-and-line Pacific cod hook and line Greenland turbot; and pot sablefish. As intentional targeting on this species could increase the overall catch managers may choose to close a given target groundfish fisheries as the ABC of 2,900 mt is approached. While this area/species is managed under an aggregate BSAI OFL, managers can be expected to observe removals and react by restricting directed fishing, or closing a fishery that is exploiting an incidental species too quickly, at too high a rate, that is approaching a TAC, or an ABC.

Thus, the species that are considered to be the best candidates for increasing the MRA accounting interval would be those that have low management risk or do not create generate additional uncertainty for differentially taxing a specific species in a species complex. There are no data available demonstrating that any of these species, in the amounts currently being removed from the North Pacific or proposed for removal under Alternatives 2 and 3, have a significant indirect value to the productivity of other species (e.g., providing prey for other living marine resources).

Table 18, summarizes some of the data presented in Section 4.2. that provides species specific information on potential tradeoffs for adjusting the MRA accounting period for each groundfish

species as defined in Alternative 2 and 3. The following questions are generally applied to each species under consideration for the action alternatives. Note that the years selected for comparison in Table 18 are intended to provide some overlap between years for TAC levels, catches, MRA percentages, stock status, retention, and discard information.

- Has the non-AFA trawl C/P sector identified this species as one that would assist in improved groundfish retention?
- What are the average catch, amount, and rate of retention for this species? Do historical data suggest there is a residual amount of catch that could be retained if market or other incentives existed to do so?
- How does the ABC compare with average catch and recent catches? Are total catches approaching the ABC so that if additional (small) increases in catch occurred it would be of concern?
- What is the TAC for this species compared with its average catch? How many times has it been closed on TAC or reached the TAC in the groundfish harvest specifications? Could removals on the order of those likely to occur under the action alternatives pose any concern for releasing reserves or for exceeding the TAC as defined in harvest specifications?
- Is the existing MRA small (typically less than 20 percent) or large and why? Would increased exploitation or targeting on this species (if it occurred from one of the action alternatives) conflict with the intent of the level that MRAs are set for this species?
- Is this species part of another species complex in BS or AI for the purpose of management? Does that have implications for management of longer periods of MRA accounting?
- Are there additional management concerns with extending the MRA accounting period for this species, or would this adjustment conflict with the management objective of the MRA for this species?
- Do enforcement concerns exist for extending the accounting period for the MRA computations for this species (other than those identified in Alternative 3)?

Table 18. Comparison of OFL, TAC, catch, MRA percentages, stock status, retention, and discard information, and status of request for alternating accounting interval for MRA by the non-AFA trawl C/P sector.

Species Considered	Sector request for MRA accounting change?	OFL 2004- 2007 (mt)	TAC 1 1997- 2005 (mt)	Average catch 1997-2005 (mt)	MRAs (%)	Stock Status -Length of Recruitment	Retention & discard rates, amount retained or discarded
Yellowfin sole	Yes	140,000 (2005 only)	86,075 to 90,686	68,350	20-35	Tier III a Not overfished – above target biomass Fast growing and short age of recruitment	In 2005 total discards of yellowfin sole were 7,272 mt. Average retention rate is 85% from 1999 to 2005. Groundfish retention is 53% to 74% in target fishery.
Flathead sole	Yes	75,200 to 70,200 (2004-5)	19,000 to 19,500 ⁷	14,000	20-35	Tier III a Not overfished –declining biomass Fast growing and recruitment	In 2005 total discards of flathead sole are 2,011 mt. Average flathead sole retention rate is 81% from 99 to 05.
Northern Rock sole	Yes	145,000 to 167,000	38,000 to 40,500 ⁹	36,500	20-35	Tier III a Not overfished –declining biomass Moderately slow growing and recruitment	In 2005 total discards of N rock sole are 2,787 mt. Average N rock sole retention rate is 57% from 99 to 05.
Aleutian Islands POP	Yes	15,000 to 17,000	11,200to 11,072 ¹⁰	11,000	5-15%	Not overfished –below target biomass Slow growing and slow recruiting	In 2005 total discards of Aleutian Islands POP are 1,218 mt. Average Aleutian Islands POP retention rate is 63% from 99 to 05. ⁸
Arrowtooth Flounder	Yes	132,000 mt to 174,000 mt	12,000 ⁹	11,800 mt	35%	Tier III a Not overfished – above target biomass. Fast growing & recruiting	In 2005 total discards of this Arrowtooth are 5,159. Average aggregate Arrowtooth flounder retention rate is 38% from 99 to 05. ¹⁰

⁷ TAC between 2004 and 2005

⁸ Due to confidentiality, the reported Aleutian Islands POP retention rate of 63 percent is based on retention rate for all rockfish

⁹ TAC for 2004 to 2005

¹⁰ Due to confidentiality, the reported Aleutian Islands POP retention rate of 63 percent is based on retention rate for all rockfish including POP

Species Considered	Sector request for MRA accounting change?	OFL 2004- 2007 (mt)	TAC from 97 to 05 (mt)	Ave. catch between 1997-2005 (mt).	MRA (%)	Stock Status -Length of Recruitment	Retention & discard rates, amount retained or discarded
“Other flatfish”	Yes. Primary interest is in improving retention of Rex sole	18,000 mt to 28,500 for other flatfish 231,000 mt to 258,000 mt for Alaska plaice ⁶	38,000 mt to 40,500 mt ⁶	12,670 mt	20% to 35%	Tier V for other flatfish group, not possible to determine if overfished. Fast growing and recruitment	In 2005 total discards of this other flatfish category are 2,118. Average aggregate other flatfish retention rate is 10% from 99 to 05. ¹¹ Other flatfish retention by other flatfish only in 2005 is approximately 90%. Substantial room to retain more catch in this group.
Atka Mackerel	Yes	78,000 mt to 147,000 mt	TAC for 2004 and 2005 was 63,000 mt	1999 to 2005 total catch AK mackerel 55,650 mt	20% (all basis species)	Tier III a Not overfished. Maturity reached in 2 years & healthy recruitment- critical habitat	Total 2005 total discards of AK mackerel are 3,510. Average aggregate retention rate is 10% from 99 to 05. ¹² Retained catch by of this species is 95%. Some caught in Critical habitat.
Pacific Cod	Yes. Primary interest is when AM 85 puts this species on bycatch.	OFL 230,000 mt & 176,000 mt for 2006 2007	TAC for 2006 and 2007 was 194,000 mt 148,000 mt	1999 to 2005 total catch P-cod 30,350 mt.	20% (most basis species)	Tier III a Not overfished –declining biomass Moderately slow growing and recruitment	Total 2005 discards of P-cod is only 500 mt. More discarding is possible when Amendment 85 implemented. Extending MRA accounting for P-cod in critical habitat may require further review under Section 7 of ESA.
BS POP	No or little interest expressed by non-AFA trawl CP	OFL 15,800 mt & 17,600 mt for 2006 2007	TAC for 2007 was 1,400 mt	1999 to 2005 total catch of BS POP200 mt.	0% to 15% for most species	Tier III a Not overfished –declining biomass slow growing and long lived.	No directed fishery in BS. Total discards approximately 400 mt. Management and enforcement concerns with changing MRA accounting for POP in this area.

¹¹ Due to confidentiality, the reported Aleutian Islands POP retention rate of 63 percent is based on retention rate for all rockfish including POP

¹² Due to confidentiality, the reported Aleutian Islands POP retention rate of 63 percent is based on retention rate for all rockfish including POP

The cumulative effects of MRA accounting changes under Alternative 2 and 3 also consider the effects of MRA accounting if Amendment 80 and 85 is subsequently approved by the Secretary of Commerce. With respect to the RIR, Amendment 85 Pacific cod sector allocations are likely to be forwarded to the Secretary in some form. If that action and/or Amendment 80 is approved additional changes to the non-AFA trawl C/P sector and other fishing sectors could result.

- Effects analysis prior to the implementation of Amendment 80 and prior to implementation of Amendment 85: Changing the MRA accounting period for Pacific cod prior to the implementation of Amendment 80 and 85 may have little value to the non-AFA trawl C/P sector. While Pacific cod was the third largest component of catch in the non-AFA trawl C/P sector from 1999 to 2005 at an average of 29,540 mt, Pacific cod is not discarded in large amounts. From 1999 to 2004 average discards of this species are only 840 mt. The Pacific cod season was is generally open for directed fishing throughout the year, providing substantial access to this species. Pacific cod groundfish retention and discard practices for this sector, under the current fisheries management regime along with the Alternative 2 are not anticipated to vary greatly from the status quo retention for this species. The amount of ICA set by NMFS management is not likely to change much with the application of Alternative 2, as this sector still operates under a race for fish, and the MRA percentage is likely to be a primary limiting factor.
- Effects analysis post Amendment 85 (pre Amendment 80): With the implementation of Amendment 85, management of Pacific cod is assumed to reflect a change in CDQ allocations from 7.5% to 10% along with adjustments in the ICA which could vary from 0.5% to 1% of the TAC. A 13.4% proportion of the Pacific cod TAC will be allocated to the non-AFA trawl C/P sector, reducing the amount of that species available to this sector. After Amendment 85 is implemented¹³ and prior to the implementation of Amendment 80, NMFS anticipates a much shorter Pacific cod directed fishery for the non-AFA trawl C/P sector. During this period BSAI Pacific cod will be maintained on bycatch status for much of the H&G sector fishing season and retained catch of Pacific cod will be limited to an MRA of 20% at any time during a fishing trip. Restricting retention of Pacific cod to a 20% MRA imposes a substantial constraint on the ability of vessels in the non-AFA trawl CP sector to achieve historical catch amounts (Figure 3).

Neither Amendment 85 nor Amendment 80 have been published as a proposed rule at this time, however, both of these Council recommendations are in preparation and could be submitted for Secretarial review in the future. NMFS is interested in implementing these two actions on a parallel track with a 2008 startup date, considering that each must be considered and approved by the Secretary. There is a possibility, as with any regulatory effort that NMFS may be unable to be implemented on the same day, month or year. In the event that Amendment 85 were to be implemented prior to Amendment 80, members of the non-AFA trawl C/P sector have noted specific concerns with the possible effects of an independently implemented Amendment 85 Pacific cod allocations on the non-AFA trawl C/P sector. In public comment at the Council's final Amendment 85

¹³ Amendment 85 is in preparation as a proposed rule, and has not been submitted for Secretarial review at this time.

action in April 2006 the sector expressed that Pacific cod allocations under Amendment 85 will reduce historical Pacific cod catches. The EA/RIR/IRFA for Pacific cod Allocations (NMFS 2006) suggests that Pacific cod allocations to this sector may be lower than the amount used by the sector in recent historical years. One additional result from the proposed allocation in Amendment 85 could be a much shorter non-AFA trawl C/P directed fishery for Pacific cod.

The Council could choose to either continue the present MRA accounting for Pacific cod to the non-AFA trawl C/P sector (at any time during a fishing trip) or extend the interval and flexibility of accounting to the time of offload or end of fishing trip (Figure 3). Under these conditions, an MRA accounting change associated with Alternative 2 or 3, (including the option for Pacific cod), could assist certain members of the H&G sector in retaining additional Pacific cod, by relaxing the MRA accounting time and providing more flexibility to approach the MRA ceiling of 20%. It is difficult with data available to verify that Alternative 2 or 3 could provide much additional flexibility, because the current ceiling for the Pacific cod MRAs is set at 20%, a level that currently provides some flexibility for retaining this species.

If Amendment 85 is implemented prior to Amendment 80, and if the Secretary includes Pacific cod in Alternative 2 or 3, the effects of each of these alternatives may be slightly different for the non-AFA trawl C/P sector. NMFS believes that the directed fishery for Pacific cod could become abbreviated under Amendment 85, and that Pacific cod could become scarce for the non-AFA trawl C/P sector as an incidental species. This scarcity, would increase pressure for retain every possible catch amount of Pacific cod up to the MRA. Alternative 3 with its offload based structure, would allow for more time to sort Pacific cod and achieve the highest possible amount retained up to the MRA. Alternative 2, in contrast would provide less time for sorting Pacific cod (at most for one week).

Impacts of implementing Alternative 2 and 3 on other sectors operating in the BSAI are equally difficult to predict. With the MRA change for Pacific cod and with only Amendment 85 in place, if members of the H&G sector were to choose to do more topping off of Pacific cod other stakeholders have expressed some concern regarding the likely amount of Pacific cod that could be left for rollovers back to fixed gear vessels such as Freezer longliners. If members of the non-AFA trawl C/P sector engage in more frequent topping off of Pacific cod under this option, compared with the previous option (where Amendment 85 is not implemented) one potential outcome is that the non-AFA trawl C/P sector could include some movement in the in-season ICA set for Pacific cod. While management response and harvest feedbacks from this option are difficult to project, one additional impact of this option could be a reduced amount of Pacific cod rollover for sectors other than the non-AFA trawl C/P sector. Stakeholders in the Pacific cod fishery suggest that relaxed MRA accounting may impact the sequential inseason decisions of NMFS management built into the proposed rule for Amendment 85. That proposed rule incorporates an iterative process for assessing Pacific cod rollovers from non-AFA trawl C/P Pacific cod residuals, by applying any anticipated residual amount, first, to the remaining trawl sectors, and then to other non trawl sectors. Under this approach, it is possible that a relaxed MRA accounting could result in a smaller amount

of rollover available to these other sectors. Thus, the frequency of available Pacific cod rollovers resulting from the non-AFA trawl C/P sector may be larger without the MRA accounting change than with the MRA accounting change. Since the amount of Pacific cod that any non-AFA trawl C/P could retain is still limited by an MRA, these amounts, at most, are likely to be small.

- Effects analysis post Amendment 80 (post 85) & for those in coops: As identified in Figure 4. MRAs will no longer be applied to Pacific cod harvested by the qualifying Amendment 80 sector vessels if Amendment 80 is implemented based on the Council's June 2006 Amendment 80 motion. Removal of MRAs for this sector, render the analysis of any MRA accounting changes moot. Pacific cod will never be removed from a directed fishery, because this condition assumes that the direct allocation applies to this section. Thus, there is no change to applying the MRA accounting adjustment once coop caught fish begin to be harvested under Amendment 80. Under Amendment 80, coop management is anticipated to provide the non-AFA trawl C/P sector with a more effective set of tools for retaining a given Amendment 85 allocation of Pacific cod than without Amendment 80.
- Effects analysis post Amendment 80-&85 with MRA adjustment for non-AFA trawl CPs not in Cooperative: New MRA accounting would also apply to non-AFA trawl C/P vessels that choose to fish in the limited access fishery (and not join a coop). Some vessels may increase annual removals of P-Cod, but the overall allocation is constraining. As with any of the previous action alternatives/options, it is very difficult to project a probable management response to this combination of Amendment 80 and Amendment 85 programs. One potential consequence of extending this MRA accounting tool to the non-coop members of the Amendment 80 qualified sector vessels is that managers could be influenced to shift the in-season ICA set for P-Cod to a smaller amount compared with the status quo.

5.6.2.5 Vessel safety under Alternatives 2 and 3

Neither Alternative 2 nor 3 are anticipated to alter vessel safety compared with Alternative 1. Though not as large as vessels operating in the pollock AFA fisheries and with substantially smaller production, the non-AFA trawl C/Ps in the BSAI spend large portions of the fishing year in the full range of conditions that the BSAI can generate. Closures of directed flatfish fisheries may occur throughout the spring, summer and fall. Closing a fishery will frequently result in shifting fishing effort to new locations. Beyond this general observation, no empirical data exists to determine how Alternative 2 or 3 will change fishing or vessel loading practices that could alter the risk associated with operating these vessels at sea. NMFS is not aware of any anecdotal information that would suggest that vessel safety for the non-AFA trawl C/P sector is impacted by these action alternatives.

5.6.2.6 Alternative 2 and 3: Potential changes in quality of groundfish

As noted in Alternative I, our capacity to evaluate quality changes in groundfish fishery production at any market level with respect to current or proposed regulations is extremely

limited. As sorting of groundfish products could occur with more frequency under Alternative 2 and 3, a potential exists for some additional handling and sorting of this product under these action alternatives. In contrast, it is possible that non-AFA trawl C/P vessels will be able to retain a slightly more valuable mix of species if MRA accounting is enumerated either at the end of a fishing trip or at offload. No data or anecdotal information exists to suggest that an increase in the instantaneous MRA accounting interval contributes to major changes in quality of products considering numerous other factors.

5.6.2.7 Management, enforcement and costs of Alternatives 2 and 3

Impacts upon Management and associated costs

Potential impacts of the action alternatives on resource use, management, and fishery conservation of adjusting the accounting interval for groundfish MRAs in the non-AFA trawl C/P sector are discussed throughout Section 5.6.2. As a general observation, under Alternatives 2 and 3, relaxation of MRA accounting may cause the current MRA to be less limiting to retention of incidental catch, particularly when its calculation occurs at the end of a trip (Alternative 3). Some of the most likely trip conditions to impact the non-AFA trawl C/P sector under Alternative 2 and 3 are when directed fishing is prohibited and triggered by vessel movement into an area or with a different directed fishing closure.

We anticipate that a rational fishing operation would respond to the economic incentive to maximize the value of each trip or aggregation of trips. For example, if Alternative 3 was to include certain rockfish species (e.g., BS POP), it would provide increased opportunity to top-off on higher valued incidental species rather than accumulating them in an incidental manner. While the proposal accomplishes discard reduction and accounting simplification, depending upon which species are included, the relaxed accounting regulations could encourage greater catch of incidental species that require protection.

As identified in the EA, a longer MRA accounting interval may increase the flexibility that an operator has to improve the value of a fishing trip through retaining greater amounts of incidental species that have higher expected value than other species. It also has the potential for compelling more conservative management of a species. For example, if Alternative 2 or 3 were to include certain species such as BS POP, it could provide increased opportunity to top-off on higher valued incidental species rather than accumulating them in an incidental manner. While certain options in Alternatives 2 and 3 may accomplish increased retention amounts or percentages, depending upon which species are included, the relaxed accounting regulations could encourage greater catch of incidental species. Managers can be expected to observe removals and react by restricting directed fishing, or closing a fishery that is exploiting an incidental species too quickly, at too high a rate, or that is approaching a TAC or OFL. This could impact the cost of managing some species, though cost associated with these possible changes are indeterminate.

Applying the changes in the MRA accounting period while the non-AFA trawl C/Ps are participating in the CDQ fisheries will simplify compliance and monitoring of the MRA regulations. MRAs are used infrequently in the CDQ fisheries because very few closures to directed fishing apply in these fisheries. The CDQ groups receive allocations of a variety of

groundfish species and of prohibited species and, in most cases; the CDQ groups are required to manage their fisheries to not exceed their allocations. However, as described in Section 3.3.5 some areas are closed to directed fishing by vessels fishing on behalf of the CDQ groups and some species are not allocated among the CDQ groups. In these cases, it is easier and less costly for the vessel operator to comply with MRA requirements and for NMFS Enforcement or the U.S. Coast Guard to assess compliance, if the methods for calculating MRAs are the consistent for the same vessels and species in both CDQ and non-CDQ fisheries.

Applying any changes to the MRA accounting period to the non-AFA trawl C/Ps in both their CDQ and non-CDQ fisheries would simplify recordkeeping, compliance, and enforcement.

Enforcement Implications of Alternatives 2 and 3

The Alternative 1 description of non-AFA C/P trawl vessels, compliance with MRA regulations are provided in the proceeding section and applies to Alternative 2 and 3 with some notable exceptions.

Regulations require the submission of copies of the DCPL to NOAA Fisheries Enforcement. However, this submission is not required until a month after the end of the fishing quarter. Without boarding the vessel to inspect the current quarter's DCPL, or otherwise requesting the DCPL from the vessel owner or operator, enforcement of MRAs on other than a week-ending basis, absent a vessel boarding (as proposed for Alternative 3), would also be problematic and could not be conducted until some time after potential MRA violations had occurred and the fish product was unavailable.

If the MRA accounting period were changed to the end of the fishing trip/reporting week, from the existing "at any point in time" standard, it is anticipated there would be negligible practical effect on the mechanics or frequency of MRA accounting by either NOAA Fisheries Enforcement or U.S. Coast Guard personnel during dockside or at-sea boardings. It is possible that under Alternative 2 and 3, NMFS enforcement may increase its review of weekly data to track an increasing number of species that would be monitored for MRA compliance at the end of a fishing trip or at offload. Significantly, NOAA Fisheries Enforcement personnel would continue to be able to conduct audits of compliance with MRA requirements based upon analysis of WPR data.

If the MRA compliance period was changed to time of offload, the U.S. Coast Guard would remain able to determine compliance with only the fishing trips prior to the current trip for non-AFA trawl C/P vessels, for listed species. U.S. Coast Guard cutter boarding parties would be generally unable to conduct enforcement of MRAs for the current trip for listed species, as their cutters are principally at-sea assets and compliance would not be enforced until the trip ended or the vessel offloaded product. However, U.S. Coast Guard boarding parties could notify NOAA Fisheries Enforcement of vessels where it was determined that a significant amount of bycatch species in excess of the MRA was aboard, and this vessel might be checked at offload to insure they complied with MRA requirements at the time of offload. If this activity was frequently documented, there might be a need to increase the frequency or investigative rigor of a given boarding to insure confidence in enforcing MRAs under a more liberal retention scheme. U.S.

Coast Guard boarding parties would need to be kept aware of which vessels are or are not in a cooperative, so that appropriate MRA compliance auditing may be applied.

From the standpoint of compliance, lengthening the period over which an MRA is enforced from the current “any point in time” to a maximum seven day fishing trip under Alternative 2, to a fishing offload interval lasting as many as several weeks under Alternative 3, potentially increases the possibility a vessel operator could intentionally target species in bycatch status, especially as there is greater economic incentive to do so. With a legal ability to simply discard any balance over MRAs immediately prior to offload to comply with MRA requirements, NOAA Fisheries Enforcement is concerned there is decreased incentive for vessel operators to not maximize catch of MRA species. If circumstances within days or immediately prior to offload caused the vessel operator to believe there was reduced likelihood of detection, this ability to have amounts of product in excess of MRAs aboard “lawfully” right up to the time of beginning offload could arguably increase the likelihood of unlawful retention of groundfish in excess of MRA standards and the attendant fraudulent recordkeeping and reporting. NOAA Fisheries Enforcement believes that Alternative 3 increases the likelihood of non-compliance compared to status quo.

Conducting MRA enforcement at time of offload means, by regulation, this determination must occur within ports, roadsteads, or internal waters. Obviously, any shift of U.S. Coast Guard assets from at-sea to shoreside has potential consequences to existing missions, including search and rescue. Under the at-offload compliance alternative, NOAA Fisheries Enforcement agents and officers would principally bear the responsibility for enforcement of MRA regulations, especially for a non-AFA trawl C/P vessel’s last fishing trip. If NOAA Fisheries Enforcement were to conduct compliance inspections of C/P vessels at rates more frequently than existing levels, any increase in enforcement of MRAs would require reductions of activities in other areas.

Under an Amendment 80 rationalized fishery, some species would be allocated, while others would be unallocated and would remain subject to management under MRAs. It is difficult to make more than broad qualitative statements regarding the potential effects on enforcement of MRAs within a rationalized cooperative fishery such as the coops that would be formed under Amendment 80. However, given that MRAs could continue to apply to certain allocated or non-allocated species and to species that were harvested outside of cooperatives, the tradeoffs between Alternative 2 and 3 pertaining to enforcement of MRAs would likely also exist within the rationalized non-AFA trawl C/P sector.

NOAA Fisheries Enforcement staff analyzed other specific enforcement and compliance issues relative to the alternatives 1, 2 and 3. Without providing specifics which could compromise enforcement of MRA regulations, NOAA Fisheries Enforcement believes the week ending MRA compliance period identified under Alternative 2 could reduce regulatory discards with little threat of increasing misreporting or other unlawful activities. Enforcing MRAs at the time of offload could increase the opportunities for misreporting and unlawful retention of catch, and make detection of these violations more difficult.

5.6.2.8 Alternatives 2 and 3: Change in vessel operations and some implications for costs and benefits of catching and processing in the Amendment 80 sector

Extended accounting of the MRA for selected groundfish species under Alternatives 2 and 3 provides increased opportunity for vessels in the non-AFA trawl C/P sector to retain certain incidentally caught species. It is possible that for some vessels in this sector, the action alternatives and components could alter the choice set for weekly or offload retention decisions in this sector. For example, it could change when and how much sorting of catch occurs, where these vessels fish, how long they stay in a statistical area, and could alter the distribution of the costs for prosecuting the fishery between different vessels. Producer surplus for the sector may shift as costs and revenues from the mixed products produced by each vessel may change under Alternative 2 and 3. The MRA accounting changes under the action alternatives are sufficiently modest compared with the many other regulatory, operational, world market, and allocation factors impacting this fleet, that the magnitude of producer surplus changes are not anticipated to be large. Some of the factors influencing the potential size and direction of any given impact to this sector follow.

Catching and Processing Operations under Alternatives 2 and 3

A number of environmental and economic variables could influence how vessels in the non-AFA trawl C/P sector respond to an extended MRA accounting period. Some examples of potential operational responses are listed below.

1. Vessels may not take advantage of the extended MRA accounting period provided for in Alternatives 2 and 3, if an incidental species is perceived to be less valuable than other species that could be retained in a trip. Under those conditions, Alternatives 2 and 3 may not result in a change in fishing practices, nor change the costs and revenues of non-AFA trawl C/P operations compared with Alternative 1.
2. If the MRA species is perceived to be a more valuable incidental species by this sector in comparison with other species caught, the non-AFA trawl C/P vessels may either (a) search for locations where they can catch a greater amount of that MRA groundfish species (i.e., target that (those) species up to the maximum MRA allowed for a fishing trip), or (b) change sorting procedures to retain the mix of species that is *anticipated*¹⁴ to improve the aggregate value of a fishing trip.

¹⁴ This engenders some risk, because one cannot know with certainty what the composition of subsequent hauls will be. The operator must make a conscious calculation concerning how much risk (i.e., cost) to assume. If the operator proves to be too optimistic, he/she may face cost of enforcement actions for being out of compliance with MRA regulations, or, at the very least, may find it necessary to discard excess amounts of “product” derived from the MRA species. In either case, the outcome is negative for the operator. In the first instance, presumably the enforcement penalty will exceed the value of the overage, otherwise, the fisherman would have an economic incentive to violate the law. In the second case, the cost of discarding finished product, which by definition embodies “value-added” expenditures of labor, consumable inputs, and capital, reflects potentially substantial economic cost to the operator, especially

a. It is possible that Alternative 2 or 3 could provide an incentive for C/P vessels to allocate effort to fishing locations that yield greater amounts of highly valued incidental species, particularly earlier in a fishing trip. If higher valued species on MRA status are available for exploitation, vessels could change fishing locations and fish in areas with a greater proportion of higher valued species (i.e., de facto targeting of MRA species), prior to targeting the offsetting amount of the basis species. As noted, this change in fishing practices could increase operational costs, if the vessel is unable to catch adequate amounts of basis species, prior to the end of the accounting period. After implementation of the GRS in 2008, this behavior could lead to compliance problems, as discards would count against GRS compliance. The potential costs of processing fish that subsequently must be discarded, and the accounting of all such discards against GRS compliance, would be expected to reduce the extent to which vessels target incidental catch species in a manner and to an extent that discards would be required to comply with the MRA. This is, by in large, an empirical question. Nonetheless, fishermen are notoriously “optimistic” about their individual fishing prowess (e.g., all fishermen expect to be highliners before the season begins) and may be disproportionately inclined to take on this additional risk. At least in the short run, this could have undesirable economic and bycatch implications.

b. In the second case, if vessels fish in the same locations under Alternatives 2 and 3 that they would otherwise fish under the no action alternative, these vessels could retain “truly incidental” catch in excess of an instantaneously applied MRA, to avoid wasteful discarding. Even if fishing practices do not change from the status quo, under Alternative 2 or 3, sorting, discarding, and processing inputs may change. Members of the non-AFA trawl C/P sector (pers. comm. Lori Swanson, April 2006) report that they are often sorting product throughout a fishing trip, and there will be no incremental increase in sorting costs from either of the two action alternatives, except in the event of excessive MRA-based product onboard at the close of an accounting period. Except in this instance, sorting costs could decrease, since a vessel will not need to track MRA compliance at all times. While catch must be tracked to ensure compliance at the end of the accounting period, if a captain is confident that the catch of the incidental species does not reach a level that would make compliance with the MRA very difficult by trip’s end, some sorting (and possibly discards) of the incidental species could be avoided. Under this approach, a captain could reduce discard, particularly if incidental catch rates vary throughout a trip, with the catch of the incidental species relative to the basis species exceeding the MRA in a tow at times, particularly early in the trip. There is no data available to confirm how sorting costs may change under any of the alternatives, or to determine how changes in sorting practices could impact net revenues to producers.

Compared to Alternative 1, the modification of MRA accounting, examined in Alternatives 2 and 3 of the EA, is intended to be less burdensome to non-AFA trawl C/Ps in respect to retention of incidental groundfish catch. It is likely that the length of time available to an operator for

compared to the alternative, which would have been to discard the excess bycatch “in-the-round”, at the time of catch.

MRA accounting may influence decisions of how to maximize both catch retention and the value of retained catch. Members of the non-AFA trawl C/P sector provided public testimony in the April 2006 Council meeting that the longer interval of MRA accounting time available under Alternative 3 would provide more flexibility to this fleet to increase retention of species on bycatch status. If this is correct, it would suggest that accounting period duration is one factor effecting discard, retention, and utilization decisions, when vessel operators are determining how to optimize the value of retained catch.

Alternative 3 could result in operational differences as compared with Alternative 2. For example, say a vessel had a tow, within a day or two of a week ending date¹⁵, containing a high proportion of species that were economically desirable, but could not be processed and still meet the weekly MRA requirement under Alternative 2. That portion of the catch expected to exceed the MRA would need to be sorted and discarded in the round. Under Alternative 3, the operator could retain and process that incidentally caught fish, increasing overall retention (i.e., reducing discard waste). Since the MRA accounting ledger needs to be balanced more frequently under Alternative 2 (i.e., at each fishing trip), rather than under Alternative 3 (at offload), a vessel may be able to generate more valuable landings (even if only a small change from Alternative 2), as well as produce slightly higher groundfish retention. Alternative 2 or 3 may increase production costs, if operators overestimate their ability to target basis species to meet the MRA for an incidental catch species caught early in a trip.

Without substantial data on cost and price of both inputs and products produced in the non-AFA trawl C/P sector (not presently available to NMFS from this sector), as well as models relating the response of this fleet to various management actions, it is not possible to empirically project the direction or change in net benefit to the Nation from implementation of Alternative 2 or 3. Given the interest the non-AFA trawl C/P sector has expressed in Alternative 2 and 3 (as well as certain options under the alternatives) extending the MRA accounting period under Alternative 2 or 3 appears more likely to generate a larger producer surplus at the sector level, than Alternative 1.

Cooperative Formation under Alternative 2 and 3 (under Amendment 80)

At the June 2006 Council meeting members of the Council requested additional analysis on the potential effects of altering MRA accounting under Alternatives 2 and 3 on the formation of Cooperatives once Amendment 80 is implemented. Under Amendment 80 vessels in a cooperative would no longer be restricted to MRA requirements. That restriction would be lifted for arrowtooth flounder, other flatfish, Alaska plaice, yellowfin sole, flathead sole, and rock sole. For vessels not in cooperatives, the Council has an explicit choice as to how MRA accounting could be applied. For non-coop vessels, and allocated species, MRA accounting could remain at the status quo (Alternative 1) or be extended as per Alternative 2 or 3. For some unallocated (Amendment 80) species the Council has the choice of applying relaxed MRA accounting to vessels in a coop or retaining the existing instantaneous accounting approach. The optional species under consideration would be Pacific cod, AI POP, BS POP and Atka mackerel. For Pacific cod, the existing MRA accounting would either be lifted (if Amendment 80 is

¹⁵ Recall that the end of a fishing week is one condition that triggers the end of a fishing trip.

implemented along with Amendment 85), the Council could retain the instantaneous accounting approach or they could apply Alternative 2 or 3

In this later instance, where non-coop vessels would be allowed to account for MRA amounts over a longer interval, this marginal change in accounting is not expected to have a material impact on coop entry decisions. This is because the added flexibility offered under extended MRA accounting is unlikely to provide a substantial increase in expected weekly or offload based product value, compared with the value of internally trading catching privileges and substituting more efficient catching/processing platforms for less efficient catching/processing platforms in an Amendment 80 coop. The Amendment 80 cooperative program recommended by the Council in 2006 is anticipated to provide substantial flexibility to remove redundant fishing power (by idling unnecessary vessels) where other vessels are more efficient in catching a coop allocation. Thus, the cost reduction associated with a few more days to sort catch to meet an MRA is likely to be trivial compared with coop opportunities for both decreasing sector costs (in an Amendment 80 coop) and increasing revenues, through aggregate marketing of product, and potential control over seasonal placement of product in markets. Also, Amendment 80 coops could provide a more effective tool for retention and utilization of catch from the perspective of the firms in a Coop than the tool of extending the MRA accounting interval. Under the coop environment, coop managers will be tracking quotas, so that each species allocation can be caught as close to the allocation amount as feasible. Where one set of tows by a vessel is observed to produce higher catches of a species that is under a limited allocation, the Coop would have the opportunity to deploy other vessels to catch a target, or move the fleet to locations that conserve a scarce species allocation.

Though the probability of coop formation or number of entities in a coop is unlikely to be impacted much by any choices available to the Council under Alternative 2 and 3, the remote possibility exists that a non-AFA trawl C/P vessel operator who is evaluating a set of marginal tradeoffs for coop entry could consider extended MRA accounting as a variable in a coop entry decision. Alternative 2 may provide slightly more incentive to enter into a Coop compared with Alternative 3, but again, the circumstances under which extended MRA accounting were to influence coop entry decisions would appear to be remote, if not indeterminate.

5.7 Summary of Analysis of Alternatives

The analysis of alternatives presented in the RIR has shown that Alternative 1, the no action alternative, continues to generate higher discard rates in the non-AFA trawl C/P sector than other sectors operating in the Bering Sea. Numerous biological, regulatory and economic factors may contribute to the challenges faced by the non-AFA trawl C/P sector to increase retention rates. Intertwined with the effects of existing accounting based on MRA proportions from Table 11 of 50 CFR 679 (Appendix 2) for the non-AFA trawl C/P sector, regulations requiring instantaneous accounting may achieve some historical objectives of the MRA for management of BSAI groundfish. For example, at times MRA percentages have been established to slow fishing effort. This practice serves as a tool intended to allow managers time to assess removals or to compel avoidance of species that could otherwise reach an overfishing limit. Where the change in catch avoidance behavior does not serve any economic, general management, or enforcement

purpose, the benefit of imposing these constraints to non-AFA trawl C/Ps may not be commensurate with costs of avoidance.

Compared to Alternative 1, the modification of MRA accounting examined in Alternatives 2 and 3 are intended to be less limiting to non-AFA trawl C/P retention of incidental groundfish catch, particularly when the accounting period is changed to the end of a fishing trip (Alternative 2) or to the time of offload (Alternative 3). Vessel operators have an economic incentive to maximize the value of each trip or group of trips and could easily choose to retain groundfish early in a fishing trip that were anticipated to be valuable, as opposed to discarding that catch, if they believe they can access sufficient ballast later in a fishing trip. This set of decisions may generate circumstances where a vessel operator is forced to sort and discard some round or processed fish at the end of a fishing trip. These extra sorting activities might lead to some increased costs as vessel operators become skilled at exploiting relaxed MRAs under Alternative 2 and 3.

The increased flexibility of a longer MRA accounting interval has the potential to improve the value of a fishing trip through increased retention of incidental species that have higher expected value than other species, but it also has the potential for encouraging more conservative management of certain species. For example, the analysis in the RIR shows that if Alternative 2 or 3 were to include BS POP it could provide increased opportunity to top-off on higher valued incidental species rather than accruing incidental catches in a more cautious manner. Intentional targeting behavior could increase the overall catch of species that have closed other target groundfish fisheries due to overfishing concerns in the past. While certain options in Alternatives 2 and 3 may accomplish increased retention amounts or percentages, depending upon which species are included, the relaxed accounting regulations could encourage greater catch of incidental species that require protection. Managers can be expected to observe removals and react by restricting directed fishing, or closing a fishery that is exploiting an incidental species too quickly, at too high a rate, that is approaching a TAC, or approaching an ABC.

This analysis has previously identified the increased risk to approaching an OFL from targeting on rockfish species. Most of the rockfish species have been removed from the Council's list of species to consider under Alternative 2 and 3 and a discussion of some implications of including these considered by rejected species are in Appendix 3. Retaining status quo MRA accounting for this species potentially avoids additional conservation risk of targeting on species such as rockfish, that are susceptible to overfishing or reaching a TAC.

The Regulatory Impact Review encourages agencies to assess the net social effect of a Federal action. This RIR discusses some additional effects such as changes to agency costs of monitoring and enforcing removals of species under an altered MRA accounting system, potential changes to producer and consumer surplus (that are generally unlikely to vary substantially between Alternatives 1, 2, or 3). A brief treatment of subsistence use, non-consumptive or non-use values associated with BSAI fisheries is included, though few if any incremental effects on these uses are anticipated. This proposed regulatory change would not result in any anticipated change to monitoring programs or recordkeeping and reporting. Under Alternatives 1 and 2, enforcement officers can rely on both WPR and DCPL data to determine

compliance with MRA regulations, and importantly, this compliance monitoring can be conducted either shoreside or during a vessel boarding, while the vessel is still fishing under the current voyage. Under Alternative 3, for the species subject to this regulatory change, MRA compliance monitoring cannot be conducted prior to the time the vessel begins offload of products, and any auditing of MRA compliance other than at the time of landing and on scene with the vessel, precludes effective enforcement of MRA regulations, as the catch would have already been transported and would be unavailable to inspection. The RIR identifies significant enforcement challenges to assuring compliance with the MRA accounting if extended to the time of offload. Depending on the species selected, a weekly offload period presents an enforceable option. The weekly offload option could still result in some incidence of presorting, not likely to occur under Alternative 1. Some incremental increase in management burden is possible for NMFS because of the potential for more focused tracking of removals for individual species complexes such as “other flatfish.” The RIR also explores the potential effects of Alternative 2 and 3 on formation of coops, concluding that it is unlikely that these alternatives would impact the non-AFA trawl C/P sector decisions to form an Amendment 80 coop.

Only very limited data exist on the use of BSAI groundfish by native cultures in this region. There is no subsistence take of any of the groundfish species that are considered in any of the alternatives. Analysis of impacts on resource use and value are also handicapped by the lack of quantitative information on how fishery harvesting and discard practices in the BSAI groundfish fisheries may impact subsistence, non-consumptive or non-use resource values in these fisheries.

There are no literature or data available demonstrating that these species, in the amounts currently being removed from the North Pacific or proposed for removal under Alternatives 2 and 3, have a significant indirect value to the productivity of other species (e.g., providing prey for other living marine resources that do have use or non-use value).

5.8 Summary of the Significance Criteria

Significance criteria under E.O. 12866 is described in Section 5.2 of the RIR

Although the available data do not allow a specific calculation of the net effect on operational revenues or costs, the analysis contained in this RIR has demonstrated that the action alternatives affecting the BSAI trawl fisheries likely reduce operational costs, although they may impose some sorting and self management costs on the non-AFA trawl C/P sector. Given that industry has volunteered to assume these costs, it is likely that industry expects that action to result in net benefits.

Based upon the best available information, none of the alternatives considered in this analysis appear to have the potential to produce 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.” The actions proposed in Alternatives 2 and 3 would not be expected to meet or exceed the threshold for a “significant” action (as that term is defined in E.O. 12866).

Chapter 6 Initial Regulatory Flexibility Analysis

6.1 Introduction

This Initial Regulatory Flexibility Analysis (IRFA) evaluates the impacts on small entities of alternatives designed to extend the accounting interval for calculating the MRA for selected species caught by the non-AFA trawl C/P sector in the Bering Sea and Aleutian Islands management areas of the EEZ off Alaska.

This IRFA addresses the statutory requirements of the Regulatory Flexibility Act (RFA) of 1980, as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996 (5 U.S.C. 601-612).

6.2 The Purpose of an IRFA

The RFA, first enacted in 1980, 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 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.

On March 29, 1996, President Clinton signed the SBREFA. Among other things, the new law amended the RFA to allow judicial review of an agency's compliance with the RFA. The 1996 amendments also updated the requirements for a final regulatory flexibility analysis, including a description of the steps an agency must take to minimize the significant economic impact on small entities. Finally, the 1996 amendments expanded the authority of the Chief Counsel for Advocacy of the Small Business Administration (SBA) to file amicus briefs in court proceedings involving an agency's violation of the RFA.

In determining the scope, or "universe," of the entities to be considered in an IRFA, NMFS generally includes only those 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 the purpose of this analysis. NMFS interprets the intent of the RFA to address negative economic impacts, not beneficial impacts, and thus such a focus exists in analyses that are designed to address RFA compliance.

Data on cost structure, affiliation, and operational procedures and strategies in the fishing sectors subject to the proposed regulatory action are insufficient, at present, to permit preparation of a "factual basis" upon which to certify that the preferred alternative does not have the potential to

result in “significant adverse impacts on a substantial number of small entities” (as those terms are defined under RFA).

Because, based on all available information, it is not possible to certify this outcome, should the proposed action be adopted, a formal IRFA has been prepared and is included in this package for Secretarial review.

6.3 What is required in an IRFA?

Under 5 U.S.C., Section 603(b) of the RFA, each IRFA is required to contain:

- A description of the reasons why action by the agency is being considered;
- A succinct statement of the objectives of, and the legal basis for, the proposed rule;
- A description 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);
- A description of the projected reporting, recordkeeping 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;
- An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap or conflict with the proposed rule;
- A description of any significant alternatives to the proposed rule that accomplish the stated objectives of the proposed action, consistent with applicable statutes, and that would minimize any significant 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
 1. The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;
 2. The clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;
 3. The use of performance rather than design standards;
 4. An exemption from coverage of the rule, or any part thereof, for such small entities.

6.4 What is a Small Entity?

The RFA recognizes and defines three kinds of small entities: (1) small businesses, (2) small non-profit organizations, and (3) small government jurisdictions.

Small business. Section 601(3) of the RFA defines a “small business” as having the same meaning as “small business concern,” which is defined under Section 3 of the Small Business Act. “Small business” or “small business concern” includes any firm that is independently owned and operated and not dominant in its field of operation. The 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 firm 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 United States, 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, 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. Finally, 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 an 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 percent 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 has the power to control less than 50 percent 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, controls 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 a joint venture 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 not-for-profit 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.

6.5 Reason for Considering the Action

In October 2005 vessel owners in the non-AFA trawl C/P sector requested in a proposal (Appendix 1) that the Council consider changing the accounting period for MRAs from instantaneous (i.e., at anytime during a fishing trip) to the time of offload. At the April 2006 meeting, the Council reviewed and took action on a problem statement (and requested an analysis) of three alternatives for implementing a change to the MRA accounting procedure. The proposal was requested because of the non-AFA trawl C/P sector’s history of groundfish retention and utilization challenges resulting from specialized gear and multi-species catches this sector experiences. Compared with the many other sectors participating in the groundfish fisheries of the BSAI, the non-AFA trawl C/P sector has consistently had the highest discard amounts and rates. Groundfish retention rates for the non-AFA trawl C/P sector have fluctuated between 1997 and 2004. The estimated groundfish retention rates for the non-AFA trawl C/P sector were approximately 63.6 percent in 1997, 67.6 percent in 2004, and 78.3 percent of total catch in 2005. It is unclear how this rate would change under the status quo management. Relaxing the MRA accounting interval would assist the vessels of the non-AFA trawl C/P sector to comply with bycatch provisions of the Magnuson-Stevens Act.

NMFS currently prohibits directed fishing for a species to manage a specified quota for groundfish or prohibited species (e.g., salmon, crab, and halibut). When NMFS prohibits directed fishing, retention is allowed up to an amount calculated with the MRA. The MRA table shows retainable proportions of incidental species relative to species open to directed fishing. Vessel operators calculate the MRA through three basic steps. First, they identify and calculate the round weight of the basis (or target) species on board. Next, they identify the appropriate fraction from the MRA table, and then multiply that rate against the round weight of the basis species. The calculated maximum amount limits retention of the incidental species. The vessel discards catch of the incidental species in excess of that amount to avoid violation of current regulation. The vessel operator calculates the MRA at any time for the duration of the fishing trip. While the effect of the existing regulation on fishing behavior is uncertain, members of the non-AFA trawl C/P sector report that operators often choose to increase discards of groundfish

catch as they approach the instantaneous MRA. It is also possible that operators will simply avoid areas with higher abundance of incidental species managed under an MRA.

6.6 Objectives of, and Legal Basis for, the Proposed Action

Under the Magnuson-Stevens Act, the United States has exclusive management authority over all living marine resources found within its EEZ. The management of marine fishery resources is vested in the Secretary of Commerce (Secretary), with advice from the Regional Fishery Management Councils. The groundfish fisheries in the EEZ off Alaska are managed under the Fishery Management Plan (FMP) for Groundfish of the BSAI and GOA.

Statutory authority for measures designed to reduce bycatch is specifically addressed in Sec. 600.350 of the Magnuson-Stevens Act. That section establishes National Standard 9--Bycatch, which directs the Councils to minimize bycatch or minimize mortality when bycatch cannot be avoided. Additional discussion of National Standard 9 of the Magnuson-Stevens Act, and other applicable law, is presented in Chapter 7.0 of this EA/RIR/IRFA. The objectives of the program are to provide additional opportunities for members of the non-AFA trawl C/P sector to retain selected groundfish species while not subjecting incidentally caught species to increased conservation concerns.

The Magnuson-Stevens Act is the legal umbrella under which the groundfish fisheries of the BSAI and GOA are managed. In the Alaska region, the North Pacific Fishery Management Council is responsible for preparing management plans for marine fishery resources requiring conservation and management. NOAA Fisheries, under the U.S. Department of Commerce, is charged with carrying out the Federal mandates with regard to marine fish, once they are approved by the Secretary. NOAA Fisheries Alaska Regional Office and Alaska Fisheries Science Center reviews the management actions recommended by the Council.

6.7 Number and Description of Small Entities Regulated by the Proposed Action

The entities directly regulated by this action are those catcher/processors that harvest groundfish in the EEZ of the BSAI using trawl gear that are not authorized to harvest pollock under the AFA. Specifically these are the vessels include catcher/processors referred to in the AFA as "unlisted."

Catcher/Processors: Table 19 reports the number of vessels that generated less than \$3.5 million in ex-vessel groundfish revenue annually for the years 1998 through 2003; Table 20 reports the same information for vessels that generated more than \$3.5 million. The information in those tables shows that in 2003 a total of 966 vessels generated less than \$3.5 million in ex-vessel revenue and 71 generated more than \$3.5 million. In percentage terms, more than 93 percent of the vessels that fish for groundfish would be considered small entities. However, because the threshold is based on company earnings from all fisheries and not each individual vessel's groundfish harvest, these tables likely over estimate the number of small entities. The lack of

ownership data precludes the calculation of exact numbers of small and large entities at the company level.

Table 21 and Table 22 report the average ex-vessel groundfish revenue of the vessels that generated more and less than \$3.5 million, respectively. The trawl vessels in the large entity category generated an average of about \$15 million in 2003. This number is inflated by the large catcher/processors in the pollock fishery. The non-AFA trawl C/P vessels traditionally generate less revenue than the pollock C/Ps. Even though they generate less revenue, all but one of the 27 vessels in the non-AFA trawl C/P sector are also considered to be large entities based on the \$4 million threshold applied to all vessels owned by an entity.

First, these estimates include only groundfish revenues earned from activity in the EEZ off Alaska. Since many of these vessels are also active in non-groundfish fisheries in the EEZ off of Alaska, in fisheries within State of Alaska waters, and off the West Coast of the U.S., the reported groundfish revenues understate the total gross receipts for many of the vessels.

Second, as described in Section 5.4, the RFA requires a consideration of affiliations between entities for the purpose of assessing if an entity is small. The estimates developed for classifying small fishing and processing entities in this section do not take account of affiliations between entities. There is not a strict one-to-one correspondence between vessels and entities; many persons and firms are known to have ownership interests in more than one vessel, and many of these vessels with different ownership, are otherwise affiliated with each other. Thus, four of the BSAI small trawl vessels appear to qualify as “small entities,” once AFA affiliation is taken into consideration. Table 19, indicates that, in 2003, there were perhaps as many as 6 large trawl catcher vessels in the BSAI.

Catcher/processors carry the equipment and personnel they need to process the fish that they catch. In some cases, C/Ps will also process fish harvested for them, and transferred to them, at sea by catcher vessels. Small BSAI trawl C/Ps gross revenue data is restricted due to confidentiality. Large BSAI trawl C/Ps had average gross revenue of \$17 million in 2004.

Table 19. Number of vessels that caught or caught and processed less than \$3.5 million ex-vessel value or product value of groundfish by area, vessel type and gear, 1998-2003.

	Gulf of Alaska			Bering Sea and Aleutian			All Alaska		
	Catcher Vessels	Catcher process	Total	Catcher Vessels	Catcher process	Total	Catcher Vessels	Catcher process	Total
1998									
All gear	973	21	994	243	41	284	1,052	41	1,093
Hook and line	708	15	723	75	29	104	726	29	755
Pot	188	1	189	70	7	77	231	7	238
Trawl	170	5	175	115	7	122	207	7	214
1999									
All gear	980	29	1,009	271	31	302	1,087	34	1,121
Hook and line	699	17	716	67	19	86	720	22	742
Pot	231	10	241	88	11	99	281	11	292
Trawl	159	3	162	123	4	127	203	4	207
2000									
All gear	987	16	1,003	269	30	299	1,134	32	1,166
Hook and line	716	8	724	79	17	96	746	18	764
Pot	252	5	257	88	10	98	302	11	313
Trawl	125	3	128	108	5	113	199	6	205
2001									
All gear	852	21	873	279	43	322	1,012	44	1,056
Hook and line	650	15	665	92	31	123	681	31	712
Pot	154	4	158	74	7	81	212	9	221
Trawl	119	4	123	117	6	123	195	7	202
2002									
All gear	781	20	801	247	32	279	909	33	942
Hook and line	619	13	632	78	24	102	633	24	657
Pot	127	4	131	59	5	64	169	6	175
Trawl	107	3	110	114	3	117	182	3	185
2003									
All gear	803	13	816	262	18	280	945	21	966
Hook and line	655	9	664	73	12	85	678	14	692
Pot	137	1	138	83	3	86	197	3	200
Trawl	93	3	96	116	3	119	163	4	167

Note: Includes only vessels that fished part of Federal TACs.

Source: CFEC fish tickets, weekly processor reports, NMFS permits, Commercial Operators Annual Report, ADFG intent-to-operate listings. NMFS, P.O. Box 15700, Seattle, WA 98115-0070.

Table 20. Number of vessels that caught or caught and processed more than \$3.5 million ex-vessel value or product value of groundfish by area, vessel type and gear, 1998-2003.

	Gulf of Alaska		Bering Sea and Aleutian			All Alaska		
	Catcher process	Total	Catcher Vessels	Catcher process	Total	Catcher Vessels	Catcher process	Total
1998								
All gear	26	26	0	58	58	0	58	58
Hook and line	7	7	0	14	14	0	14	14
Pot	0	0	0	1	1	0	1	1
Trawl	19	19	0	44	44	0	44	44
1999								
All gear	29	29	1	57	58	1	57	58
Hook and line	13	13	0	22	22	0	22	22
Pot	1	1	0	3	3	0	3	3
Trawl	15	15	1	36	37	1	36	37
2000								
All gear	28	28	4	58	62	4	58	62
Hook and line	13	13	0	26	26	0	26	26
Pot	0	0	0	2	2	0	2	2
Trawl	15	15	4	34	38	4	34	38
2001								
All gear	19	19	6	47	53	6	47	53
Hook and line	5	5	0	14	14	0	14	14
Trawl	14	14	6	33	39	6	33	39
2002								
All gear	23	23	10	54	64	10	54	64
Hook and line	10	10	0	18	18	0	18	18
Trawl	13	13	10	36	46	10	36	46
2003								
All gear	34	34	6	65	71	6	65	71
Hook and line	16	16	0	28	28	0	28	28
Pot	0	0	5	0	5	5	0	5
Trawl	18	18	6	37	43	6	37	43

Note: Includes only vessels that fished part of Federal TACs.

Source: CFEC fish tickets, weekly processor reports, NMFS permits, Commercial Operators Annual Report, ADFG intent-to-operate listings. NMFS, P.O. Box 15700, Seattle, WA 98115-0070.

Table 21. Average revenue of vessels that caught or caught and processed less than \$3.5 million ex-vessel value or product value of groundfish by area, vessel type and gear, 1998-2003 (\$ millions).

	Gulf of Alaska			Bering Sea & Aleutians			All Alaska		
	Catcher Vessels	Catcher process	Total	Catcher Vessels	Catcher process	Total	Catcher Vessels	Catcher process	Total
1998									
All gear	.15	1.77	.18	.44	1.63	.61	.16	1.63	.22
Hook and line	.08	1.59	.11	.18	1.57	.57	.08	1.57	.13
Pot	.11	-	.12	.24	.84	.29	.15	.84	.17
Trawl	.52	2.40	.57	.77	2.58	.88	.54	2.58	.61
1999									
All gear	.20	1.44	.23	.58	1.51	.68	.21	1.38	.25
Hook and line	.09	1.48	.12	.18	1.79	.53	.09	1.55	.13
Pot	.17	1.23	.21	.16	1.16	.27	.16	1.16	.20
Trawl	.77	-	.79	1.10	1.59	1.12	.79	1.59	.80
2000									
All gear	.16	1.33	.18	.67	1.34	.74	.24	1.34	.27
Hook and line	.11	1.24	.12	.23	1.60	.47	.10	1.53	.14
Pot	.16	1.03	.18	.16	.48	.19	.17	.62	.18
Trawl	.57	-	.61	1.40	1.72	1.41	.92	1.83	.95
2001									
All gear	.14	1.76	.18	.58	1.76	.74	.23	1.77	.30
Hook and line	.10	1.82	.14	.17	1.91	.61	.09	1.91	.17
Pot	.12	1.73	.16	.13	.86	.19	.12	1.17	.16
Trawl	.48	1.80	.52	1.18	1.93	1.22	.83	1.95	.87
2002									
All gear	.15	1.70	.18	.65	1.81	.78	.24	1.76	.30
Hook and line	.10	1.89	.14	.19	1.96	.61	.10	1.96	.17
Pot	.15	.38	.16	.18	.62	.22	.14	.52	.15
Trawl	.45	-	.51	1.18	-	1.22	.83	-	.86
2003									
All gear	.17	1.53	.19	.65	1.74	.72	.26	1.65	.29
Hook and line	.12	1.55	.14	.23	2.17	.50	.12	1.91	.15
Pot	.16	-	.16	.28	-	.30	.19	-	.20
Trawl	.57	-	.61	1.19	-	1.19	.93	1.45	.95

Notes: Includes only vessels that fished part of Federal TACs. Categories with fewer than four vessels are not reported. Averages are obtained by adding the total revenues across all areas and gear types of all the vessels in the category and dividing that sum by the number of vessels in the category.

Source: CFEC fish tickets, weekly processor reports, NMFS permits, commercial operators annual report, ADFG intent-to-operate listings. NMFS, P.O. Box 15700, Seattle, WA 98115-0070.

Table 22. Average revenue of vessels that caught or caught and processed more than \$3.5 million ex-vessel value or product value of groundfish by area, vessel type and gear, 1998-2003 (\$ millions)¹⁶.

	Gulf of Alaska		Bering Sea & Aleutians			All Alaska		
	Catcher process	Total	Catcher Vessels	Catcher process	Total	Catcher Vessels	Catcher process	Total
1998								
All gear	6.41	6.41	-	8.64	8.64	-	8.64	8.64
Hook and line	4.46	4.46	-	4.51	4.51	-	4.51	4.51
Trawl	7.12	7.12	-	9.95	9.95	-	9.95	9.95
1999								
All gear	5.53	5.53	-	10.09	10.00	-	10.09	10.00
Hook and line	4.69	4.69	-	4.70	4.70	-	4.70	4.70
Trawl	6.36	6.36	-	13.23	13.00	-	13.23	13.00
2000								
All gear	6.57	6.57	4.66	10.72	10.33	4.66	10.72	10.33
Hook and line	4.82	4.82	-	5.09	5.09	-	5.09	5.09
Trawl	8.09	8.09	4.66	14.87	13.80	4.66	14.87	13.80
2001								
All gear	7.54	7.54	4.99	13.02	12.11	4.99	13.02	12.11
Hook and line	4.97	4.97	-	4.66	4.66	-	4.66	4.66
Trawl	8.45	8.45	4.99	16.57	14.78	4.99	16.57	14.78
2002								
All gear	6.96	6.96	4.91	12.76	11.54	4.91	12.76	11.54
Hook and line	4.28	4.28	-	4.25	4.25	-	4.25	4.25
Trawl	9.03	9.03	4.91	17.02	14.39	4.91	17.02	14.39
2003								
All gear	6.47	6.47	4.43	11.62	11.01	4.43	11.62	11.01
Hook and line	4.50	4.50	-	4.54	4.54	-	4.54	4.54
Pot	-	-	4.62	-	4.62	4.62	-	4.62
Trawl	8.21	8.21	4.43	16.98	15.23	4.43	16.98	15.23

Note: Includes only vessels that fished part of Federal TACs. Categories with fewer than four vessels are not reported. Averages are obtained by adding the total revenues across all areas and gear types of all the vessels in the category and dividing that sum by the number of vessels in the category. Source: CFEC fish tickets, weekly processor reports, NMFS permits, commercial operators annual report, ADFG intent-to-operate listings. NMFS, P.O. Box 15700, Seattle, WA 98115-0070.

¹⁷ The reader should be aware that as of January 5, 2006, the SBA definition of a small finfish harvesting entity is \$4.0 million instead of the \$3.5 million reported in these tables. Because of the recent change, companies that are between \$3.5 million and \$4 million in revenue would be classified as small entities instead of large entities. Those changes could result in the tables underestimating the number of potential small entities.

6.8 Impacts on Regulated Small Entities

Though there is, at most, one small entity directly regulated by this action, the impacts of both action alternatives are likely to provide increased flexibility to operators, when compared to the status quo. A more detailed discussion of the sector operations and analysis of alternatives are presented in the RIR. A focused summary, addressing implications for small entities is included here.

Alternative 1

The no action alternative would continue to apply the current MRA accounting regulations. These regulations require that an MRA not be exceeded at any point during a fishing trip, and may be enforced instantaneously if an enforcement agent boards a vessel or otherwise reviews records indicating that processed product amounts exceed the MRA percentage. Under some conditions, these regulations encourage groundfish vessels in the BSAI to avoid or limit catch of species closed to directed fishing. The existing MRA table applied to small and large entities in the BSAI is a matrix of proportions. It represents a range of rates of expected or accepted incidental catch of species closed to directed fishing relative to basis species or species group open for directed fishing (Appendix 2). The existing accounting and enforcement of MRAs are likely to influence some small and large non-AFA trawl C/Ps to selectively catch certain incidentally caught species so as to not exceed the instantaneously enforced MRA. In some years this constraint could shift the species mix to products that are less valuable compared with a longer accounting period. Some small entities in this sector may benefit in the longer term from the current MRA accounting policy, if slowing exploitation of a species, or avoidance of catching a species altogether, leaves more groundfish stock available for recruitment.

Alternative 2

The RIR for this action in Chapter 5 presents a qualitative discussion of the potential for Alternative 2 or Alternative 3 to relax a groundfish retention restriction for small and large entities in the non-AFA trawl C/P sector. Alternative 2 only regulates the time interval for accounting of the amount of catch that may be retained, and does not make any regulatory changes to the amount of groundfish that may be caught in the BSAI. It is possible that the increased time allowed for an entity to hold and sort basis and incidental species under Alternative 2 could redistribute effort within the sector to species that are more valuable as incidental catch than the target species. The extent of the redistribution would still be limited by the MRA percentage that is not changing under any of the action alternatives. It is also possible that increased time to hold and sort species could redistribute crew activities into sorting tasks. There may be costs associated with increased sorting, if that occurs, on non-AFA trawl C/Ps that are small or large entities. While some coastal communities adjacent to the fisheries exploited by the non-AFA trawl C/P sector are small entities, it is not likely that this alternative would result in distributional effects or any changes to the employment or income of persons in these communities.

Alternative 3

Under Alternative 3, extending MRA accounting beyond a weekly reporting period to a time of offload, may increase the amount of species harvested when that species is closed to directed fishing. Typically, vessels offload every 20 to 25 days. Absent any other trip ending events, a trip increases from a maximum of seven to as many as 25 days. Especially in combination with elimination of the instantaneous calculation requirement, increased trip time is likely to allow vessels more opportunity to encounter incidental species and accumulate basis species. NMFS and the Council created the weekly reporting period trip limit to deliberately reduce the opportunity to indirectly target incidental species.

Alternative 3 is not anticipated to result in significant adverse impacts to small entities. Some additional economic effects and distributional impacts are discussed under the RIR in Chapter 5. While some coastal communities adjacent to the fisheries exploited by the non-AFA trawl C/P sector are small entities, it is not likely that this alternative would result in distributional effects or any changes to the employment or income of persons in these communities.

6.9 Recordkeeping and Reporting Requirements

MRA accounting for Alternative 1 is tracked by operators and audited by enforcement through comparison of the weight of processed product on DCPL reports for both basis and incidental species, and expanding those weight estimates by the published product recovery rates at 50 CFR 679. This review process would not change for Alternative 2 or 3, and there will be no change to recordkeeping and reporting requirements under either of the proposed action alternatives.

6.10 Federal Rules that may Duplicate, Overlap, or Conflict with Proposed Action

This analysis has identified Section 7 consultation under the Endangered Species Act as a potential risk of future restrictions on the non-AFA trawl C/P sector. A consultation is ongoing and the potential for future consultations has been considered in the analysis presented in the RIR.

6.11 Description of Significant Alternatives

See sections 2.1 to 2.4 for a description of the alternatives.

Chapter 7 Consistency with Applicable Law and Policy

7.1 Magnuson-Stevens Act

7.1.1 National Standards

The Council's overarching mandate to guide it in managing bycatch is National Standard 9 which states, "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.”

This amendment proposes to rescind the requirement for instantaneous accounting of MRAs for selected species that are caught by the non-AFA trawl C/P sector. As a result, the proposed action is in accordance with the Council’s mandate under National Standard 9.

7.1.2 Section 303(a)(9) – Fisheries Impact Statement

Section 303(a)(9) of the Magnuson-Stevens Act requires that any plan or amendment include a fishery impact statement which shall assess and describe the likely effects, if any, of the conservation and management measures on a) participants in the fisheries and fishing communities affected by the plan or amendment; and b) participants in the fisheries conducted in adjacent areas under the authority of another Council, after consultation with such Council and representatives of those participants taking into account potential impacts on the participants in the fisheries, as well as participants in adjacent fisheries.

The alternative actions considered in this analysis are described in Chapter 2 of this document. The impacts of these actions on participants in the fisheries and fishing communities are evaluated in the RIR, Chapter 5.

7.2 Marine Mammal Protection Act

The alternatives analyzed in this action are not likely to result in any significant impacts to marine mammals.

7.3 Coastal Zone Management Act

This action is consistent with the Coastal Zone Management Act.

7.4 BSAI Groundfish FMP management policy

The Council proactively revised their BSAI Groundfish FMP (following action on the Groundfish PSEIS in 2004) and selected several policy-level objectives which reflect the Council’s direction in the management, and specifically the management of bycatch, starting on number 14:

Manage Incidental Catch and Reduce Bycatch and Waste:

14. Continue and improve current incidental catch and bycatch management program.
15. Develop incentive programs for bycatch reduction including the development of mechanisms to facilitate the formation of bycatch pools, vessel bycatch allowances, or other bycatch incentive systems.
16. Encourage research programs to evaluate current population estimates for non-target species with a view to setting appropriate bycatch limits, as information becomes available.

17. Continue program to reduce discards by developing management measures that encourage the use of gear and fishing techniques that reduce bycatch which includes economic discards.
18. Continue to manage incidental catch and bycatch through seasonal distribution of total allowable catch and geographical gear restrictions.
19. Continue to account for bycatch mortality in total allowable catch accounting and improve the accuracy of mortality assessments for target, prohibited species catch, and non-commercial species.
20. Control the bycatch of prohibited species through prohibited species catch limits or other appropriate measures.
21. Reduce waste to biologically and socially acceptable levels.

Further direction is provided by the Council's groundfish policy workplan under the general priority of "Bycatch Reduction" where item "c" states, "explore incentive-based bycatch reduction programs." Following a programmatic review of the groundfish fisheries, the Council adopted a revised groundfish management policy in April 2004. The Council has developed a workplan initiating amendments to the groundfish management program to further implement the policy. The workplan is scheduled for annual review, specifically addresses bycatch reduction goals and tools. Suspending or eliminating the closure and relying upon the industry's incentive-based bycatch reduction program clearly fits under both the Council's approved policy workplan.

Chapter 8 Consultation and Preparers

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Appendix 1: Proposal from non-AFA trawl C/P sector members requesting adjustment of MRA percentages

KANDI...

Staff Tasking Agenda Item D-4

Proposal – Regulatory Amendment – Bering Sea/Aleutian Islands FMP
October 3, 2005
Submitted by: Undersigned

Proposal: Change the enforcement period for Maximum Retainable Allowances (MRA) from instantaneous during a regulatory week to an offload basis.

Need for Action: Substantial portions of the discards by the BSAI non AFA C/P fleet (H/G Sector) are regulatory discards (discards required under NMFS regulations) and are species that have value to the sector. The reason for these discards in many cases is due to a species or species group being placed on bycatch status. Once a species is on bycatch status, it may only be retained by a vessel up to a limit that is calculated as a percentage of those species that are on directed status that are retained by a vessel. The calculation of the amount of the retainable allowance is based on a regulatory fishing trip (as opposed to a fishing trip that begins with an empty hold and ends with an offload) that is either from Saturday midnight to Saturday midnight or some shorter period. The enforcement period is instantaneous – at any point during the regulatory week, a vessel must be in compliance at any moment.

This enforcement snapshot results in fish that are on bycatch status being discarded by regulation early in a fishing week even though they would be legal at the end of week. For example, a vessel begins its regulatory week on Saturday at midnight. During this trip they are targeting on Pacific cod and expect to take incidental amounts of rock sole – which is on bycatch status. By Sunday evening, the vessel has caught 20 mt round weight equivalent (RWE) of its target, Pacific cod and has retained it all. They have also caught 20 mt of rock sole RWE but could only legally retain 4 mt RWE and had to discard 16 mt. By the end of the fishing week on Saturday midnight, the vessel has on board 300 mt RWE of Pacific Cod and should have been able to keep 60 mt RWE of rock sole; however because of the snapshot enforcement standard, the vessel only has on board 40 mt RWE of rock sole and discarded another 20 mt of rock sole as, at the time it was caught, the vessel lacked adequate basis species to legally retain it. Further, the vessel is not yet full and will be fishing another few days; but the target/retainable allowance calculation starts at zero again on midnight Saturday. If NOAA Office of Law Enforcement (OLE) conducts an offload audit when the vessel delivers its catch, it requires intense comparison of observer and logbook entries to determine if the vessel was legally retaining bycatch species based on the target species on board at the time of the catch of bycatch. Even if the vessel has a legal amount in total of the bycatch species on board at the time of the offload audit, they could still be in violation of the regulation if those species were caught before the basis species were on board.

The proposed regulatory amendment would change the enforcement period to an offload basis of a real fishing trip, beginning with an empty hold and ending with an offload. Under this scenario, the vessel captain knew he would have 400 mt RWE of Pacific cod as the basis for retention of species on bycatch so he knew he could have up to 80 mt RWE of rock sole when the vessel offloaded. So, if he began the trip in the search mode and encountered rock sole right away, the vessel could still retain that rock sole as it would be legal at the time of offload. When the vessel comes to port, NOAA OLE conducts an offload audit simplified by counting cases of the various species without having to determine when each was caught in relation to the other.

Regulatory History: A regulatory amendment changing the enforcement period for Pollock only was put into effect in late 2004. In season Management presented the effects of the rule change at the October 2005 Council meeting comparing retention of Pollock between the first nine months of 2004 and the same period in 2005 (Graphic contained in In Season Management's Management Report in the "B" Reports Supplemental). The retention gain is somewhere in the order of 15% from 2004 to 2005. The H/G sector's incidental catch for that time period was a little more than the catch of Pollock in 2004 and less than the catch of Pollock in 2003.

Benefits: This rule change would reduce regulatory discards for the H/G sector enabling the fleet to retain more fish and help with compliance with the Groundfish Retention Standard (GRS.) (Regulatory discards are included in the denominator when calculating a vessel's compliance with the GRS.) Changing the enforcement period also eases compliance monitoring as the OLE can conduct complete hold audits at the time of offload in port rather than at sea. This regulatory amendment would also be practicable – resulting in reduced costs to the fleet, improved retention, and a net economic benefit to the fishery and the nation.

To the extent that a change would reduce overall catch of certain species (as has happened with Pollock), it may also delay or prevent the placing of those species on Prohibited Species Status as has happened in 2004 and 2005.

Submitted by:

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Jubilee Fisheries

Cascade Fishing

US Seafoods

Fishing Company of Alaska

Fisherman's Finest

O'Hara Corporation

Iquique US

Golden Fleece Inc.

Appendix 2: Table 11 to Part 679–BSAI Groundfish MRAs

BASIS SPECIES		INCIDENTAL CATCH SPECIES ⁵															
		Pollock	Pacific cod	Atka mackerel	Alaska plaice	Arrowtooth	Yellowfin sole	Other flatfish ²	Rock sole	Flathead sole	Greenland turbot	Sablefish ¹	Shortraker/rougheye	Aggregated rockfish ⁶	Squid	Aggregated forage fish ⁷	Other species ⁴
110	Pacific cod	20	na ⁵	20	20	35	20	20	20	20	1	1	2	5	20	2	20
121	Arrowtooth flounder	0	0	0	0	na ⁵	0	0	0	0	0	0	0	0	0	2	0
122	Flathead sole	20	20	20	35	35	35	35	35	na ⁵	35	15	7	15	20	2	20
123	Rock sole	20	20	20	35	35	35	35	na ⁵	35	1	1	2	15	20	2	20
127	Yellowfin sole	20	20	20	35	35	na ³	35	35	35	1	1	2	5	20	2	20
133	Alaska Plaice	20	20	20	na ⁵	35	35	35	35	35	1	1	2	5	20	2	20
134	Greenland turbot	20	20	20	20	35	20	20	20	20	na ⁵	15	7	15	20	2	20
136	Northern	20	20	20	20	35	20	20	20	20	35	15	7	15	20	2	20
141	Pacific Ocean perch	20	20	20	20	35	20	20	20	20	35	15	7	15	20	2	20
152/ 151	Shortraker/ Rougheye	20	20	20	20	35	20	20	20	20	35	15	na ⁵	5	20	2	20
193	Atka mackerel	20	20	na ⁵	20	35	20	20	20	20	1	1	2	5	20	2	20
270	Pollock	na ⁵	20	20	20	35	20	20	20	20	1	1	2	5	20	2	20
710	Sablefish ¹	20	20	20	20	35	20	20	20	20	35	na ⁵	7	15	20	2	20
875	Squid	20	20	20	20	35	20	20	20	20	1	1	2	5	na ⁵	2	20
	Other flatfish ²	20	20	20	35	35	35	na ³	35	35	1	1	2	5	20	2	20
	Other rockfish ³	20	20	20	20	35	20	20	20	20	35	15	7	15	20	2	20
	Other species ⁴	20	20	20	20	35	20	20	20	20	1	1	2	5	20	2	na ⁵
	Aggregated amount non-groundfish species	20	20	20	20	35	20	20	20	20	1	1	2	5	20	2	20

- 1 Sablefish: for fixed gear restrictions, see 50 CFR 679.7(f)(3)(ii) and 679.7(f)(11).
- 2 Other flatfish includes all flatfish species, except for Pacific halibut (a prohibited species), flathead sole, Greenland turbot, rock sole, yellowfin sole, Alaska plaice, and arrowtooth flounder.
- 3 Other rockfish includes all *Sebastes* and *Sebastolobus* species except for Pacific ocean perch; and northern, shortraker, and rougheye rockfish. The CDQ reserves for shortraker, rougheye, and northern rockfish will continue to be managed as the “other red rockfish” complex for the BS.
- 4 Other species includes sculpins, sharks, skates and octopus.
Forage fish, as defined at Table 2 to this part are not included in the “other species” category.
- 5 na = not applicable

Appendix 3: Alternatives considered and rejected by the Council to the June 2006 Council meeting:

The following components and options for changing MRA accounting were considered by the Council for the April 2006 Council meeting. At that meeting the Council removed shorttraker, rougheye, and northern rockfish, as well as and other flatfish species. POP was to be considered in the analysis for the AI, but a section was requested in the analysis to describe the reasons why changing MRA accounting for POP in the BS is not practicable.

The following components are proposed to address this MRA regulatory amendment:

Component 1: Define Species- Increase the accounting interval for all groundfish species (excluding pollock, sablefish, Alaska plaice, “other species,” and squid). This includes the following species: yellowfin sole, rock sole, flathead sole, Atka mackerel, BSAI Pacific ocean perch, “Other flatfish”, arrowtooth flounder, Greenland turbot, and rockfish.

Option 1: Applies to yellowfin sole, rock sole, flathead sole, “Other flatfish” and arrowtooth flounder.

Option 2: Applies to Amendment 80 species (yellowfin sole, rock sole, flathead sole, Atka mackerel, Aleutian Islands Pacific ocean perch) as well as “Other flatfish,” and arrowtooth flounder.

Component 2: Define Sector- Any increase in the current accounting MRA interval applies only to the non-AFA trawl C/P sector (under the Department of Commerce and Related Agencies Appropriations Act, 2005, Public Law No. 108-447)

Component 3: Define Time Period- The MRA accounting period for species defined in Component 1 would be increased from any time during a fishing trip to:

Option 1: the end of a fishing trip or (if a suboption is selected whichever option or suboption comes first)¹⁷, or

Option 2: at the time of offload (changed from “point of offload”¹⁸).

¹⁷ The following definition of a fishing trip found at 50 CFR 679.2 applies to Alternatives 1, 2 and 3:

(i) With respect to retention requirements of MRA, IR/IU, and pollock roe stripping, an operator of a catcher/processor or mothership processor vessel is engaged in a fishing trip from the time the harvesting, receiving, or processing of groundfish is begun or resumed in an area until :

(A) or on the effective date of a notification prohibiting directed fishing in the same area under § 679.20 or § 679.21;
(B) or the vessel enters or leaves an area where a different directed fishing prohibition applies. For example, when a vessel engages in directed fishing in the AI from the BS (or BS to the AI).
(C) The vessel enters or leaves an area where a different directed fishing prohibition applies;
(D) The vessel begins fishing with different type of authorized fishing gear; or
(E) The end of a weekly reporting period, whichever comes first.

¹⁸ In the April Council motion, Component 2-Option 2, and Alternative 3, state that the MRA accounting calculation is defined to occur at “the end of product offload.” Subsequently, NMFS Enforcement has clarified that the text for this option needs to apply the MRA accounting calculation at the “time of offload” to be an enforceable provision.

Alternatives for MRA accounting of selected species

Alternative 1. No action, and no change in MRA accounting period.

Alternative 2. In the BSAI, allow the calculation of the MRA of yellowfin sole, rock sole, flathead sole, “other flatfish”, and arrowtooth flounder to occur at the end of a fishing trip, for the non-AFA trawl C/P sector.³

Option: Include Aleutian Islands Pacific ocean perch and Atka mackerel.

Alternative 3. In the BSAI, calculate the period of accounting for MRA of yellowfin sole, rock sole, flathead sole, “other flatfish”, arrowtooth flounder, Atka mackerel and Aleutian Islands Pacific ocean perch at *the time of offload*, (previously read: “at the point of an offload”) for the non-AFA trawl C/P sector.³

Option: Include Greenland turbot and rockfish species.

Analysis for the following Alternatives that were considered and removed from components and options by the Council at their June 2006 Council meeting.

Shortraker, Rougheye, Northern, and Other Rockfish

The non-AFA trawl C/P sector has expressed little interest in increasing the MRA accounting interval for rockfish in the BSAI, with the exception of AI POP. Incidental catch of rockfish has varied greatly, but in most years but is low compared with incidental catch of flatfish species. The potential for significant increase in groundfish retention by including these species in the MRA accounting adjustment is small compared with yellowfin, flathead, or rock sole.

As noted in Table 8, average catches of all BSAI rockfish species between 1999 and 2005 (including AI POP) averaged approximately 17,300 mt, with 16,200 mt caught in the non-AFA trawl C/P sector. In 2004 BSAI rockfish catch of shortraker, rougheye, northern, and other rockfish made up approximately 8,100 mt of total rockfish catches (Table 15). The retention rate of rockfish in the BSAI fishery was approximately 63 percent from 1999 to 2005. While the proportion of retained catch of rockfish with respect to total rockfish landings suggests that it could provide additional room for retention of this species, the contribution of rockfish to total catch and retained catch is small compared to total groundfish discards for the non-AFA trawl C/P sector.

Table. 2004 OFL, ABC, TAC and catch for various rockfish species harvested in the BSAI in mt.

2004	OFL	ABC	TAC	Catch
Northern	8,140	6,880	5,000	4,683
Shortraker	701	526	526	241
Rougheye	259	195	195	208
Other	1,280	960	960	317
Total	10,380	8,561	6,681	5,449

(From the 2004/2005 SAFE report)

According to the 2005 SAFE report (NPFMC 2005) the OFL for the four rockfish species (shortraker, rougheye, northern, and other) was set at 10,380 mt for 2004. 2004 catch of these species totaled approximately 5,400 mt, providing a small buffer for further single species exploitation up to the ABC. The TAC for these rockfish species was set at 6,681 mt in 2004 (Table 15). If Alternative 2 or 3 were to increase catches that could further encroach on the small TAC for these species. Of the 17 basis species identified in the groundfish MRA table (Appendix 2) for which incidental catch of rockfish (excluding AI POP) the MRAs are set at 5 to 15 percent. This represents the lower end of the MRA range compared to some other species, and provides minimal opportunity for increased regulatory and/or economic retention of this species.

Northern, rougheye, and shortraker rockfish, like POP, are long-lived and slow-growing. Maximum age observed is 120 years for shortraker and 140 years for rougheye rockfish. It is not possible to determine whether these species are overfished or whether they are approaching an overfished condition because they are managed under Tier IV.

As with the northern, rougheye and shortraker rockfish, the “other rockfish” complex is slow-growing and long-lived. Shortspine thornyheads account for approximately 90 percent of the biomass of the “other rockfish” complex. Little is known about this species in the BSAI. In the GOA, females reach 50 percent maturity at 22 cm. Maximum life span is 60 years. Recruitment to longline fisheries starts at age 15, and are fully recruited at age 30. Full recruitment to trawl fisheries occurs at age 22. There are some management concerns with any action that may increase exploitation of these species, as removals may provide greater influence on decisions to close some directed fisheries compared with catches of species such as yellowfin, flathead, or rock sole.

In previous years, indirect targeting of certain rockfish species have driven catch levels high enough to approach or exceed the ABC for that species. If target fisheries are closed to prevent overfishing of rockfish, some annual revenues in this sector are likely foregone as the sector substitutes effort into the next best target alternative. In the BSAI, shortraker rockfish are incidentally caught in several directed fisheries. Those fisheries include AFA pollock; IFQ sablefish and halibut; CDQ sablefish and halibut; non-pelagic trawl Pacific cod, Atka mackerel,

Pacific ocean perch, and arrowtooth flounder; hook-and-line Pacific cod and Greenland turbot; and pot sablefish. An inseason action to prevent overfishing of shortraker rockfish could result in curtailing or closing of some or all of these fisheries.

Additional enforcement issues may exist with applying Alternative 2 or Alternative 3 to these BSAI rockfish fisheries. As landings of rockfish, even in relatively small numbers could impact the other directed fisheries, rockfish species may be susceptible to the incentive to bias observer sampling compared with other species. Alternative 3 has been identified as generating enforcement concerns, in part because this methodology precludes the opportunity to utilize Weekly Production Reports to identify intentional or unintentional MRA violations, and may increase the potential for vessel operators to intentionally retain unlawful amounts of species such as rockfish that are closed to directed fishing and misreport catch and production amounts to disguise this unlawful retention.

Greenland Turbot (Turbot Sablefish Group)

Greenland turbot is included in Alternative 3, but appears to be of minimal or no interest to the non-AFA trawl C/P sector as a candidate for extending MRA accounting. Sablefish was not requested by this sector for inclusion in any revision of MRA accounting, but for some of the catch data provided (Table 8), Greenland turbot is aggregated with sablefish due to the small number of observations available on catches by processing operation. From 1999 to 2005, the total catch of Greenland turbot and sablefish averaged approximately 4,800 mt. In 2005, 3,800 mt were caught, with roughly equal catches of each species. No directed Greenland turbot fishing is allowed with trawl gear for either Greenland turbot or sablefish because there is no habitat mortality apportioned to that target. There is little residual room for increased retention of these species. According to the 2005 SAFE document (NPFMC 2005) the OFL for Greenland turbot in the BSAI was set between 14,200 mt and 19,300 mt between the years 2004 and 2006. In 2004 and 2005, annual catch was approximately 2,000 mt, providing some potential buffer for further species exploitation up to the ABC. The TAC was set at 3,500 mt in 2004 and 2005.

According to the 2005 SAFE document (NPFMC 2005) the OFL for sablefish in the BSAI has been set between 6,220 mt and 8,640 mt between 2004 and 2007. The TAC was set at 6,000 mt in 2005. In 2004 and 2005, annual catch was approximately 2,000 mt, providing a minimal buffer for further species exploitation up to the TAC and ABC.

Of the 16 groundfish species for which incidental catch of Greenland turbot can occur in a directed fishery, the associated MRAs for Greenland turbot range from 1 to 35 percent, depending on the basis species. MRAs that are limited to a few percent of a basis species reflect concern for the condition of this stock, and uncertainty over the variables that impact its population size. Sablefish are assigned MRAs that are similar to Greenland turbot.

Greenland turbot are relatively fast growing species. Females reach 50 percent maturity at 60 cm (about 9 years old) and annual natural mortality of adults has been estimated to be approximately 15 percent ($M = 0.18$). Greenland turbot spend their juvenile years (until age 4) on the continental shelf. Greenland turbot begin to recruit to longline fisheries at 60 cm and are fully recruited until about 90 cm. Maximum lifespan is 21 years.

Greenland turbot continues to be the only flatfish species that remains low in abundance compared to the 1970s. There is no definitive reason for the continued low abundance of Greenland turbot despite conservative ABCs and low catches. Given the duration of the decline in Greenland turbot biomass, ABCs are often set substantially lower than the maximum permissible. Current low abundance levels do not make Greenland turbot a good candidate for extending the MRA accounting period.

Sablefish is a long-lived fish with a maximum life span of 62 years. Females reach 50 percent maturity at 65 cm (about 6 years old), producing up to 1 million pelagic eggs. Spawning occurs in February in the Bering Sea. Average age of recruitment is 5 years. Sablefish qualifies for management under Tier IIIb. The current stock assessment identifies sablefish as not overfished, below the target biomass, but with a stable stock size. There are no additional management or enforcement concerns with increasing the accounting interval for this species to a weekly period. Relaxation of MRA accounting under Alternative 2 and 3 would place some additional burden on fishery managers to carefully track removals of this species.

Alternative 3 has been identified as generating enforcement concerns, in part because this methodology precludes the opportunity to utilize Weekly Production Reports to identify intentional or unintentional MRA violations, and may increase the potential for vessel operators to intentionally retain unlawful amounts of species that are closed to directed fishing and misreport catch and production amounts to disguise this unlawful retention.