

**SECRETARIAL REVIEW DRAFT**

ENVIRONMENTAL ASSESSMENT / REGULATORY IMPACT REVIEW /  
INITIAL REGULATORY FLEXIBILITY ANALYSIS

**To Modify Regulations Governing Maximum Retainable Amounts  
of Selected Groundfish Species by Non-American Fishing Act  
Trawl Catcher/Processors**

Proposed **REGULATORY AMENDMENT**

March 25, 2008

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National Marine Fisheries Service  
Alaska Region

Comments Due: [Insert date of the end of the proposed rule comment period]

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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 regulations governing maximum retainable amounts (MRA) of selected groundfish species by those trawl catcher/processors (C/Ps) not expressly listed in the American Fisheries Act (AFA) operating in the Bering Sea and Aleutian Islands (BSAI) groundfish fisheries. Non-AFA trawl C/Ps are more commonly referred to as “H&G trawl C/Ps,” owing to their primary product form, headed and gutted (H&G) groundfish. The two references are used interchangeably below. This proposed action would increase the interval of time over which the MRAs may be calculated for incidental catches of yellowfin sole, rock sole, flathead sole, “other flatfish,” arrowtooth flounder, Pacific cod, Atka mackerel, and Aleutian Islands (AI) Pacific ocean perch. The revision to the MRA accounting interval also would apply while these vessels are participating in the Western Alaska Community Development Quota (CDQ) Program fisheries.

MRAs are the primary tool used by the National Marine Fisheries Service (NMFS) to regulate the incidental catch of species when directed fishing for that species is closed. Directed fishing is defined in 50 CFR 679 as “any fishing activity that results in the retention of an amount of a species or species group onboard a vessel that is greater than the MRA for that species or species group.” The total allowable catch (TAC) for a species or species group must provide for catch of that species in the directed fishery and incidental catch and bycatch in other fisheries. Therefore, NMFS closes a species to directed fishing before the entire TAC is taken to leave sufficient amounts of the TAC available for incidental catch and bycatch. Unnecessarily high incidental catch and bycatch reduces the amount of the TAC available for the directed fishery. If the TAC for a species is reached, retention of that species becomes prohibited and all catch thereafter of the species must be discarded.

The MRA of a species closed to directed fishing is the maximum weight of that species that may be retained onboard a vessel, calculated as a percentage of the weight of the retained catch onboard the vessel of each species open to directed fishing. The numerator in this calculation is the weight of the incidental catch species and the denominator is the weight of the basis species. Table 11 to 50 CFR part 679 (Appendix 3) provides the list of incidental catch and basis species and the MRA of each incidental catch species as a percentage of each basis species. For example, the MRA for rock sole in a directed fishery for yellowfin sole is 35 percent. If yellowfin sole is open to directed fishing and rock sole is closed to directed fishing, a vessel operator may retain rock sole in amounts up to 35 percent of the round weight equivalent of yellowfin sole that is onboard the vessel at any point in time during the fishing trip. All groundfish caught in excess of the MRA must immediately be discarded.

Current regulations at §679.20(e) require, with one exception, that the MRAs for C/Ps be calculated instantaneously, during the full duration of the fishing trip (i.e., the MRA may not be exceeded at any point in time during the fishing trip). An exception to this requirement is that the MRA for pollock in the BSAI for all non-AFA vessels is calculated at the time of offload of product from the vessel.

In October 2005, the North Pacific Fishery Management Council received a request from the H&G trawl C/P sector to revise the MRA accounting interval, so as to reduce mandatory groundfish discards by this sector. The H&G trawl C/Ps requested that the calculation interval for MRA be changed for some groundfish species, and suggested the Council analyze an increase in the accounting interval to an offload of groundfish. They noted that substantial portions of groundfish discard in the BSAI were regulatory discards, and included species that have economic value to the sector. The reason for these discards in many cases was due to a species or species group being placed on bycatch status, with the requirement that it be retained instantaneously up to a limit that is calculated as a percentage of species that are on directed fishing status. The H&G trawl C/P sector provided testimony to the Council that increasing the interval for accounting of an MRA would assist in both reducing discards (i.e., increasing catch retention) and reducing costs (i.e., increasing revenues) to the sector.

The H&G trawl C/P sector is made up of up to 27 qualifying non-AFA trawl C/P vessels. Table 1 shows that 22 of these vessels fished in the BSAI in 2006, 2007 and 2008. Table 1 also summarizes information about groundfish discards by this sector. Compared with other sectors participating in the groundfish fisheries of the BSAI, the H&G trawl C/P sector has consistently had the highest discard (and lowest retention) amounts and rates. In 1995, the H&G 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. Some increase in the amount of retained catch from this sector has been realized in recent years. For example, in 2004, the H&G trawl C/P sector retained catch of groundfish was approximately 67 percent, but still lag behind the rest of the processing sectors. In 2006, 2007 and 2008 the retention rate for the H&G trawl C/P improved to 78, 77 and 78 percent. Respectively, but was still lower than the longline C/P and AFA trawl C/P sector.

Table 1. Number of vessels, total groundfish catch, and percent of discarded catch in BSAI fisheries from 1999-2008 for H&G trawl C/P processors

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Number of Vessels	23	24	22	22	22	23	22	22	22	22
Total Groundfish catch (1,000 mt)	268.3	293.7	270.1	284.7	268.9	299.2	285.8	279.7	295	338
Discards as a percent of Total Groundfish Catch	33%	31%	26%	30%	30%	33%	22%	22%	23%	23%
Retention as a percent of Total groundfish Catch	67%	69%	74%	70%	70%	67%	78%	78%	77%	77%

Sources: NMFS Fisheries blend data (1999 - 2002) and Catch Accounting System data (2003 – 2007), and observer data 2008.

In February 2006, the North Pacific Fishery Management Council requested that NMFS 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 interval required for the MRAs (e.g., the MRA calculation interval) for selected groundfish caught by the H&G trawl C/P sector.

The Council approved the following problem statement at its April 2006 meeting:

*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 are 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 (H&G sector) and reduce overall bycatch rates in this sector, while not subjecting incidentally caught species to increased conservation concerns.*

The Council’s objective was to identify alternatives that would allow the H&G trawl C/Ps to increase retention of groundfish they wished to retain without creating conservation concerns for incidentally caught species.

The Council considered three alternatives listed below and developed its preferred alternative as a modification of Alternative 2 and 3.

### Alternatives Considered

1. **Alternative 1:** No Action
2. **Alternative 2.** For the non-AFA trawl C/Ps, while fishing in the BSAI, calculate the MRA of yellowfin sole, rock sole, flathead sole, “other flatfish”, and arrowtooth flounder at the end of a fishing trip.
3. **Alternative 3.** For the non-AFA trawl C/Ps while fishing in the BSAI, calculate the MRA of yellowfin sole, rock sole, flathead sole, “other flatfish” and arrowtooth flounder at the time of offload.

For both Alternatives 2 and 3, the following options were analyzed:

- Option:** Include BSAI Pacific cod,
- Option:** Include AI Pacific ocean perch (POP),
- Option:** Include BS POP,
- Option:** Include Atka mackerel in the BS and AI

#### 4. **PREFERRED ALTERNATIVE 4.**

For the H&G trawl C/Ps while fishing in the BSAI, calculate the MRA of yellowfin sole, rock sole, flathead sole, “other flatfish,” and arrowtooth flounder at the end of a fishing trip.

- Include BSAI Pacific cod
- Include AI POP
- Include Atka mackerel in the BS and AI

This revised MRA accounting interval would apply to the H&G trawl C/Ps while both CDQ and non-CDQ fishing in the BSAI, except when fishing inside Steller sea lion (SSL) protected areas closed to directed fishing for Atka mackerel or Pacific cod. This exception was made because increasing the MRA accounting interval could result in an increase in catch of SSL prey species and the Council did not want to allow an increase in catch of these species inside these protection areas.

The Council also recommended that, for purposes of the preferred alternative, a new fishing trip begins anytime an H&G trawl C/P enters or leaves a SSL protection area closed to directed fishing for Atka mackerel or Pacific cod in the BSAI. The additional fishing trip trigger would aid NMFS enforcement in monitoring MRA compliance in SSL protection areas by preventing a vessel from accumulating basis species from outside of the SSL protection areas, to use as a basis for retaining Atka mackerel or Pacific cod caught within a protection area.

The Council's December 2006 final action suggested that the MRA accounting interval not be changed from the status quo for Pacific cod or Atka mackerel inside SSL protection areas in the BSAI. That suggestion was confirmed at its August 2007 meeting, when the Council noted that it had intended to maintain instantaneous MRA accounting for Atka mackerel in the BS and AI protection areas. It also confirmed that a new fishing trip for an H&G trawl C/P targeting Atka mackerel in the BS was always to be triggered when such a vessel entered or exited a BS SSL protection area.

## **Environmental Assessment**

The no action alternative (Alternative 1) examined in Chapter 3 and 4 of the EA assume the continuation of current MRA accounting regulations. These regulations prohibit exceeding an MRA at any point during a fishing trip. An exception to this instantaneous accounting occurs in regulation for pollock (see Section 4.2.2.1). The end of a fishing trip is triggered by any one of the following five events:

- a. on the effective date of a notification prohibiting directed fishing in the same area;
- b. upon offload or transfer of any fish or fish product from that vessel;
- c. when a vessel enters or leaves an area where a different directed fishing prohibition applies;
- d. when a vessel begins fishing with a different type of authorized fishing gear; or
- e. the end of a weekly reporting period, whichever comes first.

Alternative 2 was structured by the Council to relax the MRA accounting interval by increasing MRA accounting for selected species from anytime during a fishing trip to the end of a fishing trip. For the species under consideration by the Council, this element would provide up to a week of time for vessels in the H&G trawl C/P sector to make sure their retained incidental catch complied with MRAs established in regulation at Table 11 of 50 CFR 679 (Appendix 3). While any of the other trip triggers might end a fishing trip at a time earlier than one week, this maximum interval has the potential to provide improved flexibility to comply with designated MRA percentages while retaining more of an incidentally caught species. Creation of more opportunity for retention of groundfish is a primary need identified in the Council problem statement.

Alternative 3 would allow the delay of 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. As explored in this EA, Alternative 3, in comparison with the Preferred Alternative, Alternative 2 or 1, could increase the amount of species retained when that species is closed to directed fishing. Members of the H&G trawl C/P sector provided testimony to the Council that this longer interval of time to match basis species with incidental catch would allow for increased retention of most groundfish species. The EA notes that this is one plausible outcome. The Council did not choose the offload based MRA accounting alternative because NOAA Office of Law Enforcement expressed concern that increased incentives to falsify logbooks could occur under this accounting alternative. It is not possible to determine if either Alternatives 2, 3 or Alternative 4 would result in a different distribution of discards or a lower amount of discards, though members of the H&G trawl C/P sector expressed that either of these

alternatives (as well as Alternative 4) would increase groundfish retention. The EA also notes that the longer accounting interval associated with Alternative 3 could encourage a different amount of groundfish sorting during a given fishing trip compared with Alternative 2 or Alternative 4. It is also identified as possible that the amount of groundfish sorted near the end of a fishing trip may increase compared with Alternative 2 or 4.

The Council removed BS POP from Alternative 4, because the historical amount of discards were too small to contribute to an increase in groundfish retention, and relaxed MRA accounting could increase “topping off” on a species that could quickly approach or exceed the ABC for that species. Topping off is the practice of targeting and retaining a species closed to directed fishing (but not prohibited) during a fishing trip up to the MRAs established for incidental species. Topping off may occur at any time during a fishing trip when a vessel operator determines that the retention of a species or species group closed to directed fishing at less than or equal to the MRAs (defined at 679.20 (e) and (f)) would provide enough value relative to the effort of finding, processing, and retaining the species. Topping off most commonly occurs when the species closed to directed fishing (the 'incidental species') has greater value (such as sablefish) than the basis species (such as rockfish).

The EA and RIR for this analysis display NMFS catch and discard data demonstrating that discards occur for each of the species under consideration when that given species is not identified as the target of a haul or fishing week. Those data provide some support for industry assertions that opportunity exists, with the longer MRA accounting intervals of Alternatives 2 and 3, for increasing retention for some groundfish species when other economic factors are conducive to retaining one of these species. The analysis also raises the possibility that the amount of catch for some species may increase if relaxed MRA accounting were to provide an incentive for a vessel to fish in an area with higher abundance of a species on bycatch that it might otherwise avoid.

For Alternatives 2 and 3, NMFS identified one issue with extending this accounting to Atka mackerel or Pacific cod in SSL protection areas of the BSAI. A possibility exists that incidental catches of SSL prey species from Alternative 2 or 3 could increase in these areas, and the Council was encouraged to consider this in light of ongoing Biological Opinions and SSL protection measures. The EA identifies currently applicable SSL protection areas for Pacific cod and Atka mackerel that are managed through seasonal closures to directed fishing. SSL protection areas and associated designated critical habitat have been subject to substantial review and shifting of statistical boundaries over the last decade. The uncertainty regarding SSL prey species for Alternatives 2 and 3 provided the impetus for the Council to propose the Preferred Alternative 4 by maintaining a status quo accounting for MRAs when any of these vessels fish in SSL protection areas.

By reviewing daily cumulative production log book (DCPL) reports and personal communications with industry, NMFS enforcement staff has established that larger H&G trawl C/P vessels offload intervals averaging around 6-7 days, while some smaller H&G trawl C/P vessels generally have slightly longer offload intervals, averaging about 9-10 days. Offload intervals exceeding two weeks were reported to be rare or nonexistent. Without independently verifiable data, it is difficult to determine if offload intervals could vary substantially from these

projections. For purposes of this analysis, absent any other trip ending events, the MRA accounting interval could increase from a maximum of seven days under Alternatives 2 and 4 to this upper end of approximately 10 days under Alternative 3. Especially in combination with elimination of the instantaneous calculation requirement, an increased accounting interval would allow vessels more opportunity to retain 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 or “top off” on incidental species. Extending MRA accounting beyond the end of a fishing trip would dilute this traditional constraint to indirect targeting.

Additional analysis was requested at the June 2006 Council meeting to explain the effects of the proposed MRA accounting alternatives for selected species, including Pacific cod on two reasonably foreseeable actions. Those actions are the final rules to implement Amendment 85 (Pacific cod allocations, 72 FR 50788) and Amendment 80 (cooperatives for the H&G trawl C/P sector, 72 FR 52668). Members of the H&G trawl C/P sector provided testimony at the April 2006 meeting suggesting that if MRA regulatory amendment alternatives 2, 3 or 4 were to be implemented by the date Amendment 85 is implemented, but prior to implementation of Amendment 80, it would provide some flexibility to retain Pacific cod when that species was closed to directed fishing. The analysis notes that MRAs will continue to be used for Pacific cod prior to implementation of Amendment 80. The possibility existed that during periods of directed fishing closures for Pacific cod, the Preferred Alternative and Alternatives 2 and 3 could allow for longer periods of time to catch the necessary basis species to match incidentally harvested Pacific cod.

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. Amendment 80 was recommended by the Council in June 2006 as a cooperative for the H&G trawl C/P sector for yellowfin sole, flathead sole, arrowtooth flounder, AI Atka mackerel, BSAI POP and Pacific cod. H&G trawl C/P vessels in an Amendment 80 cooperative were no longer subject to directed fishing closures for the species allocated to the cooperatives, and MRAs. Thus, MRAs for those species only apply to H&G trawl C/P vessels that are not in an Amendment 80 cooperative.

Potential BSAI groundfish impacts on Steller sea lions and their designated critical habitat have been the subject of formal or informal consultations under the Endangered Species Act (ESA) (NMFS 2000, NMFS 2001). Some of the key issues examined in formal consultations and biological opinions include the amount, timing, and location of prey species removals from SSL protection areas. Any Federal fisheries action under the jurisdiction of NMFS will be considered for formal consultation under Section 7 if the action agency determines that the action is likely to adversely affect an ESA-listed species or designated critical habitat.

The Preferred Alternative was selected over Alternatives 1, 2, and 3, because (1) it addresses the objective of providing an opportunity to increase groundfish retention, while not aggravating conservation concerns for incidentally caught species, (2) it avoids risk to SSL prey species, and (3) it is less costly for NOAA Office of Law Enforcement to enforce. The Alternatives 2, 3, and 4 are unlikely to have discernable impacts on the ecosystem or endangered/threatened species, unless the catch of Atka mackerel or Pacific cod by this sector were to dramatically increase or

effort shifted into SSL protection areas. Atka mackerel and Pacific cod are two species that are considered to be critical prey for Steller sea lions, and longer MRA accounting intervals for these two species, when fished in critical habitat, may result in adverse effects on SSLs, requiring ESA Section 7 consultation. Economic effects of the alternatives, and other distributional impacts, are discussed under the Regulatory Impact Review heading, below.

The analysis also notes that instantaneous MRA accounting and the additional fishing trip trigger in Alternative 4 requiring that a H&G trawl C/P start a new fishing trip when entering or departing a SSL protection area may limit topping off on Atka mackerel or Pacific cod in these protection areas compared with Alternatives 2 and 3. However, the Council intended to retain the use of a fishing trip trigger for H&G trawl C/P vessels when entering or exiting BS SSL protection areas that could be closed to directed fishing for Atka mackerel, as well as applying instantaneous MRA accounting when one of these vessels are processing groundfish in these areas. The additional fishing trip trigger and instantaneous MRA accounting may influence an operator to either not enter a SSL protection area to top off on Atka mackerel if they believe it will be difficult to find sufficient basis species in the protection area.

Prey species removal concerns in Alternatives 2 and 3, associated with SSL protected areas are largely eliminated by the adoption of Alternative 4. If the Secretary were to approve this Preferred Alternative, MRA accounting for Pacific cod and Atka mackerel would continue to be calculated at any time during the duration of a fishing trip. This is the status quo accounting approach for MRAs and is the management measure that is included in the currently applicable biological opinion (NMFS 2001). Based on testimony at the December Council meeting, including the feature of an additional trigger for vessels entering or exiting a SSL protection area could have the effect of restraining some entry to SSL protection areas, because of the additional uncertainty of staying below a Pacific cod or Atka mackerel MRA for which the vessel operator must have adequate basis species in the hold to offset the incidental production as soon as a haul was processed. It is not feasible to assess these choices or speculate on the outcomes except in a very theoretical manner. It is unlikely that the additional fishing trip trigger along with status quo accounting would draw more effort into SSL protection areas.

None of the alternatives are anticipated to result in significant adverse impacts to the environment (as described in Section 4.1). The EA focuses on potential impacts to benthic habitat and organisms, groundfish species, forage fish, seabirds, ecosystem, marine mammals and socioeconomic consequences. 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 for the components of the environment analyzed. 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

## 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 H&G 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. This tool is intended to allow managers adequate 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, conservation, general management, or enforcement purpose, the benefit of imposing these constraints to H&G trawl C/Ps may be *de minimus*.

H&G trawl C/P operations in the BSAI have presented the Council with a description of how status quo MRA accounting, if continued under Alternative 1, may act as a constraint to retention of a higher valued mix of incidental catches in circumstances where the value of catch they are compelled to discard exceeds the value of a similar amount of catch they are compelled to retain. While the analysis is unable to confirm that these are the result of current MRA regulations, management controls that apply restrictions similar to MRAs have been shown to reduced returns to capital and labor (Ward and Sutinen, 1994).

Compared to Alternative 1, Alternatives 2, 3, and 4 of this EA are intended to be less limiting to H&G trawl C/P retention of incidental groundfish catch. Vessel operators have an economic incentive to maximize the value of each trip or group of trips. Alternatives 2, 3, and 4 each 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 at 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.

Alternative 3 would apply an MRA accounting time interval that is longer than either the status quo or Alternative 2. The maximum amount of time available to sort groundfish between offloads may complicate management and enforcement as noted in Section 5.6.2.8 of the EA. NOAA Office of Law 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 misreporting of catch and production amounts to disguise this unlawful retention.

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 to compel more conservative management of a species. For example, Appendix 4 describes a concern for extending Alternatives 2, 3, or 4 to

certain rockfish species (e.g., shortraker rockfish) 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 slowly accumulating them in lower amounts, while 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 the species, and subsequently contribute to closing a target groundfish species. While certain options in Alternatives 2, 3, and 4 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.

In Alternative 2, 3, or 4, new MRA accounting would be applied to vessels fishing CDQ allocations that are currently subject to MRA accounting for the catch of pollock, Pacific cod and Atka mackerel inside SSL protection areas. Applying any changes to the MRA accounting interval to the H&G trawl C/Ps in both their CDQ and non-CDQ fisheries would simplify recordkeeping, compliance, and enforcement. This approach was described to the Council at the December 2006 meeting and in the draft EA/RIR/IRFA that was presented prior to the Council final action on this agenda item.

The RIR encourages agencies to assess the net benefit to the Nation 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, 3, or 4). A brief treatment of the possible existence of subsistence use, or resource values that may not be associated with removal of groundfish from the BSAI 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 Alternative 1, enforcement officers may rely on both weekly production report data and daily cumulative production logbook (DCPL) data. To enforce Alternative 3, NMFS enforcement officers would generally need to board vessels and inspect product and logbooks at the time that a vessel came to port for an offload. In Alternative 2 and 4 (the preferred alternative), enforcement officers would not be precluded from using DCPL data, but more likely would 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 interval presents an enforceable option. The weekly offload option could still result in some additional incentive to falsify logbooks compared with 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 notes that Alternative 4 presents some additional accounting complexity for enforcement officers compared to Alternatives 1 or 2, because of the potential for an additional number of trips that would be triggered when vessels of this sector enter or exit a SSL protection area. Vessels would need to carefully track these points of entry and exit from SSL protection

areas, to conform to the instantaneous accounting requirement inside, and end of fishing trip accounting requirements outside of the areas.

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 commercial fishery harvesting and discard practices in the BSAI groundfish fisheries may impact subsistence, non-consumptive, or non-use resource values in these regions. The economic activity generated from groundfish harvesting by this sector may provide some indirect regional and local impacts in certain coastal regions of the U.S. No data exist 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, 3, and 4, 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 through 2006. Those data are used to determine which operations are small entities for the purpose of the Regulatory Flexibility Act (RFA). NMFS considers a C/P to be a small entity if it has annual gross earnings, from all its activities, including affiliates worldwide, of less than \$4.0 million. NMFS does not have sufficient information on the corporate organization of these companies or their total gross earnings to make a statistically confident estimation of the number of small entities directly regulated by this proposed action. Absent this capacity, it is not possible, nor appropriate, to certify this action under provisions of the RFA. Therefore, an IRFA was prepared for this proposed rule. A detailed description of the entities directly regulated by the alternatives is provided in Sections 5.0 and 6.0 of this document. The effects of the three action alternatives are to generally provide increased operational flexibility to vessels in the H&G trawl C/P sector. The preferred alternative was selected to provide additional flexibility for this sector to choose when to retain and discard species in order to meet MRA regulations, while avoiding increased removals of SSL prey species. This alternative provides added operational flexibility in managing incidental catch accounting, thereby potentially reducing discards. It is also the action alternative least likely to result in a reduction in access of the H&G trawl C/P sector to SSL protection areas.

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## GLOSSARY OF ABBREVIATIONS

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

# 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 interval calculated for MRAs of selected groundfish species caught by the H&G trawl C/P sector.

The MRA of a species closed to directed fishing is the maximum weight of that species that may be retained onboard a vessel, calculated as a percentage of the weight of the retained catch onboard the vessel of each species open to directed fishing. The numerator in this calculation is the weight of the incidental catch species and the denominator is the weight of the basis species. Table 11 to 50 CFR part 679 (Appendix 3) provides the list of incidental catch and basis species and the MRA of each incidental catch species as a percentage of each basis species. For example, the MRA for rock sole in a directed fishery for yellowfin sole is 35 percent. If yellowfin sole is open to directed fishing and rock sole is closed to directed fishing, a vessel operator may retain rock sole in amounts up to 35 percent of the round weight equivalent of yellowfin sole that is onboard the vessel at any point in time during the fishing trip. In this example, any rock sole caught in excess of the MRA must be immediately discarded.

Current regulations at §679.20(e) require, with one exception, that the MRAs for C/Ps be calculated instantaneously during a fishing trip. That is, the MRA may not be exceeded at any point in time during the fishing trip. An exception to this requirement is that the MRA for pollock in the Bering Sea and Aleutian Islands (BSAI) for all non-AFA vessels is calculated at the time of offload of product from the vessel.

Actions taken to amend fishing regulations at 50 CFR 679 must meet the requirements of Federal laws and regulations. These include the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson Act), the National Environmental Policy Act of 1969 (NEPA), the Endangered Species Act (ESA), the Administrative Procedure Act (APA), 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 that may have a significant impact on the human environment, 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, including potential impacts on endangered species and marine mammals, and cumulative effects. Executive Order 12866 requires preparation of an Regulatory Impact Review (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 each 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 Background

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 improved retention and improved utilization (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 H&G trawl C/P sector requested in a proposal (Appendix 2) that the Council consider changing the accounting interval for MRAs from instantaneous (i.e., at anytime during a fishing trip) to the time of offload.

In February 2006, the Council requested that NMFS 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 interval required for the MRAs for selected groundfish (other than pollock) caught by the H&G trawl C/P sector. Representatives from the H&G trawl C/P requested that this regulatory amendment be implemented in 2007, to reduce regulatory discard amounts.

The discussion paper that followed was presented at the April 2006 Council meeting and it provided information on a proposal from members of the H&G trawl C/P sector to consider changing the current MRA accounting interval 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 H&G 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 H&G trawl C/P sector has consistently had the highest discard amounts and rates. In the RIR for this action, groundfish retention rate data for the H&G trawl C/P sector (Tables 18 and 23) show substantial variation in the percent of groundfish retention from 1995 to 2006. In 2006, the H&G trawl C/P sector retained catch of groundfish was approximately 78 percent of total catch, substantially increased from the 1999 level of 67 percent. A groundfish retention standard (GRS) for the H&G 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 H&G trawl C/P sector is currently identified for the purposes of the GRS at 50 CFR 679.28, as the operator of a catcher/processor not listed in § 679.4(l)(2)(i), and using trawl gear. This group of vessels includes, at most, two LLP licenses that are not currently being used for fishing BSAI groundfish. The designation of non-AFA trawl C/Ps under the GRS was intended to include any new vessel that might use either of those two LLP licenses to catch and process groundfish caught by a trawl C/P. The Council recommendation to change MRA accounting for these vessels would also apply to this comprehensive group of non-AFA trawl C/P vessels.

The H&G trawl C/P vessels identified in the GRS rule are also likely to be identical to vessels identified by Congress in the Bering Sea and Aleutian Islands (BSAI) Catcher Processor Capacity Reduction Program for the longline catcher/processor subsector of the BSAI non-pollock groundfish fishery. 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. The Consolidated Appropriations Act definition of a non-AFA trawl C/P may exclude some vessels that meet the GRS definition of a non-AFA trawl C/P if they have less than 150 mt of certain groundfish species from 1997 to 2002, and excludes vessels from joining the sector that do not have a qualifying LLP. NMFS is not aware of any vessels with plans to enter the H&G trawl C/P groundfish fisheries and assumes that PL 108-477 has no practical impact on the vessels that would be regulated by the Council's preferred MRA accounting alternative.

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 H&G trawl C/P sector. Expanding the scope of the analysis to additional sectors was believed to impact the time required to complete an analysis, submit a proposed rule and implement the program if approved by the Secretary of Commerce. The Council conveyed that, where possible, it would be desirable to avoid MRA accounting proposals that would complicate this analysis.

At the December 2006 Council meeting, the Council took final action on the preferred Alternative 4. As noted in the Description of Alternatives in Chapter 2 and ES Alternative 4, the Council action recommends a new fishing trip begin anytime an H&G trawl C/P enters or leaves a Steller sea lion (SSL) protection area, closed to directed fishing for Atka mackerel in the AI, or Pacific cod in the BSAI. This recommendation was made because increasing the MRA

accounting interval could result in an increase in catch of Pacific cod and Atka mackerel prey species in SSL protection areas that are closed to directed fishing. The Council also recommended adding a new fishing trip trigger to aid NMFS enforcement in monitoring MRA compliance in SSL protection areas.

The Council recommended that the MRA accounting interval not be changed from the status quo for Pacific cod inside SSL protection areas in the BSAI, nor for Atka mackerel inside SSL protection areas in the AI (retaining instantaneous MRA accounting for these species in these defined areas). The Council did not explicitly list the need for instantaneous accounting of MRAs for Atka mackerel inside the SSL protection areas in the BS (allowing for MRA accounting at the end of a fishing trip for Atka mackerel). NMFS believes that the additional fishing trip trigger in all BSAI SSL protection areas is necessary to insure enforcement of instantaneous accounting for Atka mackerel or Pacific cod in the BSAI. The Council confirmed at its August 2007 meeting that they intended for MRA accounting to apply at anytime during a fishing trip for Atka mackerel in the SSL protection areas of the BS

## 1.2 Purpose and Need

The accounting period intervals examined in this analysis for Alternative 2 through 4 range between an accounting interval 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 approved by the Council 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<sup>1</sup> 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*

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<sup>1</sup> These are vessels not listed as AFA C/Ps at 50 CFR 679.4(1)(2)(i)

*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.*

## Chapter 2 Description of Alternatives

This EA/RIR/IRFA evaluates four alternatives for management of MRA accounting in the BSAI H&G trawl C/P sector. The alternatives are described below.

### 2.1 Alternative 1: No Action

Alternative 1 maintains the existing regulatory measures for MRAs, by continuing to calculate the MRA at any point during a fishing trip. 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

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 the ratio of the species closed to directed fishing, relative to the retained amount of other species for which directed fishing is open. Amounts of an MRA species onboard a vessel that are below or equal to the specified MRA percentage for that species *may* be retained at the vessel operator's discretion, with the exception of BSAI Pacific cod and pollock. Under existing regulations, when BSAI Pacific cod or pollock are closed to directed fishing, these species *must* be retained up to MRA limits.

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

At the June 2006 Council meeting, the Council developed Alternative 2.

**Alternative 2.** For the non-AFA trawl C/Ps (i.e., H&G trawl C/Ps) while fishing in the BSAI, calculate the MRA of yellowfin sole, rock sole, flathead sole, "other flatfish", and arrowtooth flounder at the end of a fishing trip.

**Option:** Include BSAI Pacific cod,

**Option:** Include Aleutian Islands (AI) Pacific ocean perch (POP),

**Option:** Include Bering Sea (BS) POP,

**Option:** Include Atka mackerel in the BS and AI

For the H&G trawl C/P sector, Alternative 2 would allow the calculation and require compliance with MRA accounting for yellowfin sole, rock sole, flathead sole, “other flatfish,” and arrowtooth flounder to occur at the end of a fishing trip. Alternative 2 would make no change to the definition of a fishing trip, with the exception of a clarification that the offload of “any” amount of groundfish would trigger a new fishing trip. By extending MRA compliance to the end of a fishing trip, the longest interval of time an MRA could be calculated over would be a reporting week. Alternative 2 also includes options to consider adding BSAI Pacific cod, AI POP, and Atka mackerel to the list.

These modifications also would apply when the H&G trawl C/Ps participate in any CDQ fishery in which MRAs are used to limit retention of the selected groundfish species. Section 4.1 describes how Alternative 2 may affect the H&G trawl C/P sector and the affected environment.

As a result of including Pacific cod and Atka mackerel under Alternative 2 and Alternative 3, NMFS recommended at the December 2006 Council meeting that Alternative 2 and 3 exclude Pacific cod and Atka mackerel from species under consideration for this action, because each would relax MRA accounting in SSL protection areas.

Members of the H&G trawl C/P sector expressed concern that removal of these two species from the alternatives could impact (and generally reduce) the value of this proposed action to the sector in the future. The sector also noted that Pacific cod allocations under Amendment 85, of 13.4 percent, if implemented prior to Amendment 80, could have constrained directed fishing opportunities for these two species for H&G trawl C/P vessels. It was possible that the directed fishery by H&G trawl C/P vessels for Pacific cod could be closed for most of the season if Amendment 85 were implemented, to avoid time consuming and costly SSL consultation and to accommodate sector opportunities to increase groundfish retention. The Council subsequently recommended Alternative 4 as the preferred alternative, because it would continue status quo instantaneous MRA accounting for Atka mackerel in the AI and Pacific cod in BSAI SSL protection areas.

### **2.3 Alternative 3: Extend the MRA accounting interval 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.** For the H&G trawl C/Ps while fishing in the BSAI, calculate the MRA of yellowfin sole, rock sole, flathead sole, “other flatfish” and arrowtooth flounder at the time of offload.

The following options were analyzed:

- Option:** Include BSAI Pacific cod,
- Option:** Include AI POP,
- Option:** Include BS POP,
- Option:** Include Atka mackerel in the BS and AI

Under Alternative 3, the accounting interval 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 interval between offload events. Various options for Alternative 3 would also include Pacific cod, AI POP, BS POP, or Atka mackerel. Alternative 3 would make no change to the definition of a fishing trip, with the exception of a clarification that offload of “any” amount of groundfish would trigger a new fishing trip. In contrast with Alternatives 1 and 2, extending MRA compliance to the time of offload would create the longest interval of time an MRA could be calculated (potentially exceeding a reporting week). Section 4.1 discusses how the affected environment may be impacted by this approach. These modifications also would apply when the H&G trawl C/Ps participate in any CDQ fishery in which MRAs are used to limit retention of the selected groundfish species.

## 2.4 Preferred Alternative 4

At the December 2006, final action, the Council integrated elements of Alternatives 2 and 3 into the preferred Alternative 4. The Council also elected to continue instantaneous MRA accounting and an additional trip trigger in SSL protection areas. Alternative 4 consists of three main components.

Component 1: MRAs for H&G trawl C/Ps<sup>1</sup> operating in the BSAI would be calculated at the end of a fishing trip for yellowfin sole, rock sole, flathead sole, “other flatfish,” and arrowtooth flounder.<sup>2</sup> End of fishing trip MRA accounting would also apply to AI POP, BSAI Pacific cod and BSAI Atka mackerel, with the exception noted in Component 2.

Component 2: MRAs for Atka mackerel and Pacific cod caught by the H&G trawl C/P sector would continue to be accounted for at anytime during a fishing trip, when fishing inside SSL protected areas closed to directed fishing for Atka mackerel or Pacific cod.

Component 3: A new fishing trip would begin anytime an H&G trawl C/P entered or exited a SSL protection area closed to directed fishing for Atka mackerel or Pacific cod in the BSAI.

Each of these components is dependent on, or revises the events that trigger a fishing trip, as applies to calculation of MRAs. The current definition of a fishing trip is located in part 679.2.

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<sup>1</sup> The Council also considered at the April 2006 Council meeting, whether relaxed MRA accounting should include a broader range of groundfish industry sectors. As identified in the public record for the April Council meeting, 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 H&G trawl C/P sector

<sup>2</sup> At the June 2006 Council meeting, the Council passed a motion to remove shortraker, rougheye and northern rockfish, as well as “Other rockfish,” BS POP and Greenland turbot from the list of species that would be considered under Alternatives 2, 3, and 4. Reasons the Council proposed removing these species from consideration were (1) the historical amount of discards were too small to contribute to an increase in groundfish retention, and (2) relaxed MRA accounting could increase topping off on a species, quickly approaching or exceeding the ABC for that species. These issues are addressed in more detail in Appendix 3.

With respect to current MRA retention requirements, an operator of an H&G trawl C/P is engaged in a fishing trip from the time harvesting or processing of groundfish is begun until:

- a. the effective date of a notification prohibiting directed fishing in the same area;
- 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 a different type of authorized fishing gear; or
- e. the end of a weekly reporting period, whichever comes first.

The first component was intended to extend the amount of time for members of the H&G trawl C/P sector to account for MRAs of several groundfish species. This additional time would provide greater flexibility for members of the H&G trawl C/P sector to retain groundfish that have been closed to directed fishing.

As a second component, the Council recommended that the MRA accounting interval not be changed for Pacific cod or Atka mackerel harvested inside SSL protection areas in the BSAI. This recommendation was made because increasing the MRA accounting interval could result in an undesirable increase in catch of Pacific cod and Atka mackerel, both of which are prey species for the SSL, inside the protection areas

Regulations prohibiting groundfish fishing activities in SSL protection areas may apply to a species, gear, or within a specific season or interval of time. If approved by the Secretary, Alternative 4 would continue to apply MRA accounting for Pacific cod or Atka mackerel at anytime during a fishing trip inside SSL protection areas. More specifically MRAs would be applied at anytime during a fishing trip when:

- directed fishing is prohibited for Pacific cod, pollock, or Atka mackerel (applicable to Bogoslof & Seguam Forage Areas at 679.22 (a)(7)(i) and (a)(8)(i));
- directed fishing with trawl gear for AI Pacific cod is prohibited during the Atka mackerel HLA fishery (679.22 (a)(8)(iv)(B));
- directed fishing with trawl gear for AI Pacific cod is prohibited after Atka mackerel harvest limits are reached (679.22 (a)(8)(iv)(A)); and directed fishing with trawl gear for BS Pacific cod is prohibited (679.22 (a)(7)(v)).
- directed fishing with trawl gear for BSAI Atka mackerel is prohibited (679.22 (a)(7)(vi));
- the Atka mackerel HLA areas are closed at (679.22 (a)(8)(v)).

The last primary component recommended by the Council at the December 2006 meeting, consisted of an additional fishing trip trigger to aid NMFS enforcement in monitoring MRA compliance in SSL protection areas. This additional fishing trip trigger was intended to prevent a vessel from accumulating basis species from outside of the SSL protection areas, to use as a basis for retaining Atka mackerel or Pacific cod caught within a protection area.

In addition to these primary components, identified by the Council, the definition of a fishing trip would also be amended to require that a new fishing trip start for a non-AFA trawl C/P when "any" fish or fish product is offloaded or transferred. This requirement is a change from the current requirement that a fishing trip is triggered by the offload or transfer of "all" fish or fish product from the vessel, and would prevent partial offloads. Unless the regulatory text is revised

as part of the preferred alternative, partial offloads of groundfish could reduce the effectiveness of an MRA.

## Chapter 3 Affected Environment

The NEPA documents listed below contain extensive information on the fishery management areas, marine resources, ecosystem, social and economic conditions of these fisheries, and the annual harvest specifications. All proposed alternatives in this analysis are consistent with the preferred alternative in the PSEIS. Rather than duplicate an affected environment description here, readers are referred to those documents. All of these public documents are readily available in printed form or over the Internet at links given in the references. The impacts of the four alternatives on the human environment are the subject of Chapter 4. Because this action is limited in area and scope, the description of the affected environment is incorporated by reference from the following documents:

Groundfish Programmatic EIS. The Alaska Groundfish Fisheries Final Programmatic Supplemental Environmental Impact Statement (PSEIS) evaluates the fishery management policies embedded in the BSAI groundfish FMPs against policy level alternatives and the setting of TACs, allowable biological catch (ABC), and overfishing level (OFL) at various levels (NMFS 2004a). The PSEIS is available at <http://www.fakr.noaa.gov/sustainablefisheries/default.htm>. The following sections of this document are particularly relevant:

- Section 3.3 contains a description of the physical oceanographic environment for BSAI waters.
- Section 3.5.2 contains descriptions of prohibited species management, life history characteristics, trophic interactions, past and present effects analysis, comparative baseline and cumulative effects analysis.
- Section 3.5.3 contains descriptions of target groundfish species management, life history characteristics, trophic interactions, past and present effects analysis, comparative baseline and cumulative effects analysis.
- Section 3.9.2.4 contains socio-economic information on fishing sectors, including the H&G trawl C/P sector.

Harvest Specifications EIS. The EIS analyzed the Council's harvest strategy for the BSAI fisheries (NMFS 2007). The EIS included the ecosystem considerations section of the Stock Assessment and Fishery Evaluation (SAFE) reports. The EIS also contains a detailed discussion of the TAC setting process and TACs for each of the groundfish species harvested by the H&G trawl C/P sector <http://www.fakr.noaa.gov/analyses/specs/eis/default.htm>.

For those groundfish stocks where information is available, none are considered overfished or approaching an overfished condition and all are managed within the annual harvest specifications. The ABC, OFL, and TAC amounts for each target species or species group for 2006 is specified in the *Federal Register* (71 FR 10870, March 3, 2006). The status of each target species category, biomass estimates, and acceptable biological catch specifications are presented both in summary and in detail in the annual SAFE reports (NMFS 2005). The SAFE report also updated the economic status of the groundfish fisheries off Alaska and presented the

ecosystem considerations relevant to the BSAI. This EA incorporates by reference stock status information in the SAFE reports.

Essential Fish Habitat Identification and Conservation in Alaska EIS. (NMFS 2005) This EIS reexamines the effects of fishing on EFH in waters off Alaska, presents a wider range of alternatives, and provides a thorough analysis of potential impacts on EFH caused by the groundfish fishery. The analysis provides a description of managed groundfish species, marine mammals, and the socioeconomic environment in the BSAI trawl fishery. The analysis indicates that there are long-term effects of fishing on benthic habitat features off Alaska and acknowledges that considerable scientific uncertainty remains regarding the consequences of such habitat changes for the sustained productivity of managed species. The EIS is found at <http://www.fakr.noaa.gov/habitat/seis/efheis.htm>.

Steller Sea Lion Protection Measures Final Supplemental Environmental Impact Statement (SEIS). (NMFS 2001) The SEIS evaluates alternatives to mitigate potential adverse effects as a result of competition for fish between Steller sea lions under a no action alternative as well as other alternatives that would substantially reconfigure the BSAI groundfish fishery. Impacts are disclosed, both significantly positive and significantly negative as required by NEPA. A biological opinion prepared according to the Endangered Species Act is included for the preferred alternative. This document also describes the life history characteristics of Steller sea lions and potential interactions with the groundfish fishery. The SEIS 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.

For more information see <http://www.fakr.noaa.gov/sustainablefisheries/seis/sslpm/default.htm>.

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# Chapter 4 Environmental Impacts

This section discusses the potential impacts of management under each of the proposed MRA action alternatives on the potentially effected environmental resource components that are identified in the Groundfish Programmatic EIS and the Harvest Specification EIS (Table 2). Specific details with respect to the performance of the fishery under the three action alternatives (including the preferred Alternative 4) are described. If a component is identified as potentially impacted in Table 2, that potential impact is noted and detailed in this chapter. Components including groundfish stocks, marine mammals, benthic habitats and socioeconomic components are potentially impacted. For those components, this EA also describes general impacts associated with the no action alternative. Seabirds, non-specified forage species, prohibited species; physical/chemical, and ecosystem level effects are not impacted by this action. The primary reasons these components are deemed to incur no impacts are briefly noted below in Section 4.1.

Table 2. Resources potentially affected by the proposed alternatives

Alternatives	Potentially Affected Component								
	Groundfish Targets & other non targets	Marine Mammals	Socio-Economic	Benthic Habitat	Seabirds	Non - specified and forage species	Prohibited Species	Ecosystem	Physical Chemical
2	Y	Y	Y	N	N	N	N	N	N
3	Y	Y	Y	N	N	N	N	N	N
4	Y	N	Y	N	N	N	N	N	N

N = no impact beyond status quo anticipated by the option on this component.  
 Y = an impact beyond status quo is possible if the Alternative is implemented.

The threshold for considering that any of these natural and physical resources could be impacted is if the action alternatives vary from the status quo described in the Alaska Groundfish Harvest Specifications EIS (NMFS 2007). More detail on some of the management and catch accounting, enforcement, resource use, and economic implications of the alternatives are provided in the RIR in Chapter 5.

## 4.1 Natural and Physical Environment: Alternatives 1, 2, 3, and Preferred Alternative

The implementation of any of the alternatives examined in this EA are not likely to affect all environmental components. Analysts are unable to identify any measurable effect on any of the environmental components of the BSAI, except for some potential changes to revenues, opportunity costs or other distribution of economic activity in the H&G trawl C/P sector (NEPA generally refers to a range of economic and other distributional variables as “socioeconomic”).

The MRA action alternatives propose to change regulations for only BSAI groundfish fisheries participated in by the H&G trawl C/P sector and on selected species harvested by that sector. The proposed regulatory changes associated with the alternatives would only apply when the fisheries

on those species are closed to directed fishing. Furthermore, it would not change the percentages of groundfish that could be retained when that species is closed to directed fishing. These actions would only alter the time interval that is used for each vessel to comply with the amount of groundfish that could be retained as processed fish. The alternatives do not have any impact on TACs for any of these species nor are they expected to alter fishing patterns or rate of catch of any species. Alternative 4 would ultimately increase the amount of data available to monitor retention of groundfish in certain locations inside SSL protection areas.

A few components of the environment that could potentially be impacted by this action in comparison with BSAI fisheries under the status quo or Alternative 1 are listed in Table 2. For example, it is possible that amounts and location of Atka mackerel and Pacific cod fishing and harvest may change under some of the action alternatives, so both groundfish and potentially marine mammals might be impacted by these action alternatives.

In general, no effects from any of the alternatives beyond those already identified (NPFMC 2006) are likely to impact the physical/chemical environment; prohibited, non-specified, and forage species; seabird, or ecosystem components of the environment for the following reasons:

- The amounts of groundfish taken will be applied against and would not change TACs.
- None of the alternatives would alter catch accounting.
- The area of harvest that any of these alternatives could potentially apply is the BSAI.
- Allowable gear and method of harvest would not change from current practices.
- None of the alternatives would change fishing practices in a manner that would cause changes to the physical features of the marine environment.
- 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.
- No changes in incidental catch of non-specified, or seabird species are expected because the action is anticipated to have little effect on time and area that gear is deployed.

MRA accounting under all alternatives have no direct effects or take of marine mammals but there is a possibility that indirect impacts Steller sea lions could occur through a change in prey species catches in areas closed to directed fishing, including SSL protection areas. For example, it is possible that in action alternative 2 and 3 that some changes of Atka mackerel and Pacific cod could occur as discussed in the following sections (Section 4.1).

Socioeconomic effects, including a possibility of changes to distribution of revenues or profits between firms could occur from the action alternatives by relaxing the current instantaneous accounting for MRAs for certain species and operations, as well as other distributional effects are analyzed in the RIR (5.0) and IRFA (6.0).

Under the no action alternative benthic habitat that exists in localities where bottom trawl gear is deployed may involve some changes under the status quo H&G trawl C/P fisheries. These impacts are thoroughly addressed in NMFS 2006b. None of the action alternatives are expected to alter benthic habitat to reduce diversity and abundance of these organisms in the BSAI,

because the action alternatives will not generate any major change in fishing operations, such as time and location of gear deployment or length of fishing seasons.

Seabirds are occasionally attracted to bottom trawl gear, or discharge from bottom trawl gear. None of the action alternatives are expected to impact seabirds because action is limited to MRA accounting and the overall fishing activities that may affect seabirds are unchanged. 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 under the no action alternative 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.

Forage species are not targeted by this sector, nor are they caught in significant numbers as bycatch by this sector. To the extent that these species could be impacted by the status quo, these issues are addressed in the PSEIS (NMFS 2004a). While some prohibited species, such as halibut are caught by these fishing operations, there are no changes anticipated by the action alternatives on these take of prohibited species because the action would not change fishing activities in a way that would affect prohibited species incidental catch.

Ecosystem effects also are not expected due to the accounting nature of the action alternatives or the limited amount of harvest associated with any of the species. Ecosystem effects are usually evaluated based on large scale activities (with respect to time, place or amount of harvest). Ecosystem effects consider predator-prey relationships, energy flow and balance (including redistribution and removal of nutrients), and diversity of groundfish species. Ecosystem effects of BSAI groundfish management under the status quo are evaluated in the EIS for Harvest Specification EIS (NMFS 2007). As the action alternatives involve, at most small changes in groundfish retention, no portion of this action would contribute to changes of the magnitude that would have ecosystem level impacts.

Physical components of the marine environment including chemical, currents, and temperature related variables would not be altered by the action alternatives because the alternatives would not change fishing practices in any way they would affect these features of the physical environment. So no additional analysis is provided for that component.

The discussion in 4.1.1 presents the scientific and analytical basis for the issue comparisons across alternatives. As a starting point, Alternatives 2 and 3 may have the potential to affect one or more components of the human environment compared to Alternative 1. The significance of the potential effect is determined by considering the context in which the action will occur and the intensity of the action. The context in which the action will occur includes the specific resources, ecosystem, and human environment affected. The intensity of the action includes the type (beneficial versus adverse), duration (short versus long term), and magnitude (minor versus major), and degree of risk (probability of an impact occurring). Further tests of intensity include (1) the potential for compromising the sustainability of any target or nontarget species; (2)

substantial damage to marine habitats and/or essential fish habitat; (3) impacts on public health or safety; (4) impacts on endangered or threatened species, or critical habitat of listed species; (5) cumulative adverse effects; (6) impacts on biodiversity and ecosystem function; (7) significant social or economic impacts; and (8) degree of controversy (NOAA Administrative Order 216-6, Section 6.02).

Differences between direct and indirect effects are primarily linked to the time and place of impact. Direct effects are caused by the action and occur at the same time and place. Indirect effects occur later in time and/or are further removed in distance from the direct effects (40 CFR 1508.27). For example, the direct effects of an alternative which lowers the harvest level of a target fish could include a beneficial impact to the targeted stock of fish, a neutral impact on the ecosystem, and an adverse impact on net revenues to fishermen, while the indirect effects of that same alternative could include beneficial impacts on the ability of Steller sea lions to forage for prey, neutral impacts on incidental levels of prohibited species catch, and adverse impacts in the form of economic distribution effects, for example, reducing employment and tax revenues to coastal fishing communities.

#### **4.1.1 Environmental Effects of Alternatives**

##### **4.1.1.1 General environmental effects of the no action alternative (Alternative 1)**

Analysis of the environmental effects for the no action alternative (Alternative 1) are generally combined in this Chapter with Alternative 2, 3, and 4, because none of the MRA accounting alternatives are anticipated to result in any change to the environment compared with the status quo.

This EA focuses on potential impacts to benthic habitat and organisms, groundfish target species, forage fish, seabirds, ecosystem, marine mammals and socioeconomic consequences for Alternative 1 and the action alternatives. 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 for the components of the environment analyzed for groundfish. 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 to avoid adverse impacts. Environmental impacts of Alternative 1 are not anticipated to vary from the preferred alternative recommended in the PSEIS.

##### **4.1.1.2 Impacts on Groundfish target fisheries under all alternatives**

As defined in the BSAI FMP, target species are species that:

“...support either a single species or mixed species target fishery, are commercially important, and for which a sufficient data base exists that allows each to be managed on its own biological merits. Accordingly, a specific total allowable catch (TAC) is established annually for each target species. Catch of each species must be recorded and reported...” (Section 3.1.2 of the

BSAI groundfish FMP, page 10) so that NMFS can track the amount of a species removed from the available TAC. In the BSAI, target species include pollock, Pacific cod, sablefish, yellowfin sole, Greenland turbot, arrowtooth flounder, rock sole, flathead sole, Alaska plaice, “other flatfish”, Pacific ocean perch, northern rockfish, shortraker rockfish, roughey rockfish, “other rockfish”, Atka mackerel, and squid . (NPFMC 2005a, page 10). All of these species were considered as possible candidates for one or more alternatives in this action with the exception of pollock, Alaska plaice, sablefish, squid, and other rockfish.

The species that the Council selected for Alternative 4 included yellowfin sole, rock sole, flathead sole, Atka mackerel, Pacific cod, Aleutian Islands Pacific ocean perch, Alaska plaice, arrowtooth flounder, and “other flatfish.” The analysis of environmental effects throughout section 4.1 also addresses effects on these species of Alternative 1.

BSAI pollock or Pacific cod which are incidentally caught by the H&G trawl C/P sector, along with other species considered under Alternatives 1, 2 and 3 or the preferred alternative are among the two largest sources of groundfish catch in the BSAI. These two species are neither depleted nor approaching an overfished condition and that status is not anticipated to change under Alternative 1. Flatfish, Atka mackerel, pollock and Pacific cod are the predominant components of H&G trawl C/P sector catch. As with pollock and Pacific cod, flatfish and Atka mackerel species are neither depleted nor approaching an overfished condition. The stock status of each of these species is detailed in the SAFE report for 2006 (NPFMC 2006).

The BSAI Stock Assessment and Fishery Evaluation (SAFE) report indicates that none of the groundfish stocks in the BSAI are currently depleted or overfished (NPFMC 2006). Target fisheries exploited by the H&G trawl C/P sector in Alternative 1 by the non-AFA trawl C/P sector are not expected to cause a change in the status of stocks reported in the SAFE report. The primary reason for this is that implementation of new Amendment 80 (72 FR 52668) LAPP or the recent Amendment 85 allocation of Pacific cod (72 FR 50788) is not anticipated to change the sustainability of any target fishery biomass. That is because the amount of target species removed under Alternative 1 are strictly controlled by annual TACs, integrated with management policies that close fish to directed fishing when these TACs are reached. For the same reason, the very small potential for removals of any of the groundfish species under Alternatives 1 through 4 are not anticipated to impact on prey availability for other target species is anticipated.

#### **4.1.1.3 MRA accounting for CDQ fisheries: Alternatives 1 through 4**

On July 11, 2006, the President signed the Coast Guard 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 groundfish fishery under which fishing cooperatives currently are authorized is the Bering Sea pollock fishery and for the H&G trawl C/P sector. Authorization of cooperatives for members of the H&G trawl C/P sector under Amendment 80 has triggered the “regulation of harvest” requirements of the MSA.

The authorization of cooperatives for this sector will trigger application of the “regulation of harvest” requirements of the MSA. Under Alternatives 1 through 4 of this action, the calculation of MRAs for the H&G 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 retention of the species that would be regulated under Alternatives 2, 3, and 4. 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.

#### **4.1.1.4 Impacts on Groundfish Species in Alternatives 2, 3, and 4**

To the extent possible with existing data, this section addresses some questions intended to assist in evaluating the tradeoffs of adjusting the MRA accounting interval for each groundfish species as defined in Alternatives 2 and 3. Table 21 summarizes some numeric data and 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 H&G trawl C/P sector identified that including this species in the MRA accounting regulation 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 such as the action alternatives did increase retention?
- 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 the action 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 intervals of MRA accounting that might be encountered in the action alternatives?

- Are there additional management concerns with extending the MRA accounting interval 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 interval for the MRA computations for this species (other than those identified in Alternative 3, extension of the MRA accounting interval beyond a reporting week to the time of offload)?

#### 4.1.1.4.1 Effect of applying Alternatives 2, 3 or 4 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 H&G trawl C/P sector as an action that would assist in increasing groundfish retention for that sector. As detailed in Table 15, total catch of yellowfin sole averaged 73,610 mt from 2003 to 2006. The retention rate of yellowfin sole in 2006, as a percentage of total yellowfin sole catch was 89.0 percent. Between 2003 and 2006 average catch and discard data place yellowfin sole as the seventh largest contributor (2,756 mt) to discards occurring when that species is identified as an incidentally caught species by H&G trawl C/P sector (Table 3). 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 2006 SAFE report (NPFMC 2006) the OFL for yellowfin sole has been set between 144,000 mt and 160,000 mt during the period from 2005 to 2007. Catch has typically stayed between 95,000 mt and 98,000 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 90,686 mt in 2005 and 97,648 in 2006. While well-below the OFL and ABC for this species, 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<sup>4</sup> (prices in nominal amounts). In 2005 and 2006 these revenues increased to \$86 million and \$83 million, respectively. Recognizing the substantial number of economic factors that effect retention and discard decisions, representatives of the H&G 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 3, 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 2006 and 2007 identified yellowfin sole as a Tier IIIa species (NMFS 2007, Appendix A). 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

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<sup>4</sup> Wholesale prices are listed in nominal dollars

impose risk of overharvesting this species because of the quality of information available for the stock assessment (Less uncertainty exists than tier 4 through 6 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 3. Average discarded catch of H&G trawl C/P sector (excluding discards of the primary target species) in descending amounts from 2003 to 2006

Ranking	Incidental Catch by Species	mt	Ranking continued	Incidental Catch by Species	mt
1	Pollock	14,197	10	Flathead sole	1,839
2	AK plaice	9,808	11	POP	1,715
3	Rock sole	7,550	12	Pacific cod	472
4	Arrowtooth	6,385	13	Greenland turbot	130
5	Other species	5,749	14	Other rockfish	121
6	Northern	3,365	15	Sablefish	42
7	Yellowfin sole	2,756	16	Squid	33
8	Atka mackerel	1,870	17	Shorotraker	25
9	“Other flatfish”	1,867	18	Rougheye	20

### Flathead Sole

The H&G 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 15, from 1999 to 2006 total catch of flathead sole averaged approximately 13,300 mt. For the same years, the retention rate of all groundfish in the BSAI flathead sole target fishery was approximately 80 percent. From 2003 to 2006 flathead sole was the tenth largest contributor to the discards of the H&G 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 2006 SAFE report (NPFMC 2006a) identified the OFL for flathead sole at approximately 70,200 mt in 2005, 71,800 in 2006, and 95,300 in 2007. Total groundfish catch has typically been between 11,000 mt and 17,800 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 19,500 mt in 2005 and 2006. 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 17 basis species identified in the groundfish MRA table (Appendix 3) 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 2006 and 2007 qualified flathead sole for Tier III management (NMFS 2007, Appendix A). While this is not the highest tier for stock assessment data quality, it is not likely that the additional removals of these species, if they occurred on the order of those associated with increasing the MRA accounting interval in Alternative 2 or 4 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 interval.

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.

## **Rock Sole**

Increasing the MRA accounting interval for rock sole has been identified by the H&G trawl C/P sector as an action that would increase groundfish retention. As noted in Table 15, from 1999 to 2006 the total catch of rock sole averaged approximately 35,500 mt. For the same years, the retention rate of all groundfish in the BSAI rock sole target fishery is approximately 60 percent. Rock sole is one of the larger contributors to the discards of the H&G trawl C/P sector, and there is some residual room for increased retention of this species.

According to estimates for 2006 and 2007 in the SAFE report (NPFMC 2006a) the OFL for rock sole has been set between 144,000 mt and 157,000 mt between the years 2005 to 2007. In 2005

and 2006 annual catch has been between 36,000 and 37,000 mt. Considered independently of other groundfish species management in the BSAI, this represents a substantial buffer for further exploitation up to the ABC. From 2005 and 2007 the TAC has been set between 36,400 and 37,500 mt. While well below the OFL and ABC for this species, 2005 and 2006 catches approach the TAC set in for those years.

Of the 16 basis species identified in the groundfish MRA table (Appendix 3) 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 qualifies rock sole for Tier IIIa fishing mortality rate (NMFS 2007, Appendix A). 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 is no additional management or enforcement concerns with increasing the accounting interval for this species to a weekly interval, when applied to Alternatives 2 and 4.

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 and southern 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 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 H&G trawl C/P sector has expressed moderate interest in increasing the MRA accounting interval for Atka mackerel. Not including pollock, between 2003 and 2006 Atka mackerel was the tenth largest contributor to the discards of the H&G 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 15, catches of Atka mackerel from 1999 to 2006 averaged 53,400 mt. Atka mackerel retention by weight of species discarded compared with total species caught is

approximately 89 percent over this time interval. Atka mackerel is a small contributor to the discards of the H&G trawl C/P sector, and there is a small residual for increased retention in the H&G trawl C/P sector if total H&G trawl C/P catches of this species were to increase.

SAFE report projections for 2006 and 2007 (NPFMC 2006a) set the OFL for Atka mackerel at 130,000 for 2006 and 86,900 mt for 2007. In 2005 and 2006, 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 2005 and 2006. Catches over this time period are generally well below the OFL and ABC for this species, and have not reached the TAC set in 2005 or 2006 as listed in the 2005-2006 harvest specifications.

Of the 17 basis species identified in the groundfish MRA table (Appendix3) for which incidental catch of Atka mackerel can occur, the associated MRAs for Atka mackerel most 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 2006 qualifies Atka mackerel for Tier IIIa fishing mortality rate (NMFS 2007, Appendix A). 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 period for this species to a weekly interval.

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 Alternatives 2, 3 or 4 would have any appreciable impact on the removal of this species that could impact the size or health of the stock. It is also unlikely that the action alternatives would appreciably increase the frequency of exceeding the TAC compared with the status quo.

Alternative 3 may generate enforcement concerns for Atka mackerel, in part because offload based accounting precludes the opportunity to utilize Weekly Production Reports to identify intentional or unintentional MRA violations. This offload based approach may also 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 H&G trawl C/P sector in SSL protection areas. However, the Council's preferred Alternative 4 continues to apply the more rigorous instantaneous MRA accounting when any of the vessels in this sector enter a BSAI SSL protection area. The preferred alternative proposed by the Council at final action would retain the status quo MRA accounting in SSL protection areas. Some

additional effects of selecting an alternative other than the preferred alternative (such as Alternatives 2 and 3) are described in Section 4.1.8.1 and 4.1.8.2.

### **Aleutian Islands Pacific Ocean Perch (AI POP)**

The H&G 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, rock sole, yellowfin sole, and “other flatfish”). The directed AI POP fishery accounts for nearly all of the catch (70 percent 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.

Between 1999 and 2006, the average catch of BSAI POP was 12,296 mt, and in 2006 the catches were 11,005 mt (Table 4). The retention rate for AI POP during that same period was approximately 85 percent. 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 H&G trawl C/P sector.

SAFE report projections for 2005, 2006, and 2007 (NPFMC 2006a) set the OFL for BSAI POP at 17,300, 17,600 and 26,100 respectively. The ABC for the AI subarea and BS subarea were set separately in 2005 and 2006 at approximately 2,950 mt and 11,700 mt, respectively. In 2005 and 2006, annual catch of POP for the BS was between 8,700 mt and 11,000 mt, providing a small buffer for further single species exploitation up to the ABC and OFL. The BS TAC for POP in 2005 and 2006 was set at approximately 11,200 mt. If Alternative 2 or Alternative 3 were to increase catches of POP, these alternatives have the potential to cause NMFS to set aside more POP for the incidental catch allowance 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 4. Total catch, retained catch, discards, and percent of retained catch for AI and BS POP from 1995 to 2006 in the H&G trawl C/P sector (metric tons).

Year	1999	2000	2001	2002	2003	2004	2005	2006
<b>AI POP</b>								
Total Catch	12,455	9,314	8,550	10,573	12,713	10,448	8,687	11,005
Retained catch	10,979	8,585	7,195	9,315	10,720	8,642	7,431	9,095
Percent retained	88%	92%	84%	88%	84%	83%	86%	83%
Discarded catch	1,476	729	1,355	1,257	1,993	1,805	1,255	1,910
<b>BS POP</b>								
Total Catch	226	380	319	93	201	214	210	273
Retained catch	129	206	221	73	114	137	119	186
Percent retained	57%	54%	59%	79%	57%	64%	57%	68%
Discarded catch	97	173	98	20	86	76	91	86

Of the 17 basis species identified in the groundfish MRA table (Appendix3) 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 (NMFS 2007, Appendix A). 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.

#### **Management MRAs for AI POP under Alternatives 1 through 4.**

The following section describes the effects of applying MRA accounting changes to POP in the AI on both the co-op and non co-op components of this sector.

AI POP is a significant portion of H&G trawl C/P sector catch; approximately 1,680 mt of incidentally caught POP are discarded between the years of 1999 to 2006. AI POP is the 11<sup>th</sup> largest source of discarded incidental catch as noted in Table 3. Currently, 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 3.

#### Management of AI POP for members of Amendment 80 co-ops.

Under Amendment 80, AI POP is likely to be managed under a directed fishery for the entire BSAI fishing year. With Amendment 80 co-ops in place, Alternatives 4 would require that H&G trawl C/Ps retain up to the MRA will be removed from regulations for the H&G trawl C/P sector. Thus, the option would no longer apply during this interval to Amendment 80 co-ops.

#### Management of AI POP for members of Amendment 80 sector, not in a co-op.

New MRA accounting would apply to this group under any of the action alternatives. Some vessels may increase annual removals of POP, but the overall allocation relegated to the vessels that choose to not be in co-ops would be a substantial constraint to improving retention of this species. Consequences to the sectors other than the H&G trawl C/P sector could include some movement in the in-season incidental catch allowance set for POP.

### **Bering Sea Pacific Ocean Perch**

The H&G 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 H&G 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.

SAFE report data for 2005, 2006, and 2007 (NPFMC 2006a) set the OFL for BSAI POP at 17,300 mt, 17,600 mt, and 26,100 mt, respectively. A separate ABC is set for the BS subarea in 2005 and 2006, at 2,900 mt, and for 2007 the ABC is set at 4,160 mt. As derived from annual data in Table 4, average catches of BS POP, between 1999 and 2006, were 274 mt. The retention rate of BS POP was approximately 62 percent, from 1999 to 2006. The contribution of BS POP to total catch and retained catch in the BS is extremely small compared to total groundfish discards for the H&G trawl C/P sector, so an increase in the MRA accounting interval for this species is not likely to provide any significant increase in aggregate groundfish retention.

Of the 17 basis species identified in the groundfish MRA table (Appendix3) for which incidental catch of aggregate rockfish are listed (including BS POP), the MRAs are set between 0 and 15 percent. This represents the lower end of the MRA range when 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 (NMFS 2007, Appendix A). 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 fisheries.

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 increased landings of this species, even in relatively small numbers, could adversely impact other directed fisheries, NOAA Office of Law Enforcement has identified that POP in the BS may be susceptible to the incentive to bias observer sampling compared with other species. Records from the NOAA Office of Law Enforcement and affidavits completed by observers document a number of cases of unlawful observer data biasing by personnel aboard vessels in this sector. These investigations include cases where data bias violations caused or attempted to cause species that were closed to directed fishing to be under-represented in observer samples, to the extent that directed fishing closures may have been delayed.

Alternative 3 has been identified as generating enforcement concerns, in part because this methodology precludes the opportunity to utilize weekly production data 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/or 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 H&G trawl C/P sector as an action that would increase groundfish retention.

The H&G trawl C/P sector caught approximately 11,500 mt of arrowtooth flounder between 1999 and 2006. For the same years, the retention rate for arrowtooth flounder in the H&G trawl C/P sector was approximately 38 percent. Given the low retention rate, in combination with its modest contribution to total discards for the H&G trawl C/P sector, this species may present some opportunities for increased retention, as defined in Alternatives 2, 3, and 4.

OFL projections for 2005, 2006, and 2007 in the 2006 SAFE (NPFMC 2006a) for arrowtooth flounder were 132,000 mt, 166,000 mt, and 193,000 mt, respectively. Total catch of arrowtooth flounder was approximately 18,200 mt in 2004, 4,200 mt in 2005, and 12,800 mt in 2006, providing one of the larger buffers for single species exploitation up to the ABC. The TAC was set at 12,000 mt in 2004, 13,000 mt in 2005 and 2006.

Of the 17 basis species identified in the groundfish MRA table (Appendix3) 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 2006 qualifies arrowtooth flounder for a Tier IIIa fishing mortality rate. Stock assessment model projections indicate that this stock is neither overfished, nor approaching an overfished condition (NMFS 2007, Appendix A). While this is not the highest tier for stock assessment data quality, it is not likely that additional removals of the order of

those that would be allowed by Alternatives 2, 3, and 4, could risk overharvesting this species. Arrowtooth flounder are a relatively large flatfish that may live to 15 years. Size and age at sexual maturity are not known. Arrowtooth flounders, through age 4, are distributed throughout the continental shelf. There are no additional management concerns with a weekly accounting interval for this species.

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 MRA violations. This 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. Members of the H&G trawl C/P sector report that markets appear to be willing to accept additional deliveries of arrowtooth, as well as other flatfish 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 H&G trawl C/P sector as an action that would help increase groundfish retention. The H&G 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 fewer 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 until 2002. It now has its own TAC, OFL, and ABC, but the Alaska plaice is managed under the aggregate halibut PSC limit 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 15, from 1999 to 2006 the total catch of “other flatfish” averaged approximately 19,200 mt; 12,600 mt of which was caught by the H&G trawl C/P sector. For the same years, the retention rate for “other flatfish” in the BSAI by the H&G trawl C/P sector was approximately 10 percent. “Other flatfish,” as combined with Alaska plaice in Table 3, is the fourth largest contributor to discards in the BSAI. Alaska plaice is by far the largest component of these discards in the “other flatfish” category. Alaska plaice are the ninth largest source of incidentally caught discards for the H&G trawl C/P sector (Table 3). Based upon retained catch data, extending MRA accounting as identified in Alternatives 2 or 3 to “other flatfish” may generate a modest opportunity for increased retention.

The OFL for “other flatfishes” in 2005, 2006, and 2007 are projected to be 28,500 mt, 24,000 mt, and 28,500 mt, respectively (NPFMC 2006a). The combined annual catch of “other flatfish” and Alaska plaice was approximately 15,000 mt in 2005, and 16,000 mt in 2006, thus, providing a substantial buffer for further single species exploitation, up to the ABC and OFL. The TAC has

been set at 3,500 mt in 2005 and 2006. While well-below the OFL and ABC for this species complex, 2005 catches exceeded the TAC set in the 2005 and 2006.

Of the 13 basis species identified in the groundfish MRA table (Appendix 3) for which incidental catch of “other flatfish” (including Alaska plaice) may occur in a directed fishery, the associated MRAs are between 20 percent 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 over time. Changes in fishing time/location could, in turn, alter 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 H&G 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 not likely 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 NMFS 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 period for this species to a weekly interval.

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 that relaxed MRA accounting, proposed for Alternative 2 or Alternative 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 (NMFS 2007, Appendix A).

Alternative 3 has been identified as generating enforcement concerns, in part because this methodology precludes the opportunity to utilize Weekly Production Reports to identify 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. 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, and in the RIR.

Increasing the MRA accounting interval for Pacific cod has been identified by the H&G trawl C/P sector as an action that would increase groundfish retention. As noted in Table 15, from 1999 to 2006 the total catch of Pacific cod in the H&G trawl C/P sector averaged approximately 30,300 mt. H&G trawl C/P sector discards of this species have also been small compared with discard amounts of many other groundfish species. For example, in 2006, 98 percent of the Pacific cod caught was retained, and discard amounts of incidental catches for this species were only the 12<sup>th</sup> ranked species, at 434 mt.

Current IR/IU regulations for trawl C/Ps Pacific cod could be a contributing factor in the relatively high retention rates for this species. Pacific cod is managed under a relatively liberal MRA of 20 percent in the BSAI. Under IR/IU regulations at 50 CFR 679.27, when directed fishing for this species is prohibited, a primary product must be produced from all fish of that species brought on board the vessel, up to the point that the round-weight equivalent of primary products on board equals the MRA for that species. When Pacific cod are open for directed fishing, IR/IU regulations require that 100 percent of this species be retained. It is likely that these two requirements contribute to high retention rates reported for this species, though other factors such as relatively high prices paid for this species compared with other groundfish species caught by the H&G trawl C/P sector could also be a factor.

Pacific cod (*Gadus macrocephalus*), also known as grey cod, are moderately fast growing and short-lived fish. Females reach 50 percent maturity at 67 cm (about 5.8 years old) and are highly fecund. The BSAI biomass for Pacific cod was estimated to be 922,000 mt in 2005. The 2006 and 2007 final harvest specifications for groundfish in the BSAI (71 FR 10894, March 3, 2006) established the 2006 and 2007 Pacific cod ABC at 194,000 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 2005, 2006, and 2007 at 206,000 mt, 194,000 mt, and 176,000 mt, respectively.

Stock assessment model projections indicate that this stock is neither overfished, nor approaching an overfished condition (NMFS 2007, Appendix A). 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 any risk of overharvesting this species. Since Pacific cod are considered to be one of the more valuable BSAI groundfish species, any redistribution of catch among sectors, even small amounts, will have allocation implications. The cumulative effects section of this EA describes some potential impacts of extending the accounting interval for applying MRAs to Pacific cod. One issue the Council considered in selecting this species for including in Alternatives 2, 3 and 4 is that it is harvested in modest amounts by the H&G trawl C/P sector within SSL protection areas. To avoid any interaction with removal of prey species, compared with Alternative 1, the Council chose Alternative 4, which

retains instantaneous accounting of MRAs whenever an H&G trawl C/P enters SSL protection areas.

#### **4.1.1.5 Other impacts to groundfish species under Alternatives 2, 3, or 4**

There are several impacts common to each of the action alternatives. The potential result of these regulations to increase retention of selected groundfish species 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 does 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.

In addition to the species that may be subject to changes in MRA accounting under Alternatives 2, 3, or 4 (the preferred alternative), no significant impacts are likely to occur to other groundfish stocks from any of the MRA alternatives.

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 Alternatives 2, 3, or Alternative 4 (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.

Under Alternative 2 and 3, it might be possible for some individual TACs to exceed before being identified, for example, those identified in the annual specifications; 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, nor 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 insignificant. Enforcement implications of the alternatives are addressed in the RIR in section 5.6.1.6. In that section, the Alternative 3 computation of MRAs at the time of offload is described as likely to create more uncertainty for enforcement and risk of non-compliance to MRA regulations for these species. Within days or immediately prior to offload, a longer interval of time for finding sufficient ballast species could cause a vessel operator to believe there was reduced likelihood of being detected in an MRA violation. This ability to “lawfully” have amounts of product in excess of MRAs aboard up to the time of the beginning of offload could, thus, 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, 3,

or 4, have a significant indirect value to the productivity of other species (e.g., providing prey for other living marine resources).

#### **4.1.1.6 Significance Criteria for Marine Mammals and ESA-Listed Marine Mammals applied to the Alternatives**

##### **Marine Mammal Significance Criteria**

The BSAI supports one of the richest assemblages of marine mammals in the world. Twenty-eight species are present from the orders Pinnipedia (seals, sea lion, and walrus), Carnivora (sea otter and polar bear), and Cetacea (whales, dolphins, and porpoises). Some marine mammal species are resident throughout the year, while others migrate into or out of the management areas. Marine mammals occur in diverse habitats, including deep oceanic waters, the continental slope, and the continental shelf (Lowry et al. 1982).

The PSEIS (NMFS 2004a) provides descriptions of the range, habitat, diet, abundance, and population status for these marine mammals. The most recent marine mammal stock assessment reports (SARs) for nearly all species in the table were completed in 2005 based on 2002 through 2004 data (Angliss and Outlaw 2005). Northern elephant seals, and marine mammals under USFWS jurisdiction, were assessed in 2002 (Angliss and Outlaw 2005). This information is incorporated by reference.

Direct and indirect interactions between marine mammals and groundfish harvest may 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 occurrence 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 Alaska Groundfish Harvest Specifications EIS, section 8.0 (NMFS 2007).

Impacts of the alternatives in Chapter 4 are analyzed by addressing three questions: (1) Do the proposed harvest levels result in increases in direct interactions with marine mammals (incidental take and entanglement in marine debris)? (2) Do the proposed harvest levels remove prey species at levels or in areas that could compromise foraging success of marine mammals (harvest of prey species), and (3) Do the proposed harvest levels modify marine mammal behavior (disturbance)?

Significant incidental take of marine mammals is determined by predicting whether the proposed harvest levels will result in a take that exceeds the potential biological removal (PBR). The PBR is the maximum number of animals that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population. The PBR is used for marine mammals because it is the value determined through the marine mammal stock assessments (Angliss and Outlaw 2005) to identify the level at which animals may be removed from the stocks while maintaining sustainable populations. As long as take is maintained within the PBR, the take is considered not significant. Significance ratings for each question are summarized in Table 5.

Table 5. Criteria for determining significance of impacts to marine mammals.

	<b>Incidental take and entanglement in marine debris</b>	<b>Harvest of prey species</b>	<b>Disturbance</b>
No impact	No incidental take by fishing operations and no entanglement in marine debris	No competition for key marine mammal prey species by the fishery	No disturbance of mammals or their prey
Adverse impact	Mammals are taken incidentally during fishing operations, or become entangled in marine debris	Fisheries reduce the availability of marine mammal prey	Fishing operations disturb marine mammals
Beneficial impact	No beneficial impacts	No beneficial impacts	No beneficial impacts
Significantly adverse impact	Incidental take is more than PBR or is a substantial amount in comparison to estimated population for species with no PBR	Competition for key prey species likely to constrain foraging success of marine mammal species causing population decline	Disturbance of mammal such that population is likely to decrease
Significantly beneficial impact	Not applicable	Not applicable	Not applicable
Unknown impact	Insufficient information available on take rates	Insufficient information as to what constitutes a key area, important time of year, or prey species	Insufficient information as to what constitutes disturbance

The conservation status of marine mammals present in the management areas of concern is listed in Table 2. (see Section 4.0). Under the Marine Mammal Protection Act (MMPA), NMFS 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, and PBRs. The BSAI groundfish non-pelagic trawl fisheries are classified as either Category II or III fisheries in the annual List of Fisheries published by NMFS. Very few marine mammals have been recorded as incidentally taken in these fisheries (71 FR 20941, April 24, 2006).

The action under Alternative 2 and 3 may cause increased removal of SSL prey species inside SSL protection areas. The biological opinion on the effects of the groundfish fisheries found that competition for prey resources does occur between Steller sea lions and groundfish fisheries and the SSL protection measures prevent the likelihood of jeopardy of extinction or adverse modification of critical habitat (NMFS 2001). Furthermore, ESA consultation for the groundfish fisheries determined that adverse impacts on ESA-listed marine mammals were limited to Steller sea lions, Humpback whale and sperm whales (NMFS 2006a). Because this action is not likely to increase overall interaction between humpback whales and sperm whales, and there is no

concern with competition for prey with these species, it is unlikely the action would have any affect on these marine mammals. Northern fur seals may be affected by the BSAI non-pelagic trawl fishery through incidental takes but is not likely to experience prey competition with this fishery (NMFS 2007). Alternatives 2 and 3 are not likely to change the fishing activities in a way that would change the level of interaction with fur seals. For these reasons, the marine mammal discussion is focused on Steller sea lions at, NMFS 2006a.

This section describes the best available data on potential effects of Alternatives 1, 2, 3, and the preferred alternative proposed by the Council at the December 2006 Council meeting, on Steller sea lions.

### **Effects on Steller Sea Lions of all Alternatives**

The SSL inhabits many of the shoreline areas of the BSAI, using these habitats as seasonal rookeries and year-round haulouts. The SSL 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.

A discussion of the preferred alternative that retains status quo MRA accounting in SSL protection areas for Atka mackerel and Pacific cod are discussed in 4.1.8. Some features of the preferred Alternative are compared with Alternatives 2, 3, and 4. In general, groundfish fisheries are identified as a source of potential impact to SSL in the groundfish SEIS. To put these potential effects in context, none of the more serious criteria for evaluating SSL impacts are likely to occur from the action alternatives.

For example it is unlikely that a change in incidental take of SSL or entanglement of marine debris associated with the action alternatives would occur in comparison with the same type and amount of gear that would be deployed for Alternatives 1, 2, 3, and the preferred alternative. There are no significant impacts on Steller sea lions due to disturbance identified in the action alternatives. There is a concern that harvest of prey species, particularly Pacific cod and Atka mackerel, ay in some locations, times and amounts impact SSL. Two of the MRA action alternatives have the potential to alter locations and amounts that these two prey species are removed to the extent that they are of interest. Changes, resulting from two of the action alternatives (2 and 3) in the opportunity for incidental catch of prey species may slightly increase the incidence of topping off but topping off is not likely to result in any disturbance of SSL, or indirect effect on these marine mammals. The primary area of potential effect is prey availability.

Potential BSAI groundfish impacts on Steller Sea lions and their designated critical habitat have been the subject of ESA consultations (NMFS 2000, NMFS 2001) and is currently in consultation (NMFS 2006a). Some of the key issues examined in formal consultations and biological opinions include the amount, timing, and location of prey species removals from SSL protection areas. 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 adversely effect designated critical habitat. The following sections describe why the preferred alternative is not considered likely to have any adverse impact on SSL prey species, and why Alternatives 2 and 3 cannot be completely eliminated as a source of increased prey removals.

#### **4.1.1.7 Steller sea lion ESA Background and Effects for Atka mackerel and Pacific cod Effects: Alternatives 1 and Alternatives 2, 3, and 4**

Atka mackerel and Pacific cod are two important SSL prey species that are in the process of being evaluated as part of a new Biological Opinion NMFS is preparing to assess the impacts of the Alaska groundfish fisheries on SSL. The SSL Biological Opinion is scheduled for completion by NMFS in late 2007. The ongoing consultation addresses the effects of status quo fishery management on Steller sea lions and their designated critical habitat. Much of the information in the following sections on SSL implications of the alternatives is adapted from these sources.

- **Background, on Current Management for Pacific Cod under Alternative 1 & relevance to Steller sea lion prey removal.**

During the early 1960s, a Japanese longline fishery harvested BSAI Pacific cod for the frozen fish market. Beginning in 1964, the Japanese trawl fishery for walleye pollock (*Theragra chalcogramma*) expanded and cod became an important bycatch species and an occasional target species when high concentrations were detected during pollock operations. By the time that the Magnuson Fishery Conservation and Management Act went into effect in 1977, foreign catches of Pacific cod had consistently been in the 30,000-70,000 t range for a full decade. In 1981, a U.S. domestic trawl fishery and several joint venture fisheries began operations in the BSAI. The foreign and joint venture sectors dominated catches through 1988, but by 1989 the domestic sector was dominant and by 1991 the foreign and joint venture sectors had been displaced entirely. Presently, the Pacific cod stock is exploited by a multiple-gear fishery, including trawl, longline, pot, and jig components.

Distribution of fishing effort and catches in and around SSL protection areas requires assessment of spatial catch data. Figure 1, shows areas in which sampled hauls or sets for each of the three main gear types (trawl, longline, and pot) were concentrated during 2005. Many of these Pacific cod catches are also adjacent to the waters of islands or land masses that are populated by Steller sea lions. The methods for delineating catch in all SSL protection areas are assessed in the 2006 SAFE report (NMFS 2007, Appendix A)

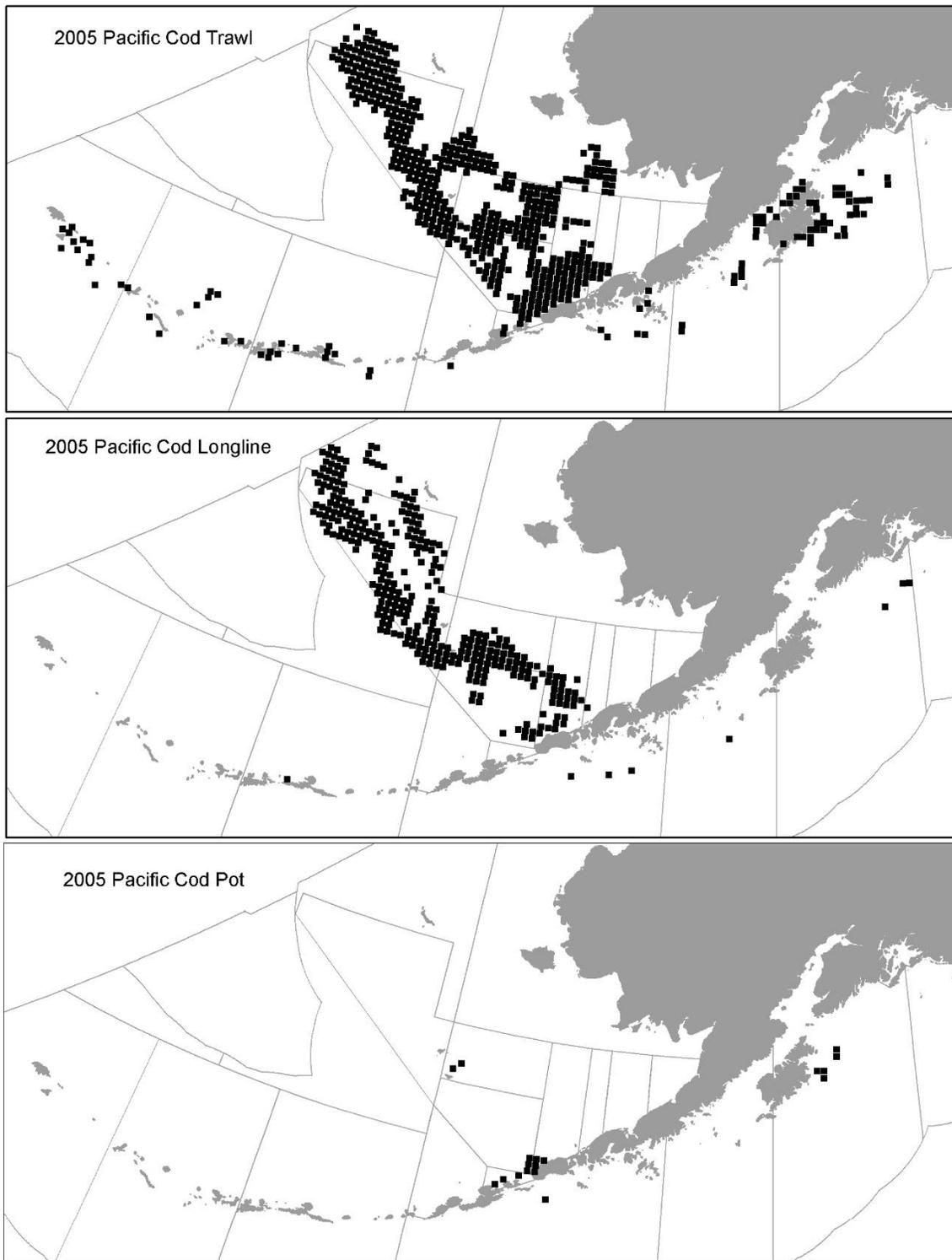


Figure 1. Locations of Pacific cod fishing by gear type in 2005 groundfish

For the H&G trawl C/P sector, fishing effort in and outside of SSL protection areas is partially related to the available allocation of this species to this sector. Current regulations at

50 CFR 679.20 specify that the BSAI Pacific cod TAC will be allocated initially according to gear type as follows: the trawl fishery will be allocated 47 percent, the fixed gear (longline and pot) fishery will be allocated 51 percent, and the jig fishery will be allocated 2 percent; of the fixed gear allocation, the longline fishery will be allocated 80.3 percent (not counting catcher vessels less than 60 ft LOA), the pot fishery will be allocated 18.3 percent (not counting catcher vessels less than 60 ft. LOA), and fixed-gear catcher vessels less than 60 ft. LOA will be allocated 1.4 percent.

SSL recovery measures also specify protection areas and associated closures for Pacific cod fishing depending on the gear type and timing of the Harvest Limit Area Atka mackerel fishery. Fishing effort and catch by the H&G trawl C/P sector in SSL protection areas are likely to be influenced by existing protection areas and closures. Figure 2 identifies the area closures for trawl Pacific cod fisheries. As of 2005, these Pacific cod SSL protection areas and measures relevant to the BSAI include:

- No directed fishing for Pacific cod, pollock and Atka mackerel areas (Bogoslof & Seguam Forage Areas) 679.22 (a)(7)(i) and (a)(8)(i)
- AI Pacific cod trawl closure areas during the Atka mackerel HLA fishery. 679.22 (a)(8)(iv)(B)
- AI Pacific cod trawl closure after Atka mackerel harvest limits are reached 679.22 (a)(8)(iv)(A)
- BS Pacific cod trawl closure areas 679.22 (a)(7)(v)

The influence of initial sector allocation amounts and closure restrictions in SSL protection areas on catch of Pacific cod by the H&G trawl C/P sector are difficult to assess in any detail, because the type of predictive models that might be applied to assessing entry/exit decisions for this BSAI sector cannot be reasonably constructed with available data. While any formal assessment of the factors that impact entry and exit in these protection areas is not practicable, current regulations on instantaneous MRA accounting for Pacific cod are unlikely to impose substantial influence over catches of this species compared with initial allocations, timing of region-wide openings and closings to directed fishing or the considerable number of protection areas closures to directed fishing. Even so, the potential exists that any relaxation of a current regulatory restriction in SSL protection areas (such as a longer MRA accounting interval) could change removals of fish from protection areas or topping-off on a SSL prey species.

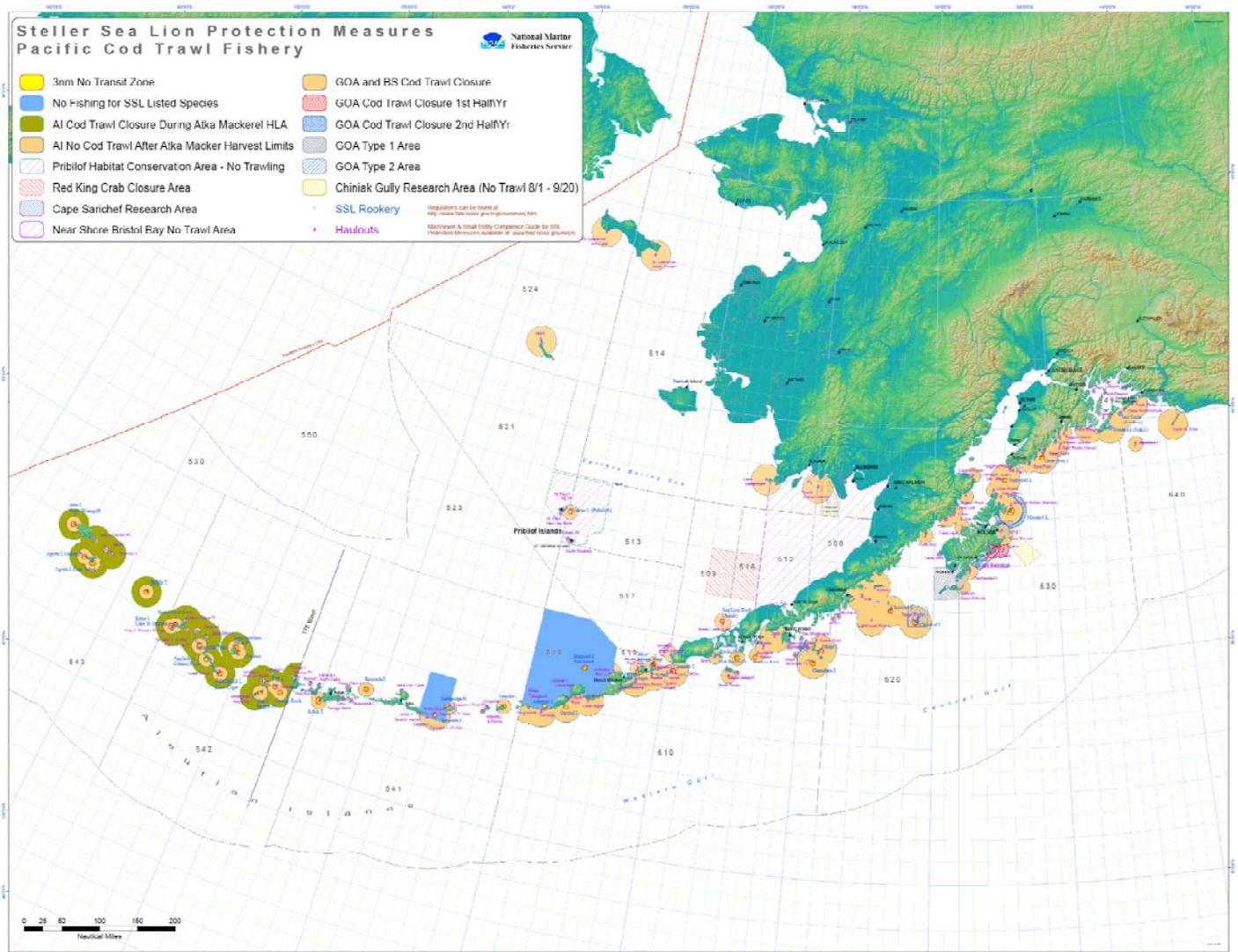


Figure 2. Locations of Pacific cod protection areas for trawl gear

Observer data on catch merged with VMS data may be used to estimate catches of Pacific cod inside and outside of BSAI SSL protection areas. Observer data expands samples of catch by species for each observed haul. It does not include catch by species from hauls that are unobserved.

Using data from 2003 to 2006, estimates of observed catch of Pacific cod for H&G trawl C/Ps inside and outside of SSL protection areas may be found in Table 6. When including data from only observed hauls in the BSAI, from 2003 to 2006, an average of 20,220 mt of Pacific cod were caught. The BS portion of the Pacific cod catch represents over half of total BSAI Pacific cod catch at 11,605 mt, while 8,615 mt was caught in the AI subarea.

From 2003 to 2006 an average of 1,094 mt of Pacific cod (6 percent of BSAI total) was taken in the SSL critical habitat of BSAI, while an average of 19,126 mt was caught in BSAI areas

outside of SSL protection areas. Considering that portions of SSL protection areas are areas that are closed to directed fishing for Pacific cod, this is a small portion of the current annual Pacific cod catch in this sector. In the AI, estimated catch of Pacific cod in SSL protection areas is 973 mt of the total AI Pacific cod catch of 8,615 mt (11 percent of the AI total).

Table 6. Pacific cod catches inside and outside of Steller sea lion protection areas, average catch (mt), and percent of catch in the Bering Sea and AI

Year	2003	2004	2005	2006	Average Catch	% by subarea
Pacific Cod caught in AI, <u>outside</u> SSL protection areas (mt)	10,016	6,933	7,255	6,364	7,642	89%
Pacific Cod in AI SSL protection areas	588	1,220	1,194	889	973	11%
Pacific Cod caught in <u>BS</u> <u>outside</u> SSL protection areas (mt)	9,141	14,066	11,802	10,928	11,484	99%
Pacific Cod in <u>EBS</u> SSL protection areas	133	158	152	38	121	1%
Total All Areas	21,882	24,381	22,408	20,226	20,220	

It is difficult draw any definitive conclusions about the relationship between Pacific cod allocations, area closures and MRA regulations and the effect of these on incidental catching and processing of Pacific cod in general. Understanding the effect of MRA accounting on catches, in and out of SSL protection areas, would be even a larger challenge. One data limitation is that current regulations, triggering the start of a new fishing trip, do not always produce a record of the amount of processed catch that came from inside or outside SSL protection areas. A fishing vessel must track MRA compliance on each fishing trip. While a fishing trip is triggered by a vessel when it enters or leaves an area (including SSL protection areas) where a different directed fishing prohibition applies, circumstances exist where fishing prohibitions may be identical on either side of a SSL protection area. Under Alternative 1, lack of a trip trigger for each SSL protection area entry and exit limits NMFS ability to audit MRA compliance of every haul of this species in SSL protection areas. Even with a clear record of Pacific cod and Atka mackerel catches and discards in SSL protection areas, many other regulations, changes in fishery abundance and market factors may impact a vessel operator's decision to enter or exit a statistical area. Lack of data on how fishing behavior responds to these factors is a constraint to attributing effects of current regulations on MRAs on catch and effort, though more stratified accounting of production is likely to assist in agency enforcement of these retention rules.

- **Background, on Current Management for Atka mackerel under Alternative 1 and relevance to Steller sea lion prey removal.**

Annual catches of Atka mackerel in the eastern Bering Sea (BS) and Aleutian Islands (AI) regions increased during the 1970s reaching an initial peak of over 24,000 mt in 1978 (NMFS 2006). Atka mackerel became a reported species group in the BSAI Fishery Management Plan

in 1978. Catches (including discards and community development quota [CDQ] catches) by region and corresponding gear type.

From 1970-1979, Atka mackerel were landed off Alaska exclusively by the distant water fleets of the U.S.S.R., Japan and the Republic of Korea. U.S. joint venture fisheries began in 1980 and dominated the landings of Atka mackerel from 1982 through 1988. The last joint venture allocation of Atka mackerel off Alaska was in 1989, and since 1990, all Atka mackerel landings have been made by U.S. fishermen. Total landings declined from 1980-1983 primarily due to changes in target species and allocations to various nations rather than changes in stock abundance. Catches increased quickly thereafter, and from 1985-1987 Atka mackerel catches averaged 34,000 mt annually, dropping to a low of 18,000 mt in 1989. Beginning in 1992, TACs increased steadily in response to evidence of a large exploitable biomass, particularly in the central and western Aleutian Islands (NMFS 2007, Appendix A)

Distribution of Atka mackerel catches generally mimic the distribution of the species: (1) the fishery is highly localized and usually occurs in the same few locations each year; (2) the schooling semi-pelagic nature of the species makes it particularly susceptible to trawl gear fished on the bottom; and (3) 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, with the majority of landings occurring 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, 53°N, 172°W, and 173°W in Seguam Pass (73% in 1984, 52% in 1985). Areas fished by the Atka mackerel fishery from 1977 to 1992 are displayed in Fritz (1993). Areas of 2006 fishery operations are shown in Figure 15.1 of the SAFE document.

Prior to 1992, ABCs 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 11 March, almost entirely south of Seguam Island. This initial TAC release represented the amount of Atka mackerel that the Council thought could be appropriately harvested in the eastern portion of the Aleutian Islands subarea (based on the assessment for the 1993 fishery; Lowe 1992). In mid-1993, however, Amendment 28 to the Bering Sea/Aleutian Islands (BSAI) Fishery Management Plan became effective, dividing the Aleutian subarea into three districts at 177°W and 177°E for the purposes of spatially apportioning TACs (Figure 15.1). On 11 August 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 these three regions based on the average distribution of biomass estimated from the Aleutian Islands bottom trawl surveys. 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 SSL protection areas in the BSAI Islands. Temporal dispersion was accomplished by dividing the BSAI Atka mackerel TAC into two equal seasonal allowances, an A-season beginning January 1 and ending April 15, and a B-season from 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 SSL protection areas in the Central and Western Aleutian Islands. This was in addition to bans on trawling within 10 nm of all sea lion rookeries in the Aleutian district and within 20 nm of the rookeries on Seguam and Agligadak Islands (in area 541), which were instituted in 1992. The goal of spatial dispersion was to reduce the proportion of each seasonal allowance caught within SSL protection areas to no more than 40 percent by the year 2002. No SSL protection area 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 SSL protection areas. The regulations implementing this four-year phased-in change to Atka mackerel fishery management became effective on 22 January 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 SSL protection areas from 8 August 2000 through 30 November 2000, by the Western District of the Federal Court, because of violations of the Endangered Species Act (ESA). As part of the plan to respond to the Court and comply with the ESA, NMFS and the NPFMC formulated new regulations for the management of SSL 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 20 January to 15 April; B season: 50 percent from 1 September to 1 November). However, the maximum seasonal catch percentage from SSL protection areas was raised from the goal of 40 percent in the 1999 regulations to 60 percent. To compensate, effort within SSL protection areas in the Central (542) and Western (543) Aleutian 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 SSL protection areas 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. SSL protection areas east of 178°W in the Aleutian district, including all SSL protection areas in subarea 541 and a 1° longitude-wide portion of subarea 542, is closed to directed Atka mackerel fishing.

As of 2006, these Atka mackerel SSL protection areas and measures relevant to the BSAI include the following closed areas or management measures (Figure 3):

- No Fishing for Pacific cod, pollock and Atka mackerel area (Bogoslof & Seguam Forage Areas) 679.22 (a)(7)(i) and (a)(8)(i)
- BSAI no Atka mackerel Trawling area 679.22 (a)(7)(vi)
- Atka mackerel HLA areas 679.2 definition for HLA and 679.20(a)(8)(iii)

Alternative 1, MRA accounting for Atka mackerel would be estimated at anytime during a fishing trip in each of these five areas as well as all BSAI areas outside of SSL protection areas. Under most circumstances, H&G trawl C/P vessel will trigger a new fishing trip, and thus, be required to track MRA accounting anytime when entering or exiting SSL protection areas, where a different directed fishing prohibition applies. If no other directed fishing prohibitions were to apply, it is possible that when Atka mackerel is closed to directed fishing on either side of a SSL protection area, an AFA trawl C/P vessel could enter and exit an area without triggering a new fishing trip.

Observer data on catch merged with VMS data may be used to estimate catches of Pacific cod inside and outside of BSAI SSL protection areas. Observer data expands samples of catch by species for each observed haul. It does not include catch by species from hauls that are unobserved. By comparing estimates of catch from observed hauls, with VMS data it is possible to estimate catches of Pacific cod and Atka mackerel in SSL protection areas. These estimates exclude catches from 30 percent observed vessels, as well as the amount of unobserved catch in “100 percent” observed H&G trawl C/P vessels.

Using data from 2003 to 2006, estimates of observed catch of Atka mackerel for H&G trawl C/Ps inside and outside of SSL protection areas for Atka mackerel may be found in Table 7. Substantial catches of Atka mackerel occur in SSL protection areas as incidental catch in other groundfish fisheries. Accounting for observed hauls in the BSAI from 2003 to 2006, an average of 55,926 mt of Atka mackerel were caught. The BS portion of the Atka mackerel catch is a small portion of total BSAI Atka mackerel catch, at 1,620 mt, while 54,300 mt is caught in the AI portion. When accounting for only observed Atka mackerel catches in the combined SSL protection areas of the BSAI a total of 6,717 mt were caught, while 49,210 mt of Atka mackerel were caught in areas other than SSL protection areas. The BS portion of the Atka mackerel catch taken in SSL protection areas of 1,573 mt was 97 percent of the entire BS Atka mackerel catch in the H&G trawl C/P sector. In the AI, estimated catch of Atka mackerel in SSL protection areas is 9 percent, or 5,143 mt of the total AI Atka mackerel catch of 54,306 mt.

Considering that SSL protection areas are closed year-around to directed fishing for Atka mackerel in the BS portion of the BSAI, this is a substantial portion of the current annual Atka mackerel catch in this sector. While the amount of AI Atka mackerel in the BS portion of SSL protection areas is a lower percent, it has obviously been an important area of Atka mackerel harvest for this sector as well.

Table 7. Atka mackerel catches inside and outside of Steller sea lion protection areas, average catch (mt), and percent of catch in the Bering Sea and AI

Year	2003	2004	2005	2006	Average Catch	% by subarea
Atka mackerel caught in AI, <u>not</u> in SSL protection areas (mt)	43,025	48,606	51,885	53,136	49,163	91%
Atka mackerel in AI SSL protection areas	8068	2,681	5,762	4062	5,143	9%
Atka mackerel caught in BS, <u>not</u> in SSL protection areas (mt)	15	155	11	4	47	3%
Atka mackerel in BS SSL protection areas	1,488	2,547	1,303	956	1,573	97%
Total All Atka areas	52,596	53,989	58,961	58,158	55,926	

Atka mackerel data report from NMFS- Steve Lewis, Juneau

It would be challenging and data intensive to relate the existing range of management tools including time/area closures, or even MRA regulations to the quantity of incidental catches of

Atka mackerel or any other species. While attributing these types of management measures to changes in catch would be complex, isolating the effect of any of these variables on MRA compliance in SSL protection areas is even more difficult. A number of variables could impact compliance decision making for recording of instantaneous groundfish production in a trip.

For example current regulations defining a fishing trip do not require separate calculations of retained amounts of groundfish inside and outside of SSL protection areas for groundfish species, including Pacific cod and Atka mackerel. For some trips where a different directed fishing prohibition applies across two adjoining areas, a new fishing trip for catch accounting purposes must be initiated. That current regulation however, creates many circumstances where new MRA accounting would not occur when entering or leaving a Steller protection area. The existing ambiguous trigger for any entry or exit from SSL protection areas limits NMFS ability to audit MRA compliance of this species in SSL protection areas, and also applies to Alternative 2 and 3. This data limitation would be remedied in Alternative 4.

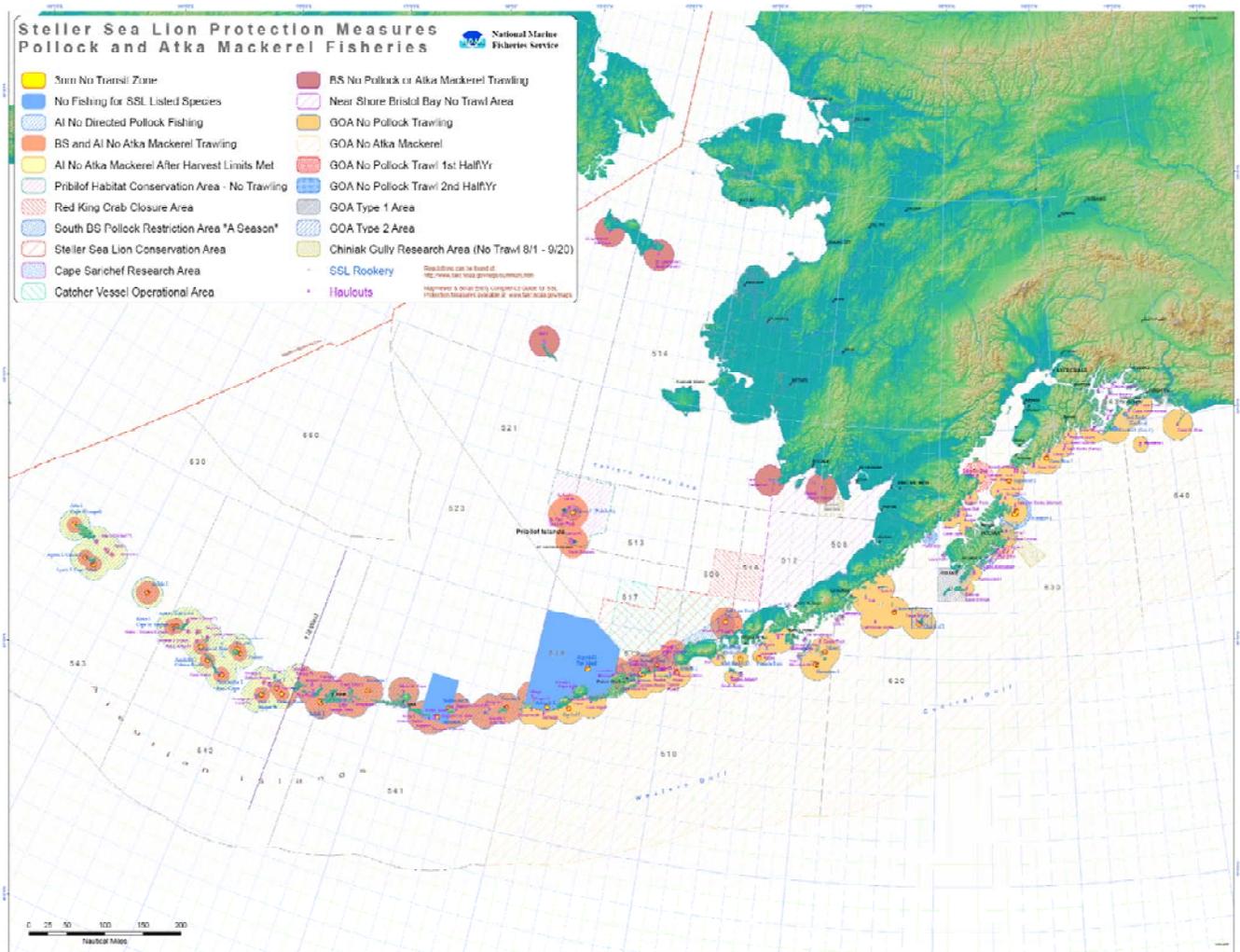


Figure 3. Locations of Atka mackerel Steller sea lion protection areas for trawl gear

#### **4.1.1.8** Effects of Alternatives 2, 3, and 4 (Preferred Alternative) on Steller sea lion protection areas for both Atka mackerel and Pacific Cod.

Under Alternative 2 and Alternative 3, increasing the interval of time available to account for an Atka mackerel or Pacific cod MRA would extend that MRA accounting flexibility outside and inside SSL protection areas. While the behavior of fishers under a more flexible MRA accounting in SSL protection areas is difficult to predict, selection of either of these two alternatives results in additional potential for increased harvest of SSL prey in SSL protection areas.

Over 95 percent of the Pacific cod and Atka mackerel catch in the H&G trawl C/P BSAI catch are retained and identified in catch data as the target of many mixed species tows. This relatively high retention and appearance as a target species suggests that these are important species for this sector, even though Pacific cod is a small contributor to total annual catch. Market prices for Pacific cod vary by year but in comparison with many of the other groundfish species caught by the H&G trawl C/P sector have a larger reported price at landing and/or first wholesale processing per mt. Consistently higher price for a given groundfish species is one factor that could increase opportunities to retain this species in SSL protection areas or result in an incentive to change fishing times or locations for this species. Atka mackerel is of sufficient interest in this sector to be targeted even when that species is closed to directed fishing.

A potential concern that NMFS related to the Council at the December 2006 Council meeting was that a longer MRA accounting interval may also extend the interval of time for topping off, in SSL protection areas under Alternative 2 and especially Alternative 3. This added flexibility could enable vessels in this sector to fish in SSL protection areas that may have higher proportions of an incidentally caught Pacific cod and Atka mackerel. The potential for a change in the distribution of Atka mackerel or Pacific cod catches exists if H&G trawl C/P vessels are motivated to top-off with Pacific cod or Atka mackerel. While any anticipated change in the amount of catch or frequency of topping-off for these species under the action alternatives is speculative, the potential for a change in SSL protection area catch is sufficient for NMFS to contemplate additional ESA consultation for Alternatives 2 and 3. As a result of including these two species under Alternative 2 and Alternative 3, NMFS recommended at the December Council meeting that Alternative 2 or 3 exclude Pacific cod and Atka mackerel, because each would relax MRA accounting in SSL protection areas.

At the December Council meeting, testimony provided by the H&G trawl C/P sector expressed concern that removal of these two species from the Council action alternatives could impact the value of this proposed action to the sector in the near future. Pacific cod allocations under Amendment 85, of 13.4 percent, if implemented prior to Amendment 80, could reduce or eliminate directed fishing on this species for H&G trawl C/P vessels. With the Pacific cod catches limited to the 20 percent instantaneous MRA, H&G trawl C/P sector representatives reported that discards of this species could increase. This behavior was anticipated by the H&G trawl C/P sector to be exacerbated by the Groundfish Retention Standard, which would require no less than 65 percent of groundfish to be retained in 2008, and 75 percent to be retained by 2009. It is likely the directed fishery by H&G trawl C/P vessels for Pacific cod could be closed for most of the season, if Amendment 85 were implemented as noted in the EA/RIR/IRFA for

proposed Amendment 85. That action would allocate Pacific cod among sectors and apportion sector allocations between BS and AI subareas (NPFMC 2006).

To respond to both the need to avoid time consuming and costly SSL consultation and to accommodate sector opportunities to increase groundfish retention, the Council subsequently addressed potential SSL concerns in the December 2006 motion, by modifying Alternative 3 so that it would continue status quo instantaneous MRA accounting for Atka mackerel in the BSAI<sup>5</sup> and for Pacific cod in BSAI SSL protection areas. For all other areas in the BSAI, the H&G trawl C/P sector would apply MRA accounting at the end of a fishing trip. The Council also proposed a new trip trigger, so that when any H&G trawl C/P vessel entered or exited a SSL protection area, a new fishing trip would commence.

Steller sea lion protection areas vary by species, area, and time. If approved by the Secretary, Alternative 4 would continue to apply instantaneous MRA accounting for Pacific cod or Atka mackerel during a fishing trip inside SSL protection areas. These SSL protection areas are any area where the following may occur:

- directed fishing is prohibited for Pacific cod, pollock, or Atka mackerel (applicable to Bogoslof & Seguam Forage Areas at 679.22 (a)(7)(i) and (a)(8)(i));
- directed fishing with trawl gear for AI Pacific cod is prohibited during the Atka mackerel HLA fishery (679.22 (a)(8)(iv)(B));
- directed fishing with trawl gear for AI Pacific cod is prohibited after Atka mackerel harvest limits are reached (679.22 (a)(8)(iv)(A)); and directed fishing with trawl gear for BS Pacific cod is prohibited (679.22 (a)(7)(v)).
- directed fishing with trawl gear for BSAI Atka mackerel is prohibited (679.22 (a)(7)(vi)); or
- the Atka mackerel HLA areas are closed (679.22 (a)(8)(v)).

In addition, any entry or exit to these areas by an H&G trawl C/P sector vessel would trigger a new fishing trip. Prior to the implementation of Amendment 85 and Amendment 80, the H&G trawl C/P sector has not identified any expectation that relaxed MRA accounting would change catches of Pacific cod inside or outside SSL protection areas. This sector currently catches a substantial portion of Pacific cod in the directed fishery (where none of the action alternatives apply). This sector presently operates in a regulated open access fishery that has been described as a “race for fish”. Opportunities to dramatically shift fishing effort to a different species under this system are limited, because most vessel operators do not have sufficient time to fish with a high level of selectivity.

If Alternative 2 or Alternative 3 were implemented, the change in Atka mackerel catch, both inside and outside of SSL protection areas, is not possible to predict. However, where this species represents a valued species to catch, and/or is locally concentrated or sufficiently abundant to locate, the possibility exists that relaxed MRA accounting could encourage some topping off that did not occur under Alternative 1. The concern with relaxing almost any Atka

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<sup>5</sup> As described in Section 2, the text of the Council motion refers to maintaining status quo MRA accounting for Atka mackerel in the AI only. Data on catches inside and outside these areas reveal that most of the Atka mackerel catch for this sector comes from within protection areas. The preferred alternative applies instantaneous MRA accounting to this sector for Atka mackerel in the BS, as NMFS believes that this was the Council’s intent for the December 2006 final action.

mackerel regulation in SSL protection areas is the potential for increased removals of this species.

When Amendment 80 was implemented, regulations removed all closures for directed fishing on allocated fishing for co-op participants in the BSAI (that included Atka mackerel and Pacific cod). As a result, MRA accounting would no longer be required of these species. As Alternative 2 and 3 would effectively be managed in this manner, MRAs for these two species would become inactive in the BSAI for members of Amendment 80 co-ops. Amendment 80, however, continued to apply MRAs for Atka mackerel and Pacific cod in SSL protection areas. It is not feasible to project how removals of these two species would be impacted under Alternative 4. Members of the H&G trawl C/P sector report that catches of these two species in SSL protection areas may decline compared with the Alternative 1, if Alternative 4 is implemented.

A reduction in localized prey populations of Atka mackerel and Pacific cod in the SSL protected area is unlikely with the adoption of Alternative 4 (the preferred alternative). If the Secretary were to approve Alternative 4, MRA accounting for Pacific cod and Atka mackerel would continue to be calculated at any time during the duration of a fishing trip in the SSL protection areas. This is the status quo accounting approach for MRAs and is the management measure that is included in the currently applicable biological opinion (NMFS 2001).

#### Effects of an additional Fishing Trip Trigger

Adding an additional fishing trip trigger in Alternative 4 requires that an H&G trawl C/P start a new fishing trip when entering or departing a SSL protection area. It is possible that this additional trigger could have the effect of reducing topping off on Atka mackerel or Pacific cod in these protection areas compared with Alternatives 2 and 3. Under Alternative 2 or 3 a H&G trawl C/P would be allowed to begin a fishing trip inside a SSL protection area, and if there are no other trip triggers applied, exit to the areas outside the protection area to find sufficient basis species to match with Atka mackerel caught and retained in the protection area. In contrast, if the same vessel triggered a fishing trip when entering and exiting the SSL protection area, the vessel would be required to rely on basis species from within the SSL protection area to match with the Atka mackerel caught and processed. Under this circumstance, the fishing trip trigger could easily influence the operator of a non-AFA C/P vessel to never enter the SSL protection area, or to avoid catching as much Atka mackerel in the area.

Based on testimony at the December Council meeting, including this feature of an additional trigger for vessels entering or exiting an SSL protection area, could have the effect of restraining some entry to SSL protection areas, because of the additional uncertainty of staying below a Pacific cod or Atka mackerel MRA for which the vessel operator must have adequate basis species in the hold to offset the incidental production as soon as a haul was processed. It is not feasible to scientifically assess the probability that the additional trip trigger would change entry and exit or change Pacific cod and Atka mackerel catches in the SSL protection areas.

Need for retaining instantaneous Atka mackerel MRA accounting in Steller sea lion protection areas of the BSAI under Alternative 4

At the December 2006 Council meeting, the Council recommended an Alternative 4 (preferred alternative) that proposes to change MRA accounting for Atka mackerel caught in the BS and AI, to the end of a fishing trip.

“ In the BSAI, calculate the interval of accounting for MRA of yellowfin sole, rock sole, flathead sole, “other flatfish” and arrowtooth flounder at the end of a fishing trip.

Include AI POP  
Include Atka mackerel in the Bering Sea  
Include Atka mackerel in the Aleutian Islands  
Include BSAI Pacific cod”

The Council also applied end of fishing trip MRA accounting to catches of Atka mackerel in the Aleutian Islands, except when any H&G trawl C/P vessel fished in a SSL protection area.

“The trip which starts inside CH will be subject to MRA accounting for Pacific cod and Atka mackerel at any point during the fishing trip (status quo enforcement).”

When vessels in the H&G trawl C/P sector fish for Atka mackerel in the BSAI or Pacific cod in BSAI SSL protection areas, the Council recommended that MRAs be accounted for at anytime during a fishing trip (essentially this represents the status quo method for instantaneous MRA accounting of Atka mackerel and Pacific cod). The Council noted their reason for maintaining instantaneous accounting for SSL protection areas was to reduce the probability that Atka mackerel catches may increase in SSL protection areas. The Council also recommended that a new fishing trip begin for the purposes of MRA accounting in this sector, anytime that a vessel enters or leaves a SSL protection area.

“for Pacific cod in the BSAI and Atka mackerel in the AI, a new trip is started upon commencing fishing inside SSL Critical Habitat.”

NMFS identified in the December 2006 EA/RIR/IRFA on this action and in the December 2006 Council meeting that additional SSL consultation may apply to Alternatives 2 or 3 if either of these alternatives were selected as a preferred alternative, and increased MRA accounting intervals in SSL protection areas, for both Pacific cod and Atka mackerel. While most of the SSL protection areas for Atka mackerel are located in the AI, some SSL protection areas also exist in the BS. Between 2003 and 2006 only 3 percent of the Atka mackerel observed catches in the BSAI occurred in the BS, yet 97 percent of that BS catch of Atka mackerel occurred in SSL protection areas (Table 7). If the annual catch of BS Atka mackerel should increase in the BS, it is likely that some of that catch increase could be distributed into SSL protection areas. Given the Council intent to avoid end of fishing trip or other relaxed MRA accounting for Atka mackerel in SSL protection areas that could increase removals of prey species, and considering the potential consequences of SSL consultation on the timing of this action, instantaneous accounting will need to continue to apply to Atka mackerel SSL protection areas in both the BS and AI.

Between 2003 and 2006, total catches of Atka mackerel in the BSAI non pelagic trawl fisheries averaged 55,200 mt, with a retained catch of 47,836 mt (Table 8). A small proportion of this non-pelagic catch may be attributed to catcher vessels. While 87 percent of the Atka mackerel

was retained in the BSAI over this period by the H&G trawl C/P sector (Table 8), only 40 percent of the BS Atka mackerel catch was retained (Table 9). Also, average catches of Atka mackerel over this period are much lower in the BS than in the AI, (Tables 9 and 10) these differences are due to the relative abundance of this species in the BS and AI, and because the BS area is closed for most of the year to directed fishing for Atka mackerel.

Table 8. Catch, Retention and Percentage of Retained Catch for Atka mackerel in the BSAI from 2003 to 2006

<b>BSAI Atka mackerel</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>Average</b>
Total catch	52,939	54,840	56,690	56,330	55,200
Retained catch	40,513	43,776	53,142	53,913	47,836
Percent Retained Catch	77%	80%	94%	96%	87%
Discarded catch	12,426	11,064	3,547	2,417	7,363

This table includes all non-pelagic trawl in the BSAI for C/Ps and catcher vessels.

While Atka mackerel represents a small component of total discards for this sector, in certain years catches of Atka mackerel in the BS are identified by owners of the H&G trawl C/Ps as an important fishing opportunity for some H&G trawl C/Ps. In testimony to the Council at the December 2006 Council meeting, Teresa Kandianis (2006) noted that when BS directed fishing for Atka mackerel was closed, incidental take and retention of Atka mackerel could be increased by her operations, and represented a valued fishing opportunity when other species such as Pacific cod were open for directed fishing. Thus, while little data exist to evaluate the potential value to the H&G trawl C/P sector of relaxing MRA accounting for this species in the BS, it is possible that some opportunity to retain this species in that area could result in an increase for groundfish retention for certain vessels.

Table 9. Catch, retention and discards of Atka mackerel in the Bering Sea.

<b>BS Atka mackerel</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>Average</b>
Total catch	3,994	5,940	2,433	2,001	3,592
Retained catch	1,199	1,694	1,442	1,407	1,435
Percent Retained Catch	30%	29%	59%	70%	40%
Discarded catch	2,795	4,247	991	594	2,156

This table includes all non-pelagic trawl in the BSAI for C/Ps and catcher vessels

Table 10. Catch, retention and discards of Atka mackerel in the Aleutian Islands.

AI Atka mackerel	2003	2004	2005	2006	Average
Total catch	48,945	48,899	54,257	54,329	51,608
Retained catch	39,314	42,082	51,701	52,506	46,401
Percent Retained Catch	80%	86%	95%	97%	90%
Discarded catch	9,631	6,817	2,556	1,823	5,207

This table includes all non-pelagic trawl in the BSAI for C/Ps and catcher vessels

Under Alternative 4, relaxing MRA accounting for Atka mackerel could have slightly different effects prior to implementation of Amendment 80, as compared with the period after Amendment 80. Under the current race for fish, vessels in the BSAI must choose to distribute their effort in areas where multiple species are either open or closed to directed fishing. In the BS, the directed fishery for Atka mackerel is short, and where other fishing opportunities provide improved returns to capital and labor under fast paced fisheries, Atka mackerel (with its small stock size, and modest or low groundfish prices) may draw only modest effort as a species to catch and retain. Small catch amounts and low rates of retention of BS Atka mackerel tend to support this H&G trawl C/P fleet perspective.

If Amendment 80 is approved by the Secretary, most major groundfish species targeted by the H&G trawl C/P sector will be encompassed in a sector cooperative that allows effective internal trading and allocation of catch to the more efficient catching and processing operations. Atka mackerel and Pacific cod would also be included in the list of Amendment 80 species that could be managed under a cooperative. Through a cooperative management regime, fishing opportunities for some species that were not previously exploited (such as Atka mackerel in the BS) may be explored and exploited more aggressively by this sector. The intensity of that exploitation may be tempered to some extent by the Amendment 80 allocation system that proposes to provide more Atka mackerel fishing opportunities to smaller vessels.

The BSAI Atka mackerel ABCs recommended for 2005, 2006, and 2007 are 124,000 mt, 110,000 mt, and 74,000 mt, respectively. The Atka mackerel ABC is also apportioned between the Eastern, Western, and Central Aleutian Districts, and Bering Sea subarea. In the Eastern Aleutian District, the 2006 apportionment was 23,800 mt. Even a substantial increase in BS catches of Atka mackerel, well beyond the 2006 amount taken in the BS of 2,001 mt, is not likely to become a conservation concern unless total EAI/BS catches approach the ABC.

As part of Amendment 79 and Amendment 80, vessels in this sector are subject to operation with two observers onboard, with the ability to observe all hauls. While the post Amendment 80 period could provide some opportunity for increased catching of BS Atka mackerel, advancements in H&G trawl C/P monitoring during this period are likely to provide managers with sufficient information to adjust fishing closures to manage this stock under Alternative 4.

SSL protection areas and associated designated critical habitat have been subject to substantial review and shifting of closure boundaries over the last decade as studies of SSL prey

distribution, feeding behavior and marine mammal population distribution progress. At any time, SSL protection area boundaries for this species could contract or expand. Alternative 4 provides additional opportunity for improved retention of this species in the BS should the areas outside SSL protection boundaries be expanded. Finally, different standards for MRA accounting for Atka mackerel between AI and BS areas would represent one additional regulatory difference for NOAA Office of Law Enforcement and the U.S. Coast Guard to track for this fleet. In the interest of regulatory consistency it is advantageous to apply similar MRA standards for this sector in the BS and AI.

As described in this Section none of the alternatives are anticipated to result in significant adverse impacts to the environment. The biological and physical components of the environment that are potentially impacted include benthic habitat, groundfish target species and some incidental species and marine mammals (specifically Steller sea lions). Only impacts to Steller sea lions under the two action alternatives rejected by the Council (Alternatives 2 and 3) have included some uncertainty of impacts to SSL in the BS. Alternative 4 (the preferred alternative) eliminates any potential adverse impacts on these marine mammals by applying the MRA accounting methods that currently apply in SSL protection areas.

## **4.2 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 (CEQ 1997) 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 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. A more recent review of past, present, and reasonably foreseeable future action is contained in the Alaska Groundfish Harvest Specifications EIS (NMFS 2007).

There may be effects on the BS H&G trawl C/P sector as a result of the proposed action in combination with other actions. These effects are discussed below.

#### **4.2.1 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 SSL 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 (NMFS 2002b). 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.

#### **4.2.2 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 NMFS 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.

One reasonably foreseeable future action that could increase the effectiveness of Alternative 4 would be an increase in the number of areas closed to directed fishing or increased amount of time in a year that areas are closed to directed fishing. In October 2007, the Council considered a new FMP amendment to close additional areas of the BSAI to directed fishing for non-pelagic trawl gear. Expanding the habitat conservation areas of the BSAI (as described in the EA/RIR/IRFA for Amendment 89), could change the number of areas that are closed to directed fishing in the future, for species caught by the H&G trawl C/P sector. Amendment 89 (NMFS 2007b) considers closing some expansive areas of the BSAI to directed fishing by non-pelagic gear. The H&G trawl C/P sector uses bottom trawl gear that is considered to be non-pelagic. While groundfish catches by the H&G trawl C/P sector in areas north of the Pribilofs and northwest of the Aleutian Islands are currently small compared to other areas of the BSAI, it is possible that groundfish stocks could move into these areas in the future. If Amendment 89 was submitted to and approved by the Secretary of Commerce it is not anticipated to change regulations governing MRAs, but could change the areas and frequency that MRAs apply. Alternative 4 could provide additional flexibility for vessels that want to retain groundfish species in these areas, in the event that flatfish or other species included in Alternative 4 move into these closed areas.

The Council continues to deliberate on a proposal to apportion BSAI Pacific cod ABCs and TACs between the BS and AI management areas. In the event that BSAI Pacific cod are apportioned in this manner, 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.

#### **4.2.3 Summary of Cumulative Effects**

Beyond the cumulative impacts analysis documented in the EIS for Essential Fish Habitat Identification and Conservation (NMFS, 2005a), 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 combine with the effects of the proposed action to result in significant impacts

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 H&G 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 SSL 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 among 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.

In February 2005, the Council took action to conserve EFH in the AI 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 H&G trawl C/P sector. These locations are not frequently used by these trawl operators, and there are no anticipated impacts of these closures on any of the expected outcomes accruing from the alternatives considered under the action proposed herein.

The cumulative effects on vessels in this sector of all actions listed in this analysis —past, present, and future—generally describe an increasingly restrictive regulatory environment resulting in lower harvests and gross revenues, and/or higher operating costs. The relaxation of MRA accounting for some species could provide an increase in fishing revenues for the H&G 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 for this sector. The opportunities for a significant change in overall harvest of the species included in any of the action alternatives are likely to be trivial. As a result, it is unlikely other sectors operating in the BSAI would see any change in the amount of catch removed from the pool of regulated open access TAC, available to sectors other than the H&G trawl C/P sector.

### **4.3 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 human environment. 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.

## **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 in MRA accounting for the H&G trawl C/P sector affect individuals in this sector that directly catch these species. Other individuals not regulated by this action are unlikely to be impacted by any of the MRA accounting alternatives considered. Species, other than those included in the preferred alternative are also unlikely to be impacted by this action.

## **Intensity**

Listings of considerations to determine intensity of the impacts are in 40 CFR 1508.28(b) and in the NOAA Administrative Order 216-6, Section 6. Each consideration is addressed below in order as it appears in the NMFS Instruction 30-124-1, dated July 22, 2005, Guidelines for Preparation of a FONSI. The preferred alternative is Alternative 4, and is the focus of the responses to the questions.

## **Significance of the proposed action.**

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

*1) Can the proposed action reasonably be expected to jeopardize the sustainability of any target species that may be affected by the action?*

Response: No. The proposed action applies to the groundfish fisheries of the BSAI. The total annual catch limits for each of the groundfish species affected by the proposed action are authorized under the harvest specifications for the BSAI groundfish fisheries (72 FR 9451; March 2, 2007) and the Final Environmental Impact Statement (EIS) prepared for the Alaska Groundfish Harvest Specifications in the BSAI. This EIS is described in Chapter 3 of the EA for the proposed action. The proposed action may result in increased catch of some groundfish species by the non-AFA trawl C/Ps because it allows increased retention of valuable incidental catch species. However, the total catch of all groundfish species by all vessels fishing in the BSAI will continue to be limited by the total allowable catches (TACs) established for the fisheries as a whole. Therefore, the proposed action will not jeopardize the sustainability of any target species affected by the action. (EA section 4.1.2 and 4.1.3)

*2) Can the proposed action reasonably be expected to jeopardize the sustainability of any non-target species?*

Response: No. Total catch under the proposed action will continue to be limited by the total allowable catch and prohibited species catch limits authorized for the groundfish fisheries as a whole. The proposed action is not expected to change the total amount of groundfish caught in the BSAI fisheries, the time or location of harvest, or the gear types used. All management measures that apply to the catch of non-target species in the groundfish fisheries will continue to apply. Therefore, no impacts on non-target species are expected beyond those described and authorized under the EIS for the Alaska Groundfish Harvest Specifications. (EA Chapter 3 and Section 4.1).

*3) Can the proposed action reasonably be expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in FMPs?*

Response: No. The proposed action allows the non-AFA trawl C/Ps a longer period of time to determine the maximum retainable amounts of groundfish species closed to directed fishing. The proposed action is not expected to change the total amount of groundfish caught in the BSAI fisheries, the time or location of harvest, or the gear types used. In addition, all fishing by the non-AFA trawl C/Ps will continue to be conducted according to the Essential Fish Habitat and Habitat Areas of Particular Concern protection measures under 50 CFR part 679. Therefore, the proposed action is not expected to have any impact on ocean or coastal habitats or essential fish habitat beyond that described and authorized under the EIS for the Alaska Groundfish Harvest Specifications. (EA Chapter 3 and Section 4.1).

*4) Can the proposed action be reasonably expected to have a substantial adverse impact on public health or safety?*

Response: No. This action is limited to small changes in the methods used to calculate retainable amounts of selected groundfish species. These accounting changes will not alter the amount of time spent exposed to potentially dangerous conditions onboard the fishing vessels. Therefore, public health and safety is not likely to be affected in any way that is not described and authorized under the EIS for the Alaska Groundfish Harvest Specifications. (EA Chapter 3 and Section 4.1).

*5) Can the proposed action reasonably be expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species?*

Response: No. The only ESA-listed animal that may be impacted is the SSL in the western distinct population segment of the BSAI. Two of the groundfish species affected by the proposed action (Pacific cod and Atka mackerel) are prey species for the SSL. However, the proposed action provides continued protection to Steller sea lions by not making any changes to the methods for calculating MRAs within SSL protection areas that are closed to directed fishing for Pacific cod or Atka mackerel. This provision eliminates the possibility that allowing a longer period of time to calculate MRAs for Pacific cod or Atka mackerel would increase the catch of these species inside the protection areas. In addition, the proposed action adds entering or

leaving a SSL protection area to the events that trigger the start of a new fishing trip. This provision improves monitoring of compliance of MRAs within the protection areas. (EA Section 4.1.4).

*6) Can the proposed action be expected to have a substantial impact on biodiversity and/or ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?*

Response: No. The proposed action will revise methods used to calculate maximum retainable amounts of incidental catch in the groundfish fisheries. These minor accounting changes will not have any effect on biodiversity or the ecosystem. (EA Section 4.1).

*7) Are significant social or economic impacts interrelated with natural or physical environmental effects?*

Response: No. The proposed action is expected to be economically beneficial to the non-AFA trawl C/Ps because it will allow them additional opportunities to retain and sell incidental catch species. (Chapter 5 and 6 of the EA)

*8) Are the effects on the quality of the human environment likely to be highly controversial?*

Response: No. The proposed action will revise methods used to calculate maximum retainable amounts of incidental catch in the groundfish fisheries. It will only apply to one sector in the diverse BSAI groundfish fishing industry. These are minor revisions to the groundfish regulations and are not controversial. (EA Section 1.0 and 4.1).

*9) Can the proposed action reasonably be expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers or ecologically critical areas?*

Response: No. This action takes place in the geographic area of the BSAI, generally from 3 nautical miles (nm) to 200 nm offshore. Most of these vessels offload product at sea, and product is transported to major processing facilities overseas, so no historic or cultural resources, park land, prime farmlands, wetlands, or wild and scenic rivers will be impacted. Essential fish habitat could be considered ecologically critical areas. The proposed action is not expected to have any impact on ocean or coastal habitats or essential fish habitat beyond that described and authorized under the EIS for the Alaska Groundfish Harvest Specifications. (Chapter 3 and 4).

*10) Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks?*

Response: No. The impacts of this action are relatively minor and focused on providing additional opportunities to reduce regulatory discards by the non-AFA trawl C/Ps. These impacts are not highly uncertain and do not pose unique risks.

*11) Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts?*

Response: No. Cumulative impacts of the alternatives on each of the environmental resource components are analyzed in Chapter 4.0 of this EA. When added to past, present, and reasonably foreseeable future actions these cumulative impacts are insignificant and do not go beyond those identified for the BSAI groundfish fisheries as a whole, which were analyzed in the EIS for the Alaska Groundfish Harvest Specifications.

*12) Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources?*

Response: No. This action applies to the groundfish fisheries of the BSAI which does not affect any of these areas, sites, or resources. (EA Section 1.0).

*13) Can the proposed action reasonably be expected to result in the introduction or spread of a nonindigenous species?*

Response: No. The proposed action allows the non-AFA trawl C/Ps a longer period of time over which to determine the maximum retainable amounts of groundfish species closed to directed fishing. The impacts of this action are relatively minor and focused on providing additional opportunities to reduce regulatory discards by the non-AFA trawl C/Ps.

*14) Is the proposed action likely to establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration?*

Response: No. The proposed action allows the non-AFA trawl C/Ps a longer period of time over which to determine the maximum retainable amounts of groundfish species closed to directed fishing. Approving actions to extend MRA accounting intervals does set a precedent that this type of regulatory amendment is acceptable to NMFS and makes it more likely that similar MRA revisions will be proposed in the future for other groundfish fisheries. However, future proposed revisions to MRA regulations will be considered on a case-by-case basis and an EA will be prepared for these actions that will address impacts on the human environment. Because revisions to MRA regulations have not been found to have significant impacts on the human environment in the past, approving this proposed action will not establish a precedent for a future action that is expected to have significant effects.

*15) Can the proposed action reasonably be expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment?*

Response: No. This action poses no known violation of Federal, State, or local laws or requirements for the protection of the environment. This action will be conducted in a manner consistent, to the maximum extent practicable, with the enforceable provisions of the Alaska Coastal Zone Management Program within the meaning of Section 30(c)(1) of the Coastal Zone Management Act of 1972, and its implementing regulations.

*16) Can the proposed action reasonably be expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?*

Response: No. The proposed action is expected to result in minimal impacts on target species by providing additional opportunities to reduce regulatory discards of these species. The proposed action is expected to have no impacts on non-target species. (Chapter 4 of the EA).

#### ***Selection of a Preferred Alternative 4***

At the December 2006 Council meeting, the Council identified a preferred alternative for this action, by selecting a combination of the status quo and Alternative 3. This combination included an additional trigger to create a new fishing trip when an H&G trawl C/P vessel enters or leaves a SSL protection area. In addition, it retains instantaneous MRA accounting for Pacific cod and Atka mackerel caught in SSL protection areas. Finally, the Council selected Alternative 3, but with the modification to include MRA accounting for BSAI Atka mackerel, Pacific cod, arrowtooth flounder, yellowfin sole, rock sole and “other flatfish” species at the end of a fishing trip. The resulting Alternative 4 meets the purpose and need of the action while reducing potential environmental impacts (e.g., the potential for excessive effort in SSL protection areas or removal of SSL primary prey species) identified under Alternatives 2 and 3. Therefore, the Alternative 4 is the preferred alternative.

# Chapter 5 Regulatory Impact Review

## 5.1 Introduction

This RIR examines the costs and benefits of a proposed FMP amendment to change the accounting interval for MRAs for several species harvested by the H&G trawl C/P sector in the BSAI area. This chapter includes a description of the following:

- (1) the requirements of an RIR;
- (2) the H&G trawl C/P sector resource access history, 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 H&G trawl C/P participation, retention, and catch in the pollock fishery prior to extending the MRA accounting interval, and qualitative discussion on potential changes after implementation of the preferred alternative;
- (5) management and enforcement issues associated with two potential intervals for increasing MRA accounting; and
- (6) a species specific evaluation of including or excluding a given species in an MRA accounting adjustment program.

## 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 Bering Sea and Aleutian Islands (BSAI) EEZ 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 interval for which MRAs are calculated is granted to NMFS under the Magnuson-Stevens Act. To the extent that MRAs may reduce 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 to the extent practicable and to minimize mortality of bycatch when it cannot be avoided.

Regulations requiring how BSAI groundfish vessels must account for MRAs are included at 50 CFR 679.20(e), while regulations defining a fishing trip are located at 50 CFR 679.2. Both of these sections will be amended to change MRA accounting for Atka mackerel, Pacific cod, arrowtooth flounder, yellowfin sole, flathead sole, AI POP, rock sole, and other flatfish.

### 5.4 Purpose and Need for Action

The Council adopted the following problem statement for this action:

*The non-AFA trawl C/P sector (as described under the BSAI groundfish buyback program in the Consolidated Appropriations Act of 2005)<sup>6</sup> participates in multi-species bottom trawl fisheries with naturally occurring incidental catch rates of non-target 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*

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<sup>6</sup> Section 219 of the Consolidated Appropriations Act of 2005 (Public Law No. 108-447; December 8, 2004) defined the Amendment 80 sector and implemented a capacity reduction program. These are also vessels not listed as AFA C/Ps at 50 CFR 679.4(1)(2)(i).

*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.*

## **5.5 History on H&G trawl C/P sector in BSAI Groundfish Fisheries**

### **5.5.1 Primary Target Species Caught by the H&G trawl C/P sector**

A brief history of the most important target species caught by the H&G trawl C/P sector is described in this section.

#### **Yellowfin Sole fishery**

Yellowfin sole (*Limanda aspera*) have annually been caught with bottom trawl gear on the Bering Sea shelf, since the fishery began in 1954. Yellowfin sole were overexploited by foreign fisheries in the period 1959 through 1962, when reported 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 through 1971, and further declined to an annual average of 50,700 mt from 1972 through 1977. The lower yield in this latter period was partially due to the discontinuation of the Soviet fishery for yellowfin in the eastern BS. 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 change 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. groundfish 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 BS. Since 1990, only domestic harvesting and processing of groundfish from the EEZ off Alaska has occurred.

#### **Flathead Sole fishery**

Flathead Sole, *Hippoglossoides* spp. (which includes, 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. Flathead sole has also been exploited by the H&G trawl C/P sector since the 1950s with bottom trawl gear. Throughout much of the last half century, annual catches of flathead sole by this sector have typically been an order of magnitude less than yellowfin sole.

## Rock Sole fishery

Two species of rock sole are known to occur in the North Pacific Ocean, a northern rock sole (*Lepidopsetta polyxystra n. sp*) and a southern rock sole (*L. bilineata*). Rock sole catches increased from an average of 7,000 mt, annually, from 1963 through 1969, to 30,000 mt from 1970 through 1975. Most of this catch was from the H&G trawl C/P sector. Prior to 1987, the classification of rock sole in the "other flatfish" management category prevented reliable estimation of domestic annual processing (DAP) catch. Catches from 1999 through 2006 (domestic only) have averaged 39,500 mt, annually. These two species are managed as a single stock in the BSAI.

## Atka mackerel fishery

Atka mackerel (*Pleurogrammus monopterygius*) became a reported species in the BSAI Groundfish FMP in 1978. 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, and a majority of 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 (based on the assessment for 1993; Lowe 1992). Because there was no mechanism in place at the time to spatially allocate TACs in the AI, it was not possible to disperse fishing effort in order to minimize the likelihood of localized depletion.

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 and thus disperse effort. 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 among 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.

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 the listing and critical habitat designation (CHD) of the western Aleutian population of Steller sea lions, under the Endangered Species Act.

### **Pacific ocean perch fishery**

Pacific ocean perch (POP) (*Gadus macrocephalus*) and four other associated species of rockfish (northern, rougheye, shortraker, and sharpchin) were managed as the POP complex in the BS and AI subareas from 1979 through 1990, under a single TAC. In 1991, the Council separated POP from the other red rockfish, in order to provide protection to the latter complex from possible overfishing. Of the five rockfish species in the former POP complex, Pacific ocean perch has historically been the most abundant in this region and has contributed most to the commercial rockfish catch. Since 2001, POP in the BSAI area has 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 stocks, a one to three week H&G trawl C/P directed fishery for this species has been allowed in the AI subarea. No directed fishery exists for POP in the BS subarea, though POP are caught incidentally in many BS directed fisheries.

POP were aggressively exploited by Japanese and Soviet fisheries, supporting 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. This was replaced by a domestic fishery by 1990. In 1990, the domestic fishery recorded the highest POP removals since 1977.

### **“Other Flatfish”**

The “other flatfish” complex consists of a number of flatfish species. Japanese and Soviet vessels began fishing for flathead sole, along with other flatfish, in 1963, when 30,000 mt were reportedly taken. Catches fell off to only 7,000 mt by 1965, but then increased to a peak of 51,000 mt in 1971. Catches declined to less than 20,000 mt in the mid-1970s. Since implementation of the Magnuson-Stevens Act in 1977, “other flatfish” catches have been comprised primarily of Alaska plaice, and have been reported separately. Catch of Alaska plaice and miscellaneous flatfish peaked in 1988, at 67,000 mt. Harvests have been constrained by halibut bycatch limits and the 2 million mt BSAI OY cap. Rock sole were broken out from the “other flatfish” complex in 1989, and flathead sole were broken out in 1995.

## **5.5.2 H&G trawl C/P sector access to groundfish and limits to access in the BSAI**

In the 1960s, trawlers in the BSAI began exploiting halibut, sablefish, Pacific ocean perch, and other species along the continental slope in the central and northern Bering Sea and in Aleutian Island waters (NMFS 2004a). Some of these vessels producing headed and gutted product, eventually began to specialize in trawling and processing of flatfish, Atka mackerel, Pacific cod, and pollock. The following section discusses the history of these H&G trawl C/P sectors and documents the important regulatory actions taken 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, provisions for a fishery council management system, in 1976. In the three decades following establishment of the EEZ in 1976, license programs, access to directed fisheries, and a number of other regulations have tended to limit the activities of H&G trawl C/P vessels in the

BSAI (Northern Economics 2002b). In Alaska, the North Pacific Fishery Management Council approved an allocation system for groundfish in 1978, that gave preferential allocation first to U.S. domestic processors (i.e., DAP), second to foreign processors utilizing U.S. fishing vessels (JVP), and lastly to 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 4, the Americanization of the groundfish fisheries in the U.S. EEZ off Alaska went from almost no domestic 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 TALFF fishery off Alaska took place in 1989, and the last JVP fishery took place in 1990.

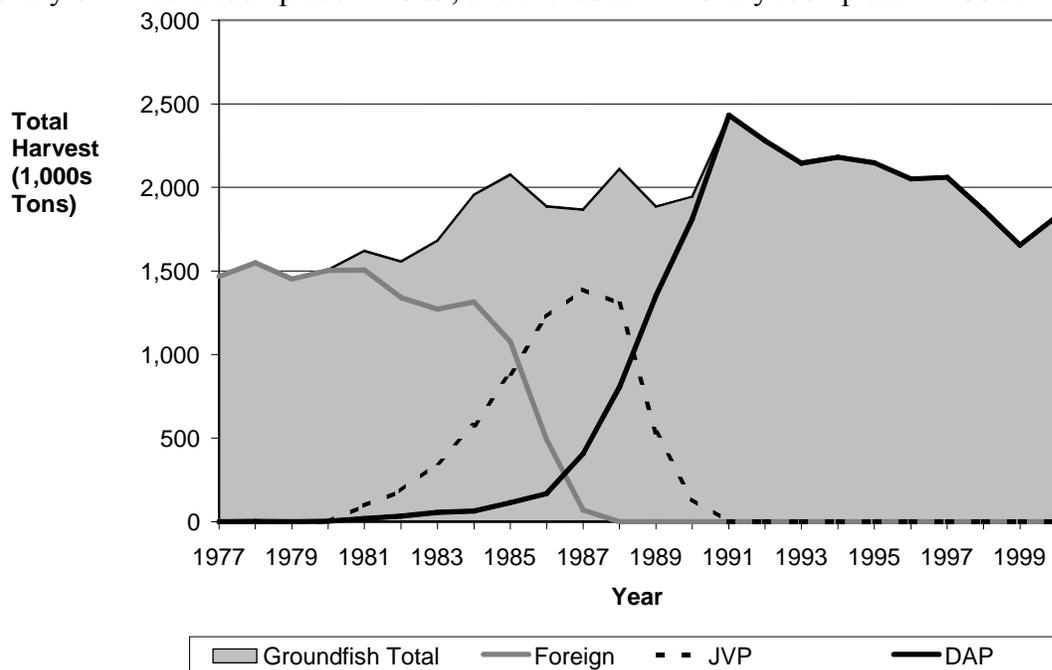


Figure 4. Americanization of the groundfish fishery off Alaska, 1977-1999

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 following establishment of the EEZ, the fishery resource was taken on a first-come first-served basis. Whoever wished to participate could fish until the quota was taken. As entry expanded, this allocation system became increasingly inefficient, evolving into a race-for-fish. The biggest and fastest vessels would often catch the most fish. While the negative consequences of management policies that promote the race-for-fish have been substantially documented (National Research

Council 1999), these input or output control management<sup>7</sup> policies have continued to be the principal means of allocation for vessels in the H&G trawl C/P sector until 2008.<sup>8</sup> Fast paced fisheries are often not conducive to retention of non-target incidentally caught species, as fishermen seek to fill holds in as short a time as possible with the primary target (and/or highest value) species.

Immediately preceding the push to Americanize the U.S. groundfish fisheries off Alaska, the domestic western Alaska king crab fisheries experienced huge growth (in both catch numbers of participating vessels (NMFS 2002a)). The crab fisheries peaked in 1980, and subsequently collapsed the following year. The number of vessels in the Bristol Bay red king crab fishery had increased from 51 in 1970, to 236 in 1979 and 1980 (ADF&G 1999). Many of these new entrants into the crab fishery were rapidly converted from vessels used to transport pipe and oil well supplies in the Gulf of Mexico and 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, but with mortgages to be paid. 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.

Some of the earliest U.S.-flagged trawl C/Ps were H&G 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 1983 introduction 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 load line 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 load line certifications (such as most of the H&G trawl C/Ps), were limited to freezing fish whole, or 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 fisheries under the jurisdiction of the U.S. (IAI 1994).

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<sup>7</sup> In the context of a fisheries management, input and output controls are the regulatory limits placed on the total intensity and/or duration of effort permitted in a fishery (input controls include: closed season, closed areas, gear restrictions, days at sea), or the limits on how much fish may be taken out of the water (output controls include: total allowable catches, trip limits, MRAs).

<sup>8</sup> In 2008 Amendment 80 was implemented to create cooperatives for the H&G trawl C/P sector in the BSAI, curtailing or eliminating some input controls for this sector.

The coincidental timing of the introduction of the Baader and Toyo technology, 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 U.S. EEZ off Alaska. In 1986, NMFS reported 12 active U.S. trawl C/Ps operating in the EEZ off Alaska. 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 EEZ off Alaska. Although the exact number of H&G trawl C/Ps was not explicitly tracked at the time, estimates developed in 1995 for the Groundfish and Crab License Limitation Program (LLP) indicated that there were a total of 23 H&G 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 H&G 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 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 remainder of 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 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. By this time, pollock roe production had become a key economic component of the domestic pollock industry, both for C/Ps and for onshore operators. Indeed, the value of pollock roe so far exceeded the value of the flesh that, under the pressures of the managed open access race-for-fish, some operators found it economically advantageous to retain only the roe. This practice, referred to as “roe stripping” involved targeting concentrations of roe bearing pollock, extracting the valuable roe, and discarding the resulting carcasses, along with non-roe bearing females and males.

While not limited to H&G trawl C/P vessels, processing pollock roe was literally the only profitable way for this sector 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 target species for the H&G trawl C/P sector.

In 1990, the debate over roe stripping also had important implications for the ongoing allocation issue between inshore and offshore pollock processing sectors. However, once the roe stripping regulations were approved, the Council turned its attention to the H&G trawl C/P fleet. Inshore-offshore allocations of pollock in the BSAI were initiated by the Council in 1989, and approved by the Council in 1992.

In the GOA, the Council added Pacific cod to the allocation and reserved 100 percent of the pollock and 90 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 H&G trawl C/Ps.

During the early and mid 1990s, the Council focused on a number of allocation and rationalization issues. Many of these issues indirectly affected the H&G trawl C/Ps. However, an add-on to the License Limitation Program in 1995 closed the eastern GOA to trawling. While trawl 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 H&G trawl C/P fleet were the primary participants trawling for high value rockfish species. The closure further limited the opportunities for the H&G trawl C/P sector. As a result of these restrictions, flatfish became the primary target species for the H&G 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 H&G trawl C/P sector participants report that market prices for some flatfish 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 an economic 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. 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 to the BSAI FMP). A similar program was approved for the GOA in 1997 (Amendment 49 to the GOA FMP). 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, despite the fact that this was (and is) a fishery with by far the lowest bycatch rate of any managed by the Council. Over time, elements of this fleet that did not already have the capacity, installed fish-meal plants and changed their fishing and processing methods to catch fewer unusable fish so as to more fully utilize their harvest.

For the H&G trawl C/Ps, which are generally too small to be outfitted with fish-meal plants, the IR/IU regulations were more difficult to comply with. However, one possible 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, including those in the U.S.

In approving the Amendments 49/49, the Council also proposed that IR/IU requirements be extended to some flatfish species. The Council recognized that the H&G trawl C/P sector would be unable to meet the flatfish IR/IU standard in the near term, and therefore requested NMFS to delay implementation of the flatfish portion of the regulations until 2003. The delay was intended to give the H&G trawl C/P fleet time to alter their fishing methods and gear, so as to avoid unwanted catch, and to develop markets for unavoidable catches of flatfish that would otherwise be discarded.

Since 1997, the H&G trawl C/P sector has improved their retention and utilization. Retention by the H&G trawl C/P sector has been aided in recent years by flatfish of unusually large size, as well as a decline in global whitefish supply. In addition, the H&G trawl C/P sector has made significant efforts to improve fishing practices and performance, beginning with the formation of Groundfish Forum; an association of H&G trawl C/P sector owners working collaboratively to address IR/IU issues. During the period following passage of IR/IU, the H&G 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 Sea State, an industry sponsored organization that tracks fishing areas used by member-participants and provides reports of specific areas of high rates of incidental and prohibited species catches, allowing operators to avoid them. The sector has also engaged in several experimental fisheries to test new and different gear configurations designed to reduce bycatch. The sector has also tested methods to reduce halibut mortality, and broaden markets for groundfish that had previously gone unprocessed.

Prior to the implementation of Amendment 80 co-ops in 2008, NMFS would set the TACs for each groundfish species, as well as PSC limits at the beginning of each year. When the season began on January 20, H&G trawl C/Ps would race to catch as much fish as possible, before the TAC or a PSC limit was reached and the season closed. If an individual vessel or company were to slow its activity to avoid catches of unwanted fish or areas of high concentrations of PSCs, they would very likely suffer a loss of revenue, particularly if other vessels or companies did not choose to fish in a similar manner.

Other groundfish sectors in the North Pacific have also been plagued by the tendency for inefficient racing to catch as much fish as possible before a TAC or PSC limit is reached. This was particularly true of the pollock industry. However, the pollock fishery was rationalized by the U.S. Congress, with the approval of the AFA in 1998. The AFA created exclusive pollock allocations to AFA eligible vessels, and allowed the formation of cooperatives in both offshore and inshore sectors. Non-AFA trawl C/P vessels that historically 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

alternative 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 H&G trawl C/P sector. Because of the combination of AFA and IR/IU regulations, the H&G trawl C/Ps must comply with potentially conflicting pollock regulations. The sector is required to keep all pollock it catches, under provisions of IR/IU, unless their pollock catch exceeds 20 percent of total retained non-pollock groundfish, at which point they must discard any additional pollock catch, as long as they don't discard so much as to fall below the 20 percent standard.

The Congressional record on AFA anticipated that rationalizing the pollock industry could release some new fishing effort from the AFA sector to enter other sectors, including the H&G 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 non-AFA 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 H&G 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 H&G trawl C/P sector was reported to be 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 H&G sector. In April 2002, public testimony to the Council, provided by H&G trawl C/P representatives, 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 H&G 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 H&G trawl C/P vessels with fish meal plants, and a number of practical obstacles, as well as Coast Guard and NMFS regulations on vessel upgrades, effectively prevented these vessels from making fish meal<sup>9</sup>.

While retention and utilization of flatfish by all sectors, including the H&G trawl C/Ps, improved between 1995 and 2000, (See Figure 5) the H&G trawl C/P fleet recognized that it still did not have the capability (e.g., markets and gear) to remain viable, were IR/IU to be implemented, as

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<sup>9</sup> It should be noted that the original IR/IU action did not intend that bycatch be simply converted to meal. Fish meal was not included as an acceptable use of round fish so meal plants would not have solved the problem of  $\geq 60\%$  “unmarketable” catch composition.

scheduled, 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. Approval was given for the delay of IR/IU requirements on catches of specified flatfishes 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 the Consolidated Appropriations Act of 2006, the H&G trawl C/P sector was explicitly defined by Congress. H&G trawl C/Ps are those vessels that are not listed as AFA C/Ps at 50 CFR 679.4(l)(2)(i) and whose owner holds one or more of the LLP permits listed in Appendix 3. Appendix 3 lists each of the LLPs that arose from one of the trawl vessels that were not listed at 50 CFR 679.4(l)(2)(i) and that harvested at least 150 mt of non-pollock groundfish in the BS or AI, from January 1, 1997 through December 31, 2002.

The defining of vessels and licenses that could fish in the H&G trawl C/P sector (through the Consolidated Appropriations Act of 2006) was followed by a substantial change in the management of the H&G trawl C/P sector in 2008 when the Secretary of Commerce approved Amendment 80. The final rule to implement Amendment 80 was published in the Federal Register on September 14, 2007 (72 FR 52668). Amendment 80 allocates several Bering Sea and Aleutian Islands non-pollock trawl groundfish TACs among fishing sectors, and facilitates the formation of harvesting cooperatives in the non-American Fisheries Act (non-AFA) trawl catcher/processor sector. Some of these allocations may reduce the opportunity to fish off a TAC for a given species (e.g., yellowfin sole). Amendment 80 also established a limited access privilege program (LAPP) for the non-AFA trawl catcher/processor sector. H&G trawl C/Ps that are allowed to operate in an Amendment 80 co-op were also required to meet the GRS, that imposes operating restrictions on this sector (see section 1.2). Amendment 80 continues to include MRA accounting for H&G vessels that catch yellowfin sole, rock sole, flathead sole, “other flatfish,” arrowtooth flounder, Pacific cod, Atka mackerel, and Aleutian Islands (AI) Pacific ocean perch and are not in a cooperative, and for all H&G trawl C/Ps when entering a Steller sea lion (SSL) protection area (see section 5.7.2.3 for further information).

#### **5.5.2.1 Description of Data Sources for Determining Participation, Catch, and Retention**

The Council’s preferred alternative is intended to provide an opportunity for vessels in the H&G trawl C/P sector to increase retention of groundfish while maintaining economic viability. A

review of participation, catch, and retention of groundfish, by sector, in BSAI groundfish fisheries provides context for why groundfish sectors other than the H&G trawl C/Ps are excluded from the action alternatives. The data used for these sector comparisons are from NMFS Weekly Production Reports, Alaska fish ticket data, and NMFS blend data. An observer on a processor vessel reports groundfish species composition, total catch, and estimates of retention and discards. These data are submitted to NMFS weekly, for each separate reporting area and gear type. Total catch may be estimated using cod-end or fish-bin volumetrics, scales, or conversion from production data (i.e., back-casting using standardized product recovery rates (PRR)). Species composition of the catch is obtained by sampling. The total catch is apportioned by species, based on that sampling. For years prior to 2001, data must be combined from industry production reports and observer reports to make a comprehensive accounting of groundfish catch. Observer data are the source deemed reliable by NMFS 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 catch and retention rates, information is presented for all processors. BSAI groundfish fishery participants were divided into the following sectors:

**Surimi and Fillet Trawl (AFA) 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.

**H&G trawl C/P:** These vessels typically concentrate on head and gut products, frozen whole fish, 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 primary processed groundfish. Various Coast Guard regulations associated with vessel safety and stability may also constrain the ability of this vessel class from producing more refined seafood product forms, such as fish meal. Heading and gutting of fish leaves the skin on the fish, and is not classified in Coast Guard regulations as a fish processing method subject to stringent load line certification. Most vessels in the H&G trawl C/P class are not load line certified. Load line certification is intended to ensure the watertight integrity of a vessel, and to promote crew safety. 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 vessel cannot produce product forms beyond those involving “primary processing.” An exemption to load line regulations is granted for certain H&G trawl C/Ps under the “Alternative Compliance and Safety Agreement” program, administered by the Coast Guard

**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. 2002a.)

### **5.5.3 Participation, catch, retention, and gross earnings of the H&G trawl C/P sector under Alternative 1 by target fishery**

This section discusses exploitation, production, and economic information on the H&G trawl C/P sector relevant to the groundfish discard and retention issue in the BSAI. Included in this description is information on the number of C/Ps participating in each BSAI fishery, by sector, from 1995 through 2004; information on wholesale gross earnings, total catch, and retention rates by fishery; and fleet distributions, by retention rate, during the 1999 through 2005 fishing years for each fishery, by processing type. 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

The current fisheries on these stocks are described in more detail in Section 5.6.1. In the BSAI fisheries that currently catch rock sole, flathead sole, and “other flatfish” species are almost exclusively prosecuted by C/Ps using bottom trawl gear, although these species are open to other vessel categories and gear types. Vessels participating in these fisheries generally fish for rock sole during the roe season, until the first seasonal halibut bycatch cap is reached. These vessels then shift to one of several different targets; notably Atka mackerel, yellowfin sole, and Pacific cod. Vessels also may go into the GOA to fish for rex sole.

This analysis also includes background information on bycatch of groundfish in the BSAI, with particular emphasis on the H&G trawl C/P sector. Current MRA regulations and their application are discussed for managed fisheries.

### 5.5.3.1 Participation in BSAI Groundfish fisheries by Processing Sector and Target Fishery

Table 11 shows participation in BSAI fisheries by the four C/P sectors, described above, from 1995 through 2006. Overall, 32 H&G trawl C/Ps participated in 1995, while only 22 participated in 2006. 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 through 2006. Analysts lack sufficient data to determine reasons for these observed changes in the concentration of catching and processing units of the H&G trawl C/P sector. It is possible under Alternative 1 that after the rapid post-EEZ era of growth in this sector, that access restrictions and allocations to other sectors, such as AFA pollock, and restrictions from bycatch programs such as IR/IU, have contributed to these declines in the number of operating units. It is also possible that this sector had previously over-capitalized both catching and processing platforms, because open access and fishery limitations encouraged some redundancy in catching and processing capacity. Redundant capacity may lead to the exit of fishing vessels from a fishery when vessels anticipate that gross revenues will cease to offset variable costs of operations.

For the surimi and fillet C/P fleet, the number of participants has declined from 33 in 1995, to 17 in 2002, and 16 in 2006. Among the individual target fisheries, pollock has consistently attracted the most participation by the surimi and fillet C/P fleet. 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 pollock catches declined to 30. Other fisheries that had consistent participation by AFA C/Ps were yellowfin sole and Pacific cod, although these fisheries also saw declines in the number of permits fished.

Participation in the longline C/P fleet remained relatively stable over the 1995 through 2006 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 levels were in 1995 and 2001, when 42 vessels targeted Pacific cod. In 2006, 39 longline C/Ps targeted Pacific cod. The Greenland 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 from 1997 through 2006.

Among pot C/Ps, only the Pacific cod fishery has consistently attracted a substantial number of participants. From 1997 through 2006, 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 through 2006, with a high of 318 in 1995 and a low of 236 in 1998. In 2001, there were 305 active catcher vessels and in 2006, there were 236 catcher vessels. A more detailed description of catcher vessel activity in the BSAI for the years 1995 through 2001 can be found in Northern Economics, Inc. and EDAW, Inc. (2002a). Catch and Participation information from 2002 through 2006 is from NMFS catch reporting data.

Table 11. Participation in major BSAI fisheries in 1995-2006, by target fishery and processing sector

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<b>Target Fishery &amp; Sector</b>	<b>Number of Vessels</b>									
<b>Surimi &amp; Fillet Trawl Catcher Processors</b>										
Pollock	29	28	16	14	15	16	16	17	16	16
All Fisheries	29	28	16	15	16	17	17	17	17	17
<b>Head &amp; Gut Trawl Catcher Processors</b>										
Atka Mackerel	8	12	16	13	13	11	14	19	19	21
Pacific Cod	26	21	21	22	17	21	18	19	18	18
Other Flatfish	18	20	24	23	20	18	16	23	18	16
Rockfish **	10	7	12	7	7	10	11	10	6	8
Rock Sole	25	18	22	23	20	21	20	22	22	22
Yellowfin Sole	24	20	23	23	22	21	21	22	21	21
All Fisheries	28	28	23	24	22	22	22	23	22	22
<b>Pot Catcher Processors</b>										
Pacific Cod	7	5	9	9	7	5	3	3	C	4
All Fisheries	7	5	9	9	7	5	3	4	3	5
<b>Longline Catcher Processors</b>										
Pacific Cod	38	36	36	38	42	40	39	39	39	39
Sablefish	12	10	17	18	10	14	8	6	11	10
All Fisheries	42	42	38	40	45	42	40	40	40	40
<b>All Catcher Processors</b>	<b>106</b>	<b>98</b>	<b>86</b>	<b>87</b>	<b>90</b>	<b>86</b>	<b>82</b>	<b>82</b>	<b>81</b>	<b>82</b>
<b>All Catcher Vessels</b>	<b>270</b>	<b>236</b>	<b>265</b>	<b>325</b>	<b>305</b>	<b>305</b>	<b>270</b>	<b>252</b>	<b>245</b>	<b>236</b>

Sources: Processor counts are from NMFS Fisheries blend data and catcher vessel counts are from ADF&G fish-tickets. Both blend and fish-ticket data were applied. Inseason Management provided data from 1997 to 2006.

### 5.5.3.2 Processing Gross Wholesale Value by target fishery in the BSAI

Table 12 shows wholesale gross earnings from C/Ps, by sector, including the H&G trawl C/Ps and the combined shore-based/floater/mothership categories, by selected BSAI fishery. For the AFA surimi and fillet trawl C/P fleet, the most significant contributor to wholesale value has historically been the pollock fishery. In 2004, the combined wholesale value of pollock was \$612 million, out of a total wholesale value for all surimi and fillet trawl C/P catches of groundfish of \$633 million; a 99 percent contribution.

The H&G trawl C/P sector produces the second largest contribution to groundfish gross earnings in the BSAI. Gross earnings from sale of processed product of the target species are estimated to vary from \$104 million to \$240 million, from 1995 to 2006, inclusive. Gross earnings from the H&G trawl C/P sector, as expressed at first wholesale, is distributed across a greater number of target fisheries in comparison with other sectors. This distribution reflects the multi-species groundfish dependency of this sector. Three primary fisheries have historically contributed most of the wholesale value of product produced by the H&G trawl C/P fleet. Atka mackerel at \$38 million, Pacific cod at \$52 million, and yellowfin sole at \$83 million, were three of the largest contributors to total wholesale value in 2006, contributing 14 percent, 19 percent, and 30 percent, respectively. Other fisheries that have historically contributed a smaller share of the total wholesale value for the H&G trawl C/P sector are rock sole, 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 2006, the contribution from Pacific cod was 97 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 \$3.0 million. It was \$3.6 million in 2006.

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 2006, the contribution from pollock was 89 percent. In that year, the combined inshore first wholesale gross value of the pollock fishery was estimated to be \$524 million. Pacific cod and sablefish fisheries were also significant contributors to total gross earnings of shore plants, floaters, and motherships from 1995 to 2006, inclusive.

Table 12. Wholesale product value in major BSAI fisheries in 1995-2006, by target fishery and processor sector

Target Fishery & Sector	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
	Wholesale Product Value (\$ Millions)											
<b>Surimi &amp; Fillet Trawl Catcher Processors</b>												
Pollock	435.4	348.6	343.2	312.2	334.5	395.2	407.1	450.3	482.9	531.5	588.2	612.0
All Fisheries	474.5	377.4	377.8	333.3	346.4	402	410.3	455.1	490.2	536.9	598.6	633.2
<b>Head &amp; Gut Trawl Catcher Processors</b>												
Atka Mackerel	43.7	71.3	35.6	21.3	25.7	23.6	46.6	25.7	24.5	31.1	41.1	38.4
Pacific Cod	10.3	8.2	9.5	7.5	20.4	21.1	17.3	24.7	28.9	42.7	40.8	52.3
Other Flatfish	14.3	14.5	10.3	18.8	19.3	23.4	15.2	10.9	7.6	15.0	19.4	16.3
Rockfish	11.7	12.2	8.2	4	7.2	4.5	4	6.8	8.1	7.4	9.5	13.9
Rock Sole	29.1	27.7	25.7	15.4	16.5	21.3	17.2	22.1	18.6	27.1	27.7	35.9
Yellowfin Sole	36.9	34.1	55	35.8	25.4	31.8	31.7	45.8	49.2	49.6	86.5	83.7
All Fisheries	149.4	170.8	145.4	104.6	115.4	126.7	133.4	137.9	137.1	175.9	225.0	240.6
<b>Pot Catcher Processors</b>												
Pacific Cod	2.9	6.5	3.2	3.3	4.3	3.6	4.7	2.3	1.9	3.8	4.7	3.4
All Fisheries	2.9	6.5	3.2	3.3	4.3	3.6	4.7	2.4	1.9	3.8	4.7	3.6
<b>Longline Catcher Processors</b>												
Pacific Cod	67.8	71.3	72.8	89.5	108.1	116.8	112	102.8	133.6	131.8	163.4	154.8
Sablefish	3.5	2.8	2.4	0.6	2	2.4	2.2	1.9	2.2	1.8	7.2	6.9
All Fisheries	75.7	80.6	82.6	98.9	117.1	127.6	116.7	107.9	139.5	133.6	170.6	161.8
<b>All Shore Plants, Floaters, and Motherships</b>												
Pollock	360.1	304.6	294.6	257.1	329	418.8	503.7	534.0	570.0	560.7	667.9	464.8
Pacific Cod	51	60.9	54.7	39.3	56	74.2	39.3	37.2	41.7	37.0	41.2	51.8
All Fisheries	429.3	372.7	363	299.5	388.5	498	548.3	576.5	615.9	597.6	721.3	524.0
All Sectors and Fisheries	<b>1,131.8</b>	<b>1,008.0</b>	<b>972.0</b>	<b>839.6</b>	<b>971.6</b>	<b>1,157.9</b>	<b>1,213.4</b>	<b>1,287.8</b>	<b>1,391.3</b>	<b>1,447.8</b>	<b>1,720.2</b>	<b>1,563.1</b>

Source: 1995 to 2001 data from NPFMC Sector Profiles Database, and 2002 through 2006 data AFSC Terry Hiatt 2006

### **5.5.3.3 BSAI Total Catch and Retention, by Target Fishery and Sector**

Table 13 summarizes the total catch in major BSAI target fisheries, by sector, from 1995 through 2006. The table demonstrates that the H&G trawl C/P sector is the most diversified in terms of the number of species harvested. It also conveys the size of catches in the H&G trawl C/P sector, which in 2006 are only third by weight (280 mt in the BSAI) compared with shore plants, floaters, and motherships fisheries (712 mt in the BSAI), and the AFA trawl C/P sector (560 mt). Table 14 summarizes the percentage of groundfish retained catch, by BSAI target fishery, from 1995 through 2006. Retention rates in target fisheries are consistently lower for the H&G trawl C/P sector, exemplifying the long standing challenge confronting this sector to retain and utilize fish species that are incidentally captured. Average groundfish retention rates for the “other flatfish”, Pacific cod, and Atka mackerel targets are often less than 75 percent of the total groundfish caught.

Table 13. Total catch in major BSAI target fisheries in 1995-2004, by target fishery and processor sector in metric tons (mt)

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
<b>Target Fishery &amp; Sector</b>										
<b>Surimi &amp; Fillet Trawl Catcher Processors</b>										
Pollock	612.0	607.0	416.0	491.0	609.8	650.5	524.0	526.0	523.0	533.0
All Fisheries	719.0	670.0	445.0	507.0	615.7	655.6	538.0	535.0	538.0	560.0
<b>Head &amp; Gut Trawl Catcher Processors</b>										
Atka Mackerel	59.0	57.0	63.0	56.0	70.8	51.5	57.3	59.4	64.0	64.0
Pacific Cod	26.0	16.0	31.0	30.0	24.6	37.1	39.0	62.0	40.0	43.0
Other Flatfish	24.0	44.0	39.0	46.0	35.3	25.9	24.0	35.0	30.0	23.0
Rockfish	12.0	9.0	15.0	10.0	9.9	11.9	13.0	10.0	8.0	10.0
Rock Sole	57.0	24.0	28.0	46.0	29.9	41.9	37.3	46.5	39.0	45.0
Yellowfin Sole	172.0	116.0	90.0	105.0	96.9	113.8	98.0	86.0	104.0	94.0
All Fisheries	354.0	271.0	268.0	294.0	270.1	284.7	268.0	299.0	286.0	280.0
<b>Pot Catcher Processors</b>										
Pacific Cod	5.0	3.0	4.0	3.0	3.1	2.1	1.6	3.3	C	3.0
All Fisheries	5.0	3.0	4.0	3.0	3.1	2.1	1.6	3.3	3.4	3.0
<b>Longline Catcher Processors</b>										
Pacific Cod	146.0	120.0	105.0	117.0	131.8	126.3	119.0	119.0	126.0	103.0
Sablefish	1.0	-	1.0	2.0	0.5	0.7	0.6	0.4	0.6	1.0
All Fisheries	152.0	128.0	113.0	126.0	135.3	129.6	122.0	121.0	129.0	107.0
<b>All Shore Plants, Floaters, and Motherships</b>										
Pollock	482.0	495.0	539.0	615.0	750.0	801.5	790.0	776.0	788.0	789.0
Pacific Cod	94.0	51.0	56.0	66.0	39.1	61.5	73.0	64.0	53.0	57.0
Sablefish	2.0	1.0	1.0	1.0	1.7	2.4	1.6	1.1	1.0	1.0
All Fisheries	602.0	548.0	598.0	684.0	791.0	865.4	730.0	706.0	709.0	712.0
<b>All Sectors and Fisheries</b>										
All Fisheries	<b>1,831.0</b>	<b>1,621.0</b>	<b>1,427.0</b>	<b>1,614.0</b>	<b>1,815.2</b>	<b>1,937.4</b>	<b>1,793.0</b>	<b>1,795.0</b>	<b>1,798.0</b>	<b>1,795.0</b>

Source: NPFMC Sector Profiles Database from 1997 through 2001 and Catch accounting database from 2002 to 2006

Table 14 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 through 2006. In general, retention rates increase over this period.

For AFA surimi and fillet trawl C/Ps, retention rates for pollock (mid-water) have remained consistently high, ranging from a low of 95 percent in 1995, to a high of 99 percent in 2001 through 2006. In the bottom pollock trawl target, retention rates fluctuated between a low of 85 percent in 1997, and a high of 97 percent in 1999. The surimi/fillet C/P fisheries for yellowfin sole and Pacific cod reported retention rates below 80 percent in 1997, while the rates have increased from that level to roughly 80 to 90 percent in the last few years.

Among the H&G trawl C/P fleet, retention rates of groundfish in major target fisheries have also increased (Figure 5), but still lag behind the rest of the processing sectors. In 1995, the H&G 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. In 2000, the retention rate for the H&G trawl C/P increased to 68 percent, but was still lower than the next lowest rate of 84 percent for the longline C/P sector.

Looking at individual fisheries, the yellowfin sole fishery retention rates increased from a low of 53 percent in 1995, to a high of 77 percent in 2006. 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 for the H&G trawl C/P sector had climbed to above 65 percent by 2001, and were at 70 percent in 2006. Retention rates for the Atka mackerel and rockfish fisheries also increased over that same period. The Atka mackerel fishery increased from a low of 76 percent to a high of 86 percent in 2000, and was 89 percent in 2006. The retention rate for the rockfish fishery increased from a low of 80 percent in 1996, to a high of 95 percent in 2006.

Retention rates for the Pacific cod longline C/Ps target 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 approximately 98 percent, in 2004 through 2006.

Retention rates for BSAI shore plant/stationary floating processors/mothership aggregation also increased over the 1995 through 2006 period, from a low of approximately 92 percent, to 99 percent. Like the other fleets, retention rates for fisheries other than pollock were much lower in 1997 and 1998, but many of these fisheries reported increases in retention over the years. For example, retention rates for sablefish increased from a low of approximately 35 percent in 1997, to 98 percent in 2006. Retention rates for Pacific cod by shore plant/stationary floating processor/mothership aggregation increased from 64 percent in 1997, to 89 percent in 2006. Retention of pollock by the AFA C/P sector, a species that dominates their landings, is retained at rates between 98 percent and 99 percent of pollock catch.

Table 14. Retention rates in major BSAI fisheries in 1995-2006, by target fishery and processor sector

<i>Target Fishery &amp; Sector</i>	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
	<i>Percent of Groundfish Retained</i>									
<b>Surimi &amp; Fillet Trawl Catcher Processors</b>										
Pollock	94.8	98.4	98.9	98.2	99.5	99.5	99.7	99.5	99.7	99.6
All Non-pollock Fisheries	70.3	82.8	90.3	91.9	93.9	83.4	92.5	93.8	79.8	86.4
All Fisheries	91.2	96.9	98.3	98.0	99.5	99.4	99.5	99.4	99.1	99.0
<b>Head &amp; Gut Trawl Catcher Processors</b>										
Atka Mackerel	84.3	85.1	82.6	86.2	83.7	75.4	72.1	77.6	88.2	88.9
Pacific Cod	44.5	57.1	57.5	63.8	67.6	69.5	63.1	55.0	65.8	65.5
Other Flatfish	49.7	55.9	54.4	63.1	64.5	66.2	68.3	61.3	68.1	69.9
Rockfish	87.9	91.1	91.6	94.6	87.1	90.1	93.4	89.6	94.4	94.9
Rock Sole	46.6	60.6	53.0	52.9	68.6	58.0	64.7	60.5	72.5	77.8
Yellowfin Sole	65.0	70.5	63.8	68.4	72.2	69.5	71.0	72.9	78.9	77.4
All Fisheries	63.6	70.4	66.8	69.2	74.0	69.6	70.0	67.4	77.5	78.2
<b>Pot Catcher Processors</b>										
Pacific Cod	98.5	97.1	96.0	95.9	97.2	96.9	97.7	98.7	C	98.4
All Fisheries	98.5	97.1	96.0	95.9	97.2	96.9	97.7	98.7	98.6	98.3
<b>Longline Catcher Processors</b>										
Pacific Cod	85.2	84.3	88.2	85.2	85.8	87.1	88.2	85.9	86.0	87.7
Sablefish	52.6	72.6	39.0	42.1	91.5	65.4	74.8	91.3	88.5	73.0
All Fisheries	84.9	84.3	86.0	83.9	85.8	86.9	87.9	85.8	86.0	87.4
<b>All Shore Plants, Floaters, and Motherships</b>										
Pollock	98.2	99.7	99.1	99.5	99.7	99.8	99.8	99.7	99.8	99.7
Pacific Cod	63.6	85.1	74.1	85.4	89.6	84.9	86.5	87.2	88.7	88.7
Sablefish	35.1	55.3	58.4	57.5	71.1	62.4	58.9	92.6	93.8	93.0
All Non-pollock Fisheries	69.2	83.8	74.3	85.1	88.8	84.0	85.4	87.1	88.3	88.7
All Fisheries	92.4	98.2	96.7	98.0	99.2	98.6	98.3	98.6	99.0	98.8
All Sectors and Fisheries										
<b>All Fisheries</b>	<b>85.7</b>	<b>91.9</b>	<b>90.7</b>	<b>91.7</b>	<b>94.5</b>	<b>93.8</b>	<b>93.8</b>	<b>92.8</b>	<b>94.7</b>	<b>95.1</b>

Source: NPFMC Sector Profiles Database, 2004

#### **5.5.4 Total Catch, and Retention by Species and Processing Type in the BSAI under Alternative 1**

Total catches of groundfish by species and processing type for H&G trawl C/Ps from 1999 through 2006, are shown in Table 15. Table 16 shows discards by species, rather than by target fishery, for the years 1999 through 2006. Table 17 shows the same discard data as percentages of total catch. Historically, rock sole represent the greatest quantity of discarded catch, annually, of any of the species caught by the H&G trawl C/P sector. From 1999 through 2006, the H&G trawl C/P sector's discards of rock sole ranged from 23,600 mt in 2000, to less than 6,300 mt in 2006. When aggregated across all groundfish species, discards from the H&G trawl C/P sector have declined from 1999 through 2006 (Figure 5). The aggregate discard rate for H &G trawl C/P since 2006, however, has remained relatively stable at 22, 23, and 23 percent for years 2006 to 2008 (Table 1).

While total groundfish catch for the AFA trawl C/P sector is larger than any other BSAI sector, AFA trawl C/P discard percentage of groundfish are considerably lower than other sectors, as well. For example, rock sole discards in the AFA trawl C/P sector are typically below 1,800 mt. Atka mackerel remained relatively stable, ranging between essentially zero to 400 mt. Yellowfin sole discards varied, but decline from 200 mt in 1999, to 43 mt in 2006.

Discard amounts varied from year to year in the pot C/P sector and longline C/P sector between 1997 through 2006 with no obvious trend. Aggregate discards in the BSAI by species and processor sector declined between 1999 and 2006 (Table 16). Table 17 shows the percentage of discards, by species, for each sector, and Table 18 shows retained catch (the difference between total catch and discarded catch).

Tables 16, 17, and 19 can be used to calculate discard and retention rates for subsets of species and sectors. Due to rounding associated with using the percent of catch 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 retained by the H&G trawl C/P sector, by dividing the retained catch of yellowfin sole on Table 18, by the sum of all flatfish species caught, as reported in Table 15. For year 2006, 64 percent of retained catch was made up of yellowfin sole. Some highlights from tables 16 through 20 for various sectors are as follows:

- Of 87.7 mt of discarded groundfish catch from all BSAI sources in 2006, 70.0 percent of reported discards are estimated to be from the H&G trawl C/P sector.
- In 2006, surimi and fillet trawl C/P sector's groundfish discards accounted for 1.0 percent of groundfish catch for this sector. Flatfish accounted for approximately 70 percent of the surimi and fillet trawl C/P sector's discarded groundfish,
- In 2006, the longline C/P sector's total discards were 13.0 percent of total catches for that sector.
- In 2006, the Pot C/P sector's discards of groundfish accounted for 1.3 percent of total Pot C/P groundfish catch,.
- In 2006, the shore plant/floater/mothership sector's total discards was approximately 1.0 percent of that sector's total catch.

- As identified in Table 1, in 2006, the H&G trawl C/P sector retained catch of groundfish was approximately 78.2 percent of total catch. In comparison with all other combined BSAI groundfish sectors, discarded catch for H&G trawl C/Ps in 2006 was approximately 3.7 percent of total groundfish catch from all sectors in the BSAI.
- Aggregate groundfish discards for the H&G trawl C/P sector have declined from 33.0 percent of that sector's total catch, to 20.6 percent of its catch, between the years 1999 and 2006 (Fig.2). Other sectors have changed little over this period.

Table 15. Total catch in BSAI fisheries in 1999-2006 by species and processor sector

Species & Sector	1999	2000	2001	2002	2003	2004	2005	2006
<b>Total Catch (1,000 mt)</b>								
<b>Head and Gut Trawl Catcher Processors</b>								
Atka Mackerel	55.28	47.03	61.19	44.94	51.80	54.41	56.57	56.12
Arrowtooth Flounder	9.21	10.12	11.57	9.09	9.60	14.66	10.76	9.15
Flathead Sole	15.74	17.03	15.19	12.91	11.52	14.19	12.10	13.71
Other Flatfish	13.45	14.94	9.53	13.99	11.72	11.25	13.65	15.61
Other Groundfish	7.40	9.48	9.56	10.93	7.41	7.60	6.16	7.50
Pacific Cod	25.74	28.83	25.68	33.21	29.73	37.98	30.53	29.35
Pollock	28.95	31.51	31.63	33.38	26.42	35.56	29.73	23.60
Rockfish	19.16	15.53	16.20	15.55	18.09	15.46	12.83	15.04
Rock Sole	34.92	44.00	26.68	38.06	32.29	43.91	33.18	31.02
Turbot/Sablefish	2.02	2.18	2.46	1.29	1.07	0.90	1.01	0.37
Yellowfin Sole	55.92	72.96	60.35	71.31	68.82	63.29	79.26	78.28
<b>Surimi and Fillet Trawl Catcher Processors</b>								
Atka Mackerel	1.17	0.00	0.00	0.01	0.23	0.05	0.03	0.01
Other Flatfish	2.74	2.54	1.90	1.94	1.40	1.56	2.44	5.67
Other Groundfish	1.09	4.40	1.27	1.51	0.68	0.79	0.89	1.71
Pacific Cod	13.09	5.54	4.35	4.02	6.92	6.08	6.16	8.63
Pollock	413.57	482.77	604.11	643.43	523.05	519.98	519.62	529.27
Rockfish	0.25	0.10	0.47	0.29	0.69	0.23	0.53	0.19
Rock Sole	1.35	3.27	1.35	1.60	0.81	1.71	0.93	1.97
Turbot/Sablefish	0.00	0.01	0.05	0.03	0.02	0.01	0.03	0.04
Yellowfin Sole	11.75	8.65	2.22	2.76	4.54	5.00	7.65	12.76
<b>Pot Catcher Processors</b>								
Atka Mackerel	0.00	0.00	0.00	0.00	C	C	C	C
Other Flatfish	0.00	0.00	0.00	0.00	C	C	C	C
Other Groundfish	0.10	0.10	0.04	0.03	C	0.01	C	0.05
Pacific Cod	3.40	2.77	3.02	2.07	1.55	3.23	C	3.15
Pollock	0.00	0.00	0.01	0.01	0.01	C	C	C
Rockfish	0.00	0.00	0.00	0.00	C	C	C	C
Rock Sole	0.00	0.00	0.00	0.00	C	C	C	C
Turbot/Sablefish	0.00	0.00	0.00	0.00	C	C	C	C
Yellowfin Sole	0.00	0.10	0.01	0.02	C	0.03	C	C
<b>Longline Catcher Processors</b>								
Atka Mackerel	0.07	0.15	0.27	0.04	0.02	0.04	0.02	0.01
Other Flatfish	1.64	2.21	1.91	1.70	1.87	2.14	2.58	2.55
Other Groundfish	12.60	15.23	15.31	14.84	15.42	16.00	18.59	13.08
Pacific Cod	89.64	96.94	107.51	102.72	95.45	95.50	101.14	85.53
Pollock	3.95	4.83	5.98	6.49	6.35	4.65	3.76	2.65
Rockfish	0.40	0.56	0.58	0.29	0.31	0.32	0.22	0.39
Rock Sole	0.06	0.03	0.03	0.04	0.04	0.03	0.05	0.02
Turbot/Sablefish	4.47	5.46	3.08	2.83	2.44	1.84	2.24	2.10
Yellowfin Sole	0.18	0.28	0.65	0.62	0.58	0.60	0.70	0.40
<b>All Shore Plants, Floaters, and Motherships</b>								
Atka Mackerel	0.16	0.01	0.09	0.30	1.99	1.57	1.04	1.33
Other Flatfish	2.44	3.25	1.74	2.60	2.92	3.15	2.60	3.32
Other Groundfish	3.76	1.95	2.76	2.66	2.81	2.42	2.34	3.16
Pacific Cod	42.01	56.91	36.09	55.34	62.14	52.79	48.95	50.19
Pollock	544.36	614.86	746.55	799.69	655.74	641.69	650.75	650.11
Rockfish	0.14	0.23	0.39	0.68	0.48	0.54	0.68	0.80
Rock Sole	4.69	2.33	1.41	2.16	2.18	1.97	1.28	1.13
Turbot/Sablefish	0.65	1.06	1.65	1.74	1.86	1.21	1.19	1.10
Yellowfin Sole	1.43	2.10	0.35	0.27	0.21	0.23	0.14	1.25

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

Table 16. Discarded catch in BSAI fisheries in 1999-2006, by species and processor sector

Species & Sector	1999	2000	2001	2002	2003	2004	2005	2006
<b>Discarded Catch (1,000 mt)</b>								
<b>Head and Gut Trawl Catcher</b>								
Atka Mackerel	4.7	2.6	4.31	7.40	11.29	10.63	3.41	2.20
Arrowtooth Flounder	6.8	5.5	6.68	5.59	6.09	11.31	5.16	5.51
Flathead Sole	2.7	3.3	2.13	2.65	2.65	3.51	2.01	2.83
Other Flatfish	12.5	12.77	8.86	13.17	10.64	9.87	12.03	14.37
Other Groundfish	7.3	8.8	8.54	9.77	5.69	6.15	5.20	6.16
Pacific Cod	1.3	0.7	0.79	1.19	0.72	0.43	0.51	0.59
Pollock	14.95	14.6	14.45	15.87	13.23	19.26	13.29	11.09
Rockfish	6.8	5.5	7.59	5.10	6.64	5.97	4.27	4.62
Rock Sole	20	23.56	8.60	15.29	13.25	18.86	11.00	6.29
Turbot/Sablefish	0.4	0.28	0.49	0.32	0.21	0.30	0.11	0.07
Yellowfin Sole	11.22	12.72	7.65	10.17	10.06	11.41	7.28	7.26
<b>Surimi and Fillet Trawl Catcher Processors</b>								
Atka Mackerel	0.6	0	0.00	0.01	0.20	0.05	0.02	0.01
Other Flatfish	1.5	1.65	0.77	0.84	0.54	0.81	1.21	2.38
Other Groundfish	0.78	4.2	1.04	0.90	0.37	0.58	0.59	1.09
Pacific Cod	0.4	0.1	0.08	0.08	0.01	0.10	0.05	0.07
Pollock	2.76	1.34	0.32	0.56	0.40	0.26	1.47	0.83
Rockfish	0.1	0.1	0.37	0.25	0.36	0.08	0.22	0.08
Rock Sole	0.9	1.8	0.62	0.90	0.46	0.85	0.60	0.70
Turbot/Sablefish	0	0	0.03	0.01	0.01	0.01	0.02	0.01
Yellowfin Sole	0.87	0.74	0.10	0.33	0.12	0.44	0.65	0.43
<b>Pot Catcher Processors</b>								
Atka Mackerel	0	0	0.00	0.00	C	C	C	C
Other Flatfish	0	0	0.00	0.00	C	C	C	C
Other Groundfish	0.1	0.1	0.04	0.02	C	0.01	C	0.05
Pacific Cod	0	0	0.02	0.02	C	C	C	C
Pollock	0	0	0.01	0.00	C	C	C	C
Rockfish	0	0	0.00	0.00	C	C	C	C
Rock Sole	0	0	0.00	0.00	C	C	C	C
Turbot/Sablefish	0	0	0.00	0.00	C	C	C	C
Yellowfin Sole	0	0.1	0.01	0.02	C	0.03	C	C
<b>Longline Catcher Processors</b>								
Atka Mackerel	0.07	0.15	0.14	0.04	0.01	0.04	0.02	0.01
Other Flatfish	1.5	2.1	1.78	1.49	1.37	1.88	1.61	1.32
Other Groundfish	11.4	13.23	13.34	11.40	9.85	12.42	12.80	9.66
Pacific Cod	1.43	2.7	1.76	2.14	1.81	1.58	2.39	1.35
Pollock	0.6	1	0.99	0.85	0.79	0.60	0.51	0.39
Rockfish	0.24	0.35	0.40	0.18	0.15	0.18	0.08	0.20
Rock Sole	0.06	0.03	0.03	0.04	0.04	0.03	0.04	0.02
Turbot/Sablefish	0.34	0.41	0.18	0.30	0.25	0.08	0.07	0.12
Yellowfin Sole	0.18	0.28	0.63	0.61	0.57	0.46	0.58	0.35
<b>All Shore Plants, Floaters, and Motherships</b>								
Atka Mackerel	0.1	0.01	0.07	0.12	1.57	0.82	0.48	0.77
Other Flatfish	1.43	1.59	1.01	1.86	2.10	2.51	1.21	0.91
Other Groundfish	3.46	1.74	1.83	2.11	2.19	1.46	1.16	1.92
Pacific Cod	0.41	0.49	0.26	0.87	0.55	0.29	0.35	0.36
Pollock	11.2	5.49	1.97	4.37	2.87	3.18	2.38	3.20
Rockfish	0.06	0.15	0.18	0.35	0.25	0.17	0.25	0.24
Rock Sole	4.62	1.91	0.78	1.85	1.79	1.55	1.05	0.60
Turbot/Sablefish	0.1	0.22	0.36	0.28	0.71	0.08	0.08	0.03
Yellowfin Sole	0.2	0.3	0.26	0.24	0.19	0.14	0.14	0.22

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

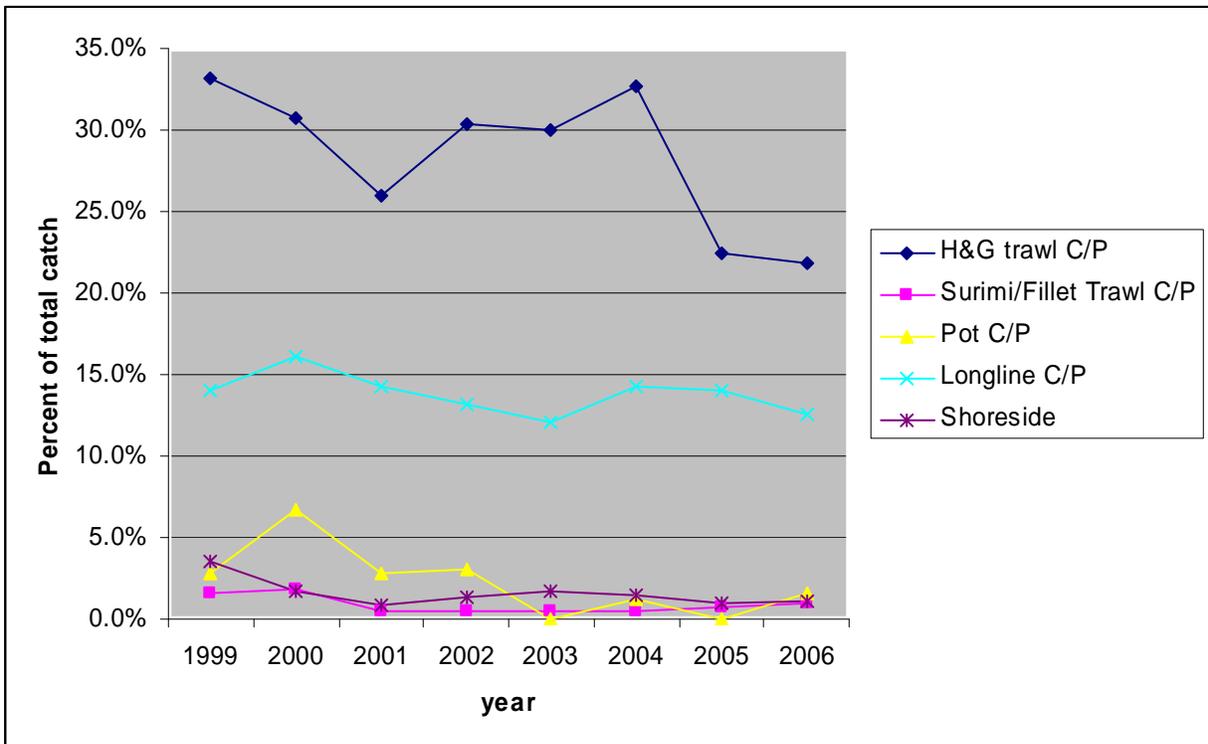


Figure 5. Groundfish discards as a percent of total catch for the H&G trawl C/P, AFA C/P, Pot C/P, Hook and Line C/P, and shoreside sectors.

Table 17. Discarded catch as percentage of total catch in BSAI fisheries in 1999-2006 by species and processor sector

Species & Sector	1999	2000	2001	2002	2003	2004	2005	2006
Discarded Catch as Percent of Total Groundfish Catch								
<b>Head and Gut Trawl Catcher Processors</b>								
Atka Mackerel	0.09	0.06	0.07	0.16	0.22	0.20	0.06	0.04
Arrowtooth Flounder	0.74	0.54	0.58	0.62	0.63	0.77	0.48	0.60
Flathead Sole	0.17	0.19	0.14	0.21	0.23	0.25	0.17	0.21
Other Flatfish	0.93	0.85	0.93	0.94	0.91	0.88	0.88	0.92
Other Groundfish	0.99	0.93	0.89	0.89	0.77	0.81	0.84	0.82
Pacific Cod	0.05	0.02	0.03	0.04	0.02	0.01	0.02	0.02
Pollock	0.52	0.46	0.46	0.48	0.50	0.54	0.45	0.47
Rockfish	0.35	0.35	0.47	0.33	0.37	0.39	0.33	0.31
Rock Sole	0.57	0.54	0.32	0.40	0.41	0.43	0.33	0.20
Turbot/Sablefish	0.20	0.13	0.20	0.25	0.20	0.33	0.11	0.20
Yellowfin Sole	0.20	0.17	0.13	0.14	0.15	0.18	0.09	0.09
<b>Surimi and Fillet Trawl Catcher Processors</b>								
Atka Mackerel	0.51	0.00	0.28	0.65	0.88	0.90	0.58	0.63
Other Flatfish	0.55	0.65	0.41	0.43	0.39	0.52	0.50	0.42
Other Groundfish	0.72	0.95	0.82	0.60	0.54	0.74	0.66	0.64
Pacific Cod	0.03	0.02	0.02	0.02	0.00	0.02	0.01	0.01
Pollock	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rockfish	0.40	1.00	0.78	0.86	0.52	0.36	0.41	0.42
Rock Sole	0.67	0.55	0.46	0.56	0.58	0.50	0.65	0.35
Turbot/Sablefish	0.00	0.00	0.58	0.34	0.54	0.46	0.60	0.35
Yellowfin Sole	0.07	0.09	0.05	0.12	0.03	0.09	0.09	0.03
<b>Pot Catcher Processors</b>								
Atka Mackerel	0.00	0.00	0.03	0.04	C	C	C	C
Other Flatfish	0.00	0.00	0.01	0.00	C	C	C	C
Other Groundfish	0.02	0.16	1.30	1.13	C	0.00	C	0.00
Pacific Cod	0.10	0.16	0.80	1.01	C	C	C	C
Pollock	0.00	0.02	0.17	0.05	C	C	C	C
Rockfish	0.00	0.00	0.01	0.00	C	C	C	C
Rock Sole	0.00	0.03	0.01	0.00	C	C	C	C
Turbot/Sablefish	0.00	0.00	0.02	0.00	C	C	C	C
Yellowfin Sole	0.00	1.97	0.46	0.82	C	C	C	C
<b>Longline Catcher Processors</b>								
Atka Mackerel	1.00	1.00	0.51	0.97	0.70	1.00	1.00	1.00
Other Flatfish	0.91	0.95	0.93	0.87	0.73	0.88	0.62	0.52
Other Groundfish	0.90	0.87	0.87	0.77	0.64	0.78	0.69	0.74
Pacific Cod	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02
Pollock	0.15	0.21	0.17	0.13	0.12	0.13	0.14	0.15
Rockfish	0.60	0.63	0.68	0.60	0.49	0.57	0.35	0.52
Rock Sole	1.00	1.00	0.98	0.99	0.98	0.99	0.95	0.97
Turbot/Sablefish	0.08	0.08	0.06	0.10	0.10	0.05	0.03	0.06
Yellowfin Sole	1.00	1.00	0.97	0.98	0.98	0.77	0.83	0.88
<b>All Shore Plants, Floaters, and Motherships</b>								
Atka Mackerel	0.63	1.00	0.76	0.40	0.79	0.53	0.46	0.58
Other Flatfish	0.59	0.49	0.58	0.71	0.72	0.80	0.47	0.27
Other Groundfish	0.92	0.89	0.66	0.80	0.78	0.60	0.50	0.61
Pacific Cod	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01
Pollock	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Rockfish	0.43	0.65	0.46	0.52	0.53	0.31	0.37	0.30
Rock Sole	0.99	0.82	0.55	0.85	0.82	0.79	0.82	0.53
Turbot/Sablefish	0.15	0.21	0.22	0.16	0.38	0.07	0.07	0.03
Yellowfin Sole	0.14	0.14	0.74	0.89	0.92	0.62	0.99	0.17

Source: NPFMC Sector Profiles Database, 1999-2005

Table 18. Retained catch in BSAI fisheries in 1999-2006, by species and processor sector

Species & Sector	1999	2000	2001	2002	2003	2004	2005	2006
<b>Retained Catch (1,000 mt)</b>								
<b>Head and Gut Trawl Catcher Processors</b>								
Atka Mackerel	50.58	44.43	56.88	37.54	40.51	43.77	53.16	53.91
Arrowtooth Flounder	2.41	4.62	4.89	3.50	3.51	3.35	5.60	3.63
Flathead Sole	13.04	13.73	13.07	10.26	8.87	10.68	10.09	10.88
Other Flatfish	0.95	2.17	0.67	0.82	1.08	1.39	1.62	1.24
Other Groundfish	0.1	0.68	1.02	1.16	1.72	1.45	0.96	1.34
Pacific Cod	24.44	28.13	24.89	32.01	29.01	37.55	30.02	28.76
Pollock	14	16.91	17.19	17.51	13.19	16.30	16.44	12.51
Rockfish	12.36	10.03	8.61	10.44	11.46	9.50	8.57	10.43
Rock Sole	14.92	20.44	18.08	22.77	19.03	25.05	22.18	24.73
Turbot/Sablefish	1.62	1.9	1.97	0.97	0.86	0.61	0.90	0.29
Yellowfin Sole	44.7	60.24	52.70	61.15	58.76	51.88	71.98	71.02
<b>Surimi and Fillet Trawl Catcher Processors</b>								
Atka Mackerel	0.57	0	0.00	0.00	0.03	0.00	0.01	0.00
Other Flatfish	1.24	0.89	1.13	1.10	0.86	0.75	1.23	3.29
Other Groundfish	0.31	0.2	0.23	0.61	0.32	0.21	0.31	0.62
Pacific Cod	12.69	5.44	4.27	3.94	6.91	5.98	6.11	8.56
Pollock	410.81	481.43	603.79	642.87	522.65	519.73	518.15	528.45
Rockfish	0.15	0	0.10	0.04	0.33	0.15	0.31	0.11
Rock Sole	0.45	1.47	0.74	0.70	0.34	0.86	0.32	1.28
Turbot/Sablefish	0	0.01	0.02	0.02	0.01	0.01	0.01	0.03
Yellowfin Sole	10.88	7.91	2.11	2.43	4.42	4.56	7.00	12.33
<b>Pot Catcher Processors</b>								
Atka Mackerel	0	0	0.00	0.00	0.00	C	C	C
Other Flatfish	0	0	0.00	0.00	0.00	C	C	C
Other Groundfish	0	0	0.00	0.00	0.01	C	C	C
Pacific Cod	3.4	2.77	3.00	2.05	1.55	3.23	C	3.15
Pollock	0	0	0.00	0.01	0.01	C	C	C
Rockfish	0	0	0.00	0.00	0.00	C	C	C
Rock Sole	0	0	0.00	0.00	0.00	0.00	C	C
Turbot/Sablefish	0	0	0.00	0.00	0.00	C	C	C
Yellowfin Sole	0	0	0.00	0.00	0.00	C	C	C
<b>Longline Catcher Processors</b>								
Atka Mackerel	0	0	0.13	0.00	0.01	0.00	0.00	0.00
Other Flatfish	0.14	0.11	0.13	0.21	0.50	0.26	0.97	1.23
Other Groundfish	1.2	2	1.98	3.44	5.57	3.58	5.79	3.42
Pacific Cod	88.21	94.24	105.74	100.58	93.63	93.92	98.74	84.18
Pollock	3.35	3.83	4.99	5.64	5.56	4.06	3.25	2.26
Rockfish	0.16	0.21	0.18	0.12	0.16	0.14	0.14	0.19
Rock Sole	0	0	0.00	0.00	0.00	0.00	0.00	0.00
Turbot/Sablefish	4.13	5.05	2.91	2.54	2.19	1.76	2.17	1.99
Yellowfin Sole	0	0	0.02	0.01	0.01	0.14	0.12	0.05
<b>All Shore Plants, Floaters, and Motherships</b>								
Atka Mackerel	0.06	0	0.02	0.18	0.43	0.74	0.55	0.56
Other Flatfish	1.01	1.66	0.73	0.74	0.83	0.64	1.39	2.41
Other Groundfish	0.3	0.21	0.93	0.54	0.62	0.96	1.18	1.24
Pacific Cod	41.6	56.42	35.83	54.46	61.59	52.50	48.60	49.82
Pollock	533.16	609.37	744.58	795.32	652.87	638.52	648.37	646.90
Rockfish	0.08	0.08	0.21	0.33	0.23	0.37	0.43	0.56
Rock Sole	0.07	0.42	0.63	0.32	0.39	0.42	0.23	0.54
Turbot/Sablefish	0.55	0.84	1.30	1.46	1.15	1.13	1.11	1.07
Yellowfin Sole	1.23	1.8	0.09	0.03	0.02	0.09	0.00	1.03

Source: NPFMC Sector Profiles Database, 1999-2005

Table 19. Retained catch as percentage of total catch in BSAI fisheries in 1999-2006, by species and processor sector

Species & Sector	1999	2000	2001	2002	2003	2004	2005	2006
Discarded Catch as Percent of Total Groundfish Catch								
<b>Head and Gut Trawl Catcher Processors</b>								
Atka Mackerel	0.09	0.06	0.07	0.16	0.22	0.20	0.06	0.04
Arrowtooth Flounder	0.74	0.54	0.58	0.62	0.63	0.77	0.48	0.60
Flathead Sole	0.17	0.19	0.14	0.21	0.23	0.25	0.17	0.21
Other Flatfish	0.93	0.85	0.93	0.94	0.91	0.88	0.88	0.92
Other Groundfish	0.99	0.93	0.89	0.89	0.77	0.81	0.84	0.82
Pacific Cod	0.05	0.02	0.03	0.04	0.02	0.01	0.02	0.02
Pollock	0.52	0.46	0.46	0.48	0.50	0.54	0.45	0.47
Rockfish	0.35	0.35	0.47	0.33	0.37	0.39	0.33	0.31
Rock Sole	0.57	0.54	0.32	0.40	0.41	0.43	0.33	0.20
Turbot/Sablefish	0.20	0.13	0.20	0.25	0.20	0.33	0.11	0.20
Yellowfin Sole	0.20	0.17	0.13	0.14	0.15	0.18	0.09	0.09
<b>Surimi and Fillet Trawl Catcher Processors</b>								
Atka Mackerel	0.51	0.00	0.28	0.65	0.88	0.90	0.58	0.63
Other Flatfish	0.55	0.65	0.41	0.43	0.39	0.52	0.50	0.42
Other Groundfish	0.72	0.95	0.82	0.60	0.54	0.74	0.66	0.64
Pacific Cod	0.03	0.02	0.02	0.02	0.00	0.02	0.01	0.01
Pollock	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rockfish	0.40	1.00	0.78	0.86	0.52	0.36	0.41	0.42
Rock Sole	0.67	0.55	0.46	0.56	0.58	0.50	0.65	0.35
Turbot/Sablefish	0.00	0.00	0.58	0.34	0.54	0.46	0.60	0.35
Yellowfin Sole	0.07	0.09	0.05	0.12	0.03	0.09	0.09	0.03
<b>Pot Catcher Processors</b>								
Atka Mackerel	0.00	0.00	0.03	0.04	C	C	C	C
Other Flatfish	0.00	0.00	0.01	0.00	C	C	C	C
Other Groundfish	0.02	0.16	1.30	1.13	C	0.00	C	0.00
Pacific Cod	0.10	0.16	0.80	1.01	C	C	C	C
Pollock	0.00	0.02	0.17	0.05	C	C	C	C
Rockfish	0.00	0.00	0.01	0.00	C	C	C	C
Rock Sole	0.00	0.03	0.01	0.00	C	C	C	C
Turbot/Sablefish	0.00	0.00	0.02	0.00	C	C	C	C
Yellowfin Sole	0.00	1.97	0.46	0.82	C	C	C	C
<b>Longline Catcher Processors</b>								
Atka Mackerel	1.00	1.00	0.51	0.97	0.70	1.00	1.00	1.00
Other Flatfish	0.91	0.95	0.93	0.87	0.73	0.88	0.62	0.52
Other Groundfish	0.90	0.87	0.87	0.77	0.64	0.78	0.69	0.74
Pacific Cod	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02
Pollock	0.15	0.21	0.17	0.13	0.12	0.13	0.14	0.15
Rockfish	0.60	0.63	0.68	0.60	0.49	0.57	0.35	0.52
Rock Sole	1.00	1.00	0.98	0.99	0.98	0.99	0.95	0.97
Turbot/Sablefish	0.08	0.08	0.06	0.10	0.10	0.05	0.03	0.06
Yellowfin Sole	1.00	1.00	0.97	0.98	0.98	0.77	0.83	0.88
<b>All Shore Plants, Floaters, and Motherships</b>								
Atka Mackerel	0.63	1.00	0.76	0.40	0.79	0.53	0.46	0.58
Other Flatfish	0.59	0.49	0.58	0.71	0.72	0.80	0.47	0.27
Other Groundfish	0.92	0.89	0.66	0.80	0.78	0.60	0.50	0.61
Pacific Cod	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.01
Pollock	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Rockfish	0.43	0.65	0.46	0.52	0.53	0.31	0.37	0.30
Rock Sole	0.99	0.82	0.55	0.85	0.82	0.79	0.82	0.53
Turbot/Sablefish	0.15	0.21	0.22	0.16	0.38	0.07	0.07	0.03
Yellowfin Sole	0.14	0.14	0.74	0.89	0.92	0.62	0.99	0.17

Source: NPFMC Sector Profiles Database, 1999-2005

### 5.5.5 Participation of the H&G 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 was allocated to the CDQ Program as “CDQ reserves.” The CDQ reserves were 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, among other things. To separate CDQ fisheries from other regulated open access fisheries, some seasons exclude the take of fish for CDQ purposes during a fishing trip.

In 2005, five H&G 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.

## 5.6 Alternatives Considered

The alternatives are discussed in detail in Chapter 2 of this EA/RIR/IRFA; they include the following 4 alternatives.

**Alternative 1:** No Action. Retain the Status Quo management structure.

**Alternative 2:** For the H&G trawl C/Ps, while fishing in the BSAI, calculate the MRA of yellowfin sole, rock sole, flathead sole, “other flatfish”, and arrowtooth flounder at the end of a fishing trip.

**Alternative 3:** For the H&G trawl C/Ps, while fishing in the BSAI, calculate the MRA of yellowfin sole, rock sole, flathead sole, “other flatfish”, and arrowtooth flounder at the time of offload.

For both Alternatives 2 and 3, the following options were analyzed:

**Option:** Include BSAI Pacific cod,

**Option:** Include Aleutian Islands (AI) Pacific ocean perch (POP),

**Option:** Include Bering Sea POP,

**Option:** Include Atka mackerel in the BS and AI

#### **PREFERRED ALTERNATIVE 4.**

For the H&G trawl C/Ps, while fishing in the BSAI, calculate the MRA of yellowfin sole, rock sole, flathead sole, “other flatfish”, and arrowtooth flounder at the end of a fishing trip.

Include BSAI Pacific cod

Include AI POP

Include Atka mackerel in the BS and AI

This revised MRA accounting interval would apply to the H&G trawl C/Ps while both CDQ and non-CDQ fishing in the BSAI.

The Council recommended that the MRA accounting interval not be changed for Pacific cod inside SSL protection areas in the BSAI and Atka mackerel inside SSL protection areas in the AI. This recommendation was made because increasing the MRA accounting interval could result in an increase in catch of a species. Pacific cod and Atka mackerel are prey species for the SSL and the Council did not want to allow an increase in catch of these species inside the protection areas.

At its December 2006 meeting, the Council recommended final action that prescribed MRA accounting be calculated at the end of a fishing trip for Atka mackerel, in all locations of the BS. The Council did not recommend retaining the instantaneous method for calculating MRAs for Atka mackerel inside the SSL protection areas in the BS. However, following the Council’s final action, NMFS again reviewed the catch statistics and determined that, although the catch of Atka mackerel by the H&G trawl C/Ps in the BS is small relative to the catch in the AI, approximately 97 percent of this catch occurs inside the SSL protection areas. The added flexibility of relaxed MRA accounting for Atka mackerel in the BS could enable vessels in this sector to fish in SSL protection areas; a practice that may result in higher proportions of incidentally caught Pacific cod and Atka mackerel. One potential consequence for relaxing MRA accounting for Atka mackerel could be a change in the distribution of Atka mackerel catches, or even an increase in catches of Atka mackerel in SSL protection areas, if H&G trawl C/P vessels are motivated to top-off on Atka mackerel. NMFS noted at the December 2006 Council meeting, and in its draft EA/RIR/IRFA, that a longer MRA accounting interval might act to extend the interval of time for topping off in SSL protection areas. The Council responded to this information by including in their final action motion that instantaneous MRA accounting for Pacific cod and Atka mackerel should apply in all SSL protection areas of the BSAI. The Council subsequently confirmed at the August 2007 Council meeting that they fully intended the 2006 final action to include the current instantaneous method of calculating MRAs for Atka mackerel inside the SSL protection areas in the BS

The intended effect of this change is that the accounting period for MRA would commence when fishing begins and the MRA would be calculated:

- a. on the effective date of a notification prohibiting directed fishing in the same area;
- b. upon offload or transfer of any fish or fish product from that vessel;
- c. when a vessel enters or leaves an area where a different directed fishing prohibition applies;
- d. when a vessel begins fishing with a different type of authorized fishing gear; or

- e. when a weekly reporting period ends, whichever comes first;
- f. for Pacific cod in the BSAI and Atka mackerel in the BSAI, a new trip is started upon commencing fishing inside SSL Critical Habitat. The trip which starts inside CH will be subject to MRA accounting for Pacific cod and Atka mackerel at any point during the fishing trip (status quo enforcement).<sup>10</sup>

SSL protection areas vary by species, area, and time. If approved by the Secretary, Alternative 4 would continue to apply instantaneous MRA accounting for Pacific cod or Atka mackerel at any time during a fishing trip inside SSL protection areas. These SSL protection areas are any area where the following may occur:

- directed fishing is prohibited for Pacific cod, pollock, or Atka mackerel (applicable to Bogoslof & Seguam Forage Areas at 679.22 (a)(7)(i) and (a)(8)(i));
- directed fishing with trawl gear for AI Pacific cod is prohibited during the Atka mackerel HLA fishery (679.22 (a)(8)(iv)(B));
- directed fishing with trawl gear for AI Pacific cod is prohibited after Atka mackerel harvest limits are reached (679.22 (a)(8)(iv)(A)); and directed fishing with trawl gear for BS Pacific cod is prohibited (679.22 (a)(7)(v)).
- directed fishing with trawl gear for BSAI Atka mackerel is prohibited (679.22 (a)(7)(vi)); and
- the Atka mackerel HLA areas are closed (679.22 (a)(8)(v)).

In addition, any entry or exit to these areas by an H&G trawl C/P vessel would trigger a new fishing trip. This mechanism was intended to assist in monitoring compliance with MRA accounting, both inside and outside BSAI SSL protection areas. The environmental implications if these components on marine mammals are explained in section 4.1. These revisions to the MRA accounting interval would also apply while the H&G trawl C/Ps are CDQ fishing.

## 5.7 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 benefits of each of the proposed alternatives

### 5.7.1 Alternative 1 MRA accounting

Alternative 1 is the no-action alternative. This alternative is the baseline alternative against which the costs and benefits of each action alternative should be compared. Alternative 1 would retain the current definition of a fishing trip and maintain the current MRA accounting interval for all groundfish species.

#### 5.7.1.1 Description of management under Alternative 1

Provided below is a brief description of the current management by species and sector of BSAI non-pollock groundfish fisheries. It includes a description of the fisheries and a description of the H&G trawl C/P sector for the BSAI groundfish fisheries. Overall, MRA accounting under Alternative 1 is not anticipated to change existing fishing practices and patterns.

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<sup>10</sup> Note that this analysis assumes that instantaneous MRA accounting must also be applied to Atka mackerel in the BS to maintain consistent accounting by statistical area for Pacific cod and Atka mackerel.

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 either season apportionments of target species (in the case of cod, pollock, and Atka mackerel), or seasonal apportionments of PSC (established in the annual harvest specifications, such as for the flatfish fisheries). 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 the Council's BSAI Groundfish Plan Team. The Secretary, after receiving recommendations from the Council, determines up to 2 years of TACs and apportionments. In some cases, the TAC for each of the allocated species is reduced by 15 percent to form the non-specific reserve. 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 a fishing year; and c) apportionments.

Inseason Management debits both directed catch and incidental catch against the TAC for groundfish species, to ensure the resource is not overharvested. The directed fishery for any groundfish species is closed when the directed fishing amount is caught, reserving the remainder of the TAC for incidental catch in other groundfish fisheries. If the TAC has not been reached, NMFS allows vessels to retain incidental catch of groundfish species taken in other directed fisheries that are open, up to the MRA. If the species 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.

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 onboard 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.

In addition to the regulatory and operational environments outline in Section 5.1.1, above, the no action alternative includes the modified BSAI pollock MRA, which was implemented in June 2004. Under this revision, the accounting interval for the pollock MRA in the BSAI was modified from accounting at any time 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 (Crapo et al. 1993), or 2) be 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 H&G 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 H&G trawl C/P vessels greater than or equal to 125 ft LOA was 71 percent, while in 2006 it is approximately 78 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 suggested that when the groundfish retention standard program (Amendment 79) for the H&G trawl C/P sector was eventually implemented, relaxed pollock MRA accounting could provide more flexible means of dealing with groundfish retention standards that exceed historical groundfish retention rates. The groundfish retention standard requirement to increase retention of groundfish has been reported by the H&G trawl C/P sector as providing additional pressure to retain and utilize a greater amount of catch of many groundfish species. That is because the groundfish retention standard sets specific groundfish percent that must be retained by each member of an Amendment 80 cooperative or each individual vessel that elects to not enter an Amendment 80 cooperative.

The Amendment 80 program is an important component Alternative 1, that assists members of the H&G trawl C/P sector to improve retention and utilization of BSAI groundfish. For each of the allocated species under Amendment 80, MRAs no longer apply to H&G trawl C/Ps that form an Amendment 80 cooperative. One exception to this is that MRAs still apply to Amendment 80 co-op vessel (and non co-op vessels) whenever they catch Atka mackerel and Pacific cod in SSL protection areas. For H&G trawl C/Ps that do not choose to enter an Amendment 80 cooperative, instantaneous MRA accounting remains in effect. For those H&G trawl C/Ps that do not form an Amendment 80 co-op, instantaneous MRA accounting may still create some pressure to discard groundfish that are either allocated or unallocated under Amendment 80.

When Amendment 85 was implemented in 2008, some H&G trawl C/Ps that choose not to participate in an Amendment 80 cooperative could also have additional burden retaining groundfish and complying with instantaneous accounting for MRAs, applied to Pacific cod. The H&G trawl C/P sector raised the concern to the Council in June 2006 that the instantaneous MRA accounting for Pacific cod would be particularly burdensome for those vessels since Pacific cod was anticipated to be closed to directed fishing much of the 2008 and subsequent years.

#### **5.7.1.2 Primary Target Fisheries Exploited under Alternative 1**

In the BSAI flatfish fisheries prosecuted in Alternative 1, rock sole, flathead sole, and “other flatfish” are almost exclusively caught by C/Ps using bottom trawl gear. Although the fisheries 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. Some vessels also can fish for rex sole in the GOA. No directed fishery for arrowtooth flounder is open to the H&G trawl C/P sector. The “other flatfish” species group consists of

several flatfish species. While this species group does have a directed fishery, prosecuted by members of the H&G trawl C/P sector, these species are rarely identified as a target and, thus, are not elaborated in this section.

Provided below are summary descriptions of the major target fisheries included in the proposed action to modify the MRA accounting, with the exception of arrowtooth flounder and “other flatfish. Generally, data on catch and retained catch are presented for each BSAI groundfish fishery for 1997 through 2006. Catch and retention data by fishery are also compared with ABCs and TAC by gear type for 2006, for comparison purposes. Some data from earlier years is presented in order to provide a longer historical time series or if 2006 data is not representative of recent trends.

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 2006a). Please see this document for further details on the groundfish fisheries in the BSAI.

### **Yellowfin Sole**

Yellowfin sole is one of the most abundant flatfish species in the BS and is the target of the largest flatfish fishery in the United States. The resource inhabits the BS shelf and is considered one stock. Abundance in the AI region is low. The directed fishery typically occurs from spring through December. 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, while the 2006 catch increased to 98,400 mt. The 2006 catch was 80 percent of the ABC and approximately equal to the TAC. The yellowfin sole harvest in 2006 was constrained by two seasonal closures, due to the attainment of halibut PSC limits, and additional closures due to attainment of the TAC. The openings were from January 20-April 20, from May 21 -June 8, and from July 19 to August 8. In some years, additional closures may occur to prevent exceeding the annual bycatch allowance of red king crab specified for the yellowfin sole target fishery.

The catch information presented above also includes discards of groundfish in the yellowfin sole target fishery. In the fishery targets of the H&G trawl C/P sector, the rate of discard has ranged from a low of 14 percent of the total catch in 2001, to 30 percent in 1992. In 2006, the groundfish discard rate in the yellowfin sole target fisheries participated in by the the H&G trawl C/P sector was 14 percent. 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 13, provides catch of yellowfin sole, and Table 14 provides percentages of groundfish retention by target fishery and by gear, in the BSAI from 1997 to 2006.

### **Flathead Sole Fishery**

The 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. The resource remained lightly harvested as the 2006 catch through 20 September was only 75 percent of the 2006 TAC of 19,500 mt, and less than 10 percent of the ABC of 188,000.

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 in various BS target fisheries. In 2006, the predominant source of flathead sole discards was from the Pacific cod, pollock, and rock sole fisheries.

### **Rock Sole Fishery**

Northern and southern rock sole are managed as a single stock in the BSAI. Rock sole in the BSAI 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 1999 through 2006 have averaged 39,000 mt annually. Total groundfish catch in the rock sole target was approximately 45,000. The 2006 catch of 34,000 mt was only 30 percent of the ABC of 126,000 mt (90 percent of the TAC). Rock sole are lightly harvested in the BSAI. During the 2006 fishing season rock sole harvesting was closed in the BSAI due to halibut bycatch restrictions three times between February and August.

Although female rock sole are highly valued during optimal roe bearing condition, large amounts of rock sole are discarded in the various Bering Sea trawl target fisheries. From 1987 to 2000, rock sole were discarded in greater amounts than they were retained. Retention data from recent years indicate an increase in the retention of groundfish in the rock sole target fishery for the H&G trawl C/P sector. In 1999, it was 47 percent and in 2006 the retention rate was 78 percent. The rock sole target has one of the highest groundfish discard rates of any target fishery along with yellowfin sole, flathead sole and Pacific cod.

### **Other Flatfish**

The current "other flatfish" category is dominated by one species, Alaska plaice (*Pleuronectes quadrituberculatus*). Less than 10 percent of this complex consists of miscellaneous flatfish species such as rex sole and Dover sole. Annual natural mortality of adults has been estimated to be about 15 percent ( $M = 0.20$ ). This flatfish species is thought to live 16 years or more. Alaska plaice begin to recruit to trawl fisheries at age 4, but are not fully recruited to all gear types until about age 7.

The “other flatfish” complex is not overfished. This complex is also above its current target biomass, though stock assessments indicate a declining stock size OFLs for 2005 and 2006 are set at 147,000 mt and 130,000 mt, respectively. The catch of “other flatfish” in 2005 and 2006 were approximately 20,000 mt and 21,000 mt, respectively. While below the OFL, these catches were approaching or exceeding the ABC. Catches of groundfish in the H&G trawl C/P sector “other flatfish” target were approximately 28,000 mt and 23,000 mt, respectively. The retention rate of groundfish caught in the “other flatfish” target was 70 percent in 2006.

### **Atka mackerel Fishery**

The directed Atka mackerel fishery is a bottom trawl fishery that occurs on the continental shelf in the BS and in the passes between the central and western Aleutian Islands. 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 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 SSL 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 January 1999. 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 regulation 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, NMFS and the Council formulated new regulations for the management of SSL 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. Under this rule, 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. The regulation also constrained fishing within 3 nm around all major sea lion haulouts. SSL 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.

For 2006 and 2007, exploitable biomass in the Aleutian Islands area was projected at 486,000 mt and 446,000 mt, respectively. In 2006, catch specifications were OFL=130,000 mt, ABC=110,000 mt, and TAC=69,300 mt. Between 1997 and 2006, average catches of groundfish in the Atka mackerel target were 60,000 mt. The average retention rate of groundfish caught in the Atka mackerel target was 82 percent. The discard rate of this species, in this fishery, is not high, so it may not have the potential to contribute significantly to increased retention of groundfish. However, it is not overfished and, based on recent catch years; slight increases in catches are not likely to approach the ABC.

## **Pacific Ocean Perch Fishery and Other Rockfish Fisheries**

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 Pacific ocean perch (POP) in the Aleutian Islands. The directed fishery for POP is mostly conducted by C/Ps using bottom trawl gear. Catches of POP caught in other fisheries open to directed fishing is predominantly by trawl gear in the following targets by decreasing order: Atka mackerel, pelagic pollock, non-pelagic pollock, Pacific cod, and flatfish.

Estimates of retained and discarded POP from the fishery have been tracked by NMFS since the early 1990s. The BS region generally shows a higher POP discard rate than the AI region. For the period from 1990 to 2006, the POP discard rate in the BS averaged about 14 percent, and the 2006 discard rate was 17 percent. In contrast, the discard rate from 1990 to 2002 in the AI averaged about 33 percent. AI POP discard rates for 2006 are 38 percent (Table 4).

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. 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.

## **Pacific Cod Fishery**

The most recent descriptions of the Pacific cod fishery are contained in the Stock Assessment and Fishery Evaluation (SAFE) report for the Groundfish Fisheries of the Gulf of Alaska and Bering Sea/Aleutian Islands Area: Economic Status of the Groundfish Fisheries off Alaska, 2004 and 2005 (Hiatt et al, 2006 and 2007) and the Groundfish PSEIS (NMFS, 2004a). The SAFE document includes information on the catch and revenues from the fisheries, the numbers and sizes of fishing vessels and processing plants, and other economic variables that describe or relate to the performance of the fisheries. Section 3.9.2 of the Groundfish PSEIS describes the characteristics and activities of trawl, pot, hook-and-line, and jig catcher vessels and catcher processors, of various lengths, operating in the BSAI. In addition to reporting the catch and revenues from the BSAI Pacific cod fishery by sector, that document contains detailed information on the owners, by region of residence, the annual cycle of operations and dependence on groundfish fisheries, and crew employment.

The Pacific cod stock is targeted principally by trawl and hook-and-line catcher processors, and smaller amounts by hook-and-line, jig, and pot gear catcher vessels. Behind pollock, Pacific cod is the second most dominant species in the commercial groundfish catch off Alaska, accounting for about 176,800 mt, or 10.6 percent of the total 2006 commercial groundfish catch (Economic SAFE, 2006a). The majority of Pacific cod harvested by trawl gear is taken in shallow waters on the eastern Bering Sea shelf (Groundfish PSEIS, 2004).

Vessels began fishing in Federal waters off Alaska under the License Limitation Program (LLP) on January 1, 2000. Since the LLP was approved, changes in the fixed gear fleets prompted industry to petition the Council to further allocate cod in the BSAI among the various sectors of the fixed gear fleets. Amendment 64, implemented September 1, 2000, further apportioned the 51 percent of the BSAI Pacific cod TAC allocated to fixed (hook-and-line and pot) gear. Because Amendment 64 was scheduled to expire at the end of 2003, Amendment 77 was initiated to continue or modify the fixed gear apportionments beyond 2003. Under Amendment 77, the Council approved continuing the same overall fixed gear allocations as under Amendment 64, but including a new apportionment between the pot sectors. The existing apportionment of the fixed gear portion of the BSAI Pacific cod ITAC is as follows:

- 80% hook-and-line catcher processor
- 0.3% hook-and-line catcher vessel
- 3.3% pot catcher processor
- 15.0% pot catcher vessel
- 1.4% hook-and-line and pot vessel <60' LOA<sup>11</sup>

With the exception of the pot split, the percentage allocations selected closely represent the harvests in this fishery during 1995 – 1998 or 1999, with an additional allocation for catcher vessels <60' LOA in order to allow for growth in the small boat sector.

### **5.7.1.3 Current MRA regulations and definition of a fishing trip under no action (Alternative 1)**

MRA regulations at 50 CFR 679.20(e) establishes the MRA accounting interval for groundfish MRAs of 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 onboard of basis species or species groups open for directed fishing. Appendix 3 (see Table 11 in CFR 679) lists MRAs as retainable percentages for BSAI groundfish species. For most BSAI groundfish species the percentages listed in Table 11 are used to calculate the allowable amount of a species to retain “instantaneously” (i.e., at anytime during a fishing trip). Amounts that are caught in excess of the MRA percentage must be immediately discarded. All MRA accounting is computed based upon processed product that is “back-cast”, using product recovery rates (PRR), to derive a round weight equivalent measure. Under existing regulations, BSAI pollock is the only species for which MRAs are enforced at the time of offload. The IR/IU regulations for pollock supersede some of the retention flexibility for current MRA requirements by mandating that vessels must retain 100 percent of all pollock, until reaching the MRA.

As a management tool, MRAs rely on the ability of the vessel operator to be selective in catch composition when fishing for the target species. The target species is called a basis species in regulation, and 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. The MRA may also function as a trip limit for retention of incidental catch of a species to the MRA

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<sup>11</sup>The hook-and-line and pot CV <60' sectors were allowed to fish off of the general hook-and-line CV allocation and general pot CV allocation, respectively, when these fisheries were open, respectively. When these fisheries were closed, the <60' sector harvest accrued toward the <60' hook-and-line/pot CV allocation of 1.4%.

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 a species when TAC amounts are low (relative to the species caught in the directed fisheries), at greater risk of being caught in excess of the overfishing level, and/or of high unit value, making them a covert target. Some rockfish species meet these criteria, as do sablefish, among others.

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 SSL 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 H&G 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, shorttraker rockfish, rougheye 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 an MRA accounting interval 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 an 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.

A groundfish fishing trip begins when fishing gear is deployed by a vessel and meets any of the regulatory conditions of a fishing trip at § 679.2. By regulation, several conditions end a trip for a C/P (based on whichever condition occurs first).

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.*

#### **5.7.1.4 Vessel Safety under Alternative 1**

Consequences of Federal fishery management actions for vessel safety are to be considered under National Standard 10 of the Magnuson-Stevens Act. Though not as large in size and production capacity as vessels operating in the pollock AFA fisheries, H&G trawl C/P vessels fish and process in the BSAI 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. Choices made by vessel operations in this sector to fish 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. Fishing choice can be impacted by a number of factors, including fishing regulations. MRAs are one of dozens of fishing regulations that could impact fishing decisions made by vessels in this sector. NMFS does not have access to data that would allow evaluation of how MRA percentages or MRA accounting intervals would impact location/time fishing decisions, or their resulting implications for vessel safety. Coast Guard regulation on vessel safety, including load line certification, guidelines for vessel loading, safety equipment, as well as inspection schedules, and random boardings, insurance liability for crew and vessel, observers, and ready access to sufficient capital (for timely vessel/equipment maintenance and a full complement of safety equipment, etc.) are likely to have a greater influence on vessel safety at sea than MRA regulations at 50 CFR 679.

#### **5.7.1.5 Product Quality under Alternative 1**

Several factors affect the quality of seafood produced by the H&G trawl C/P sector. Contributing factors include the current groundfish market, location of harvest, the general regulated open access fishing access regime, and specific IR/IU, MRA, PSC, and other bycatch regulations. For example, regulatory initiatives such as Amendment 49 and Amendment 79, proposed by the Council and implemented by NMFS, contain various incentives to retain certain groundfish species, and avoid other species in amounts and at times that likely differ from what would be chosen by vessels if these policies were not in place.

Current regulations on instantaneous accounting of MRAs (among hundreds of other regulations) may exert some influence on fishing activity, processing modality, product mix, recovery rates, 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 H&G trawl C/P sector report that some of their efforts to research and test market new product forms have been successful, and products derived from species such as yellowfin sole have experienced some increase in price over the last few years (according to wholesale price data collected by NMFS from weekly production reports and other data sources).

Most groundfish caught by the H&G 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 definitive empirical data are available to analysts, but anecdotal information provided in public testimony suggest that the regulation requiring instantaneous MRA accounting for most groundfish species contributes to major changes in the quality of groundfish products.

#### **5.7.1.6 Enforcement under Alternative 1**

Currently, for the non-AFA C/P trawl vessels producing H&G products, compliance with MRA regulation is enforced by both NOAA Office of Law Enforcement and the US Coast Guard. Principally, MRAs are enforced during dockside and at-sea boardings, by inspecting the Daily Cumulative Production Logbook (DCPL), as well as, other vessel records, and assessing products present aboard the vessel. Under existing regulation, the longest period a single fishing trip may last is seven days, corresponding to a weekly reporting interval. Compliance with MRA regulations may be checked, based upon the cumulative ratios of basis and incidental 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).

MRA requirements can also be audited without boarding a vessel. NOAA Office of 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 NMFS by 1200 hours Alaska Local Time (ALT) on the Tuesday following the end of the reporting week, which ends at 2359 hours 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 after the completion of the WPR timely submission. While auditing of MRAs with both the records and product available on the vessel are necessary to explicitly track compliance with instantaneous accounting, analysis of WPRs helps to develop indicators, and may 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 Office of Law 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.

#### **5.7.1.7 Alternative 1: Cost, revenues, and some potential impacts to producers and consumers of Alternative 1**

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 H&G trawl C/P sector, nor for other BSAI groundfish sectors. The primary reason for this is the lack of routine data collection on prices and quantities of industry inputs to these fisheries. Also missing are: (1) standardized records of prices and quantities of products; (2) costs of operations, or (3) models relating costs to effort and output, and (4) models describing demand functions for these groundfish products that can be related to fishing and processing inputs and decisions.

Even if some of these data and models existed for this sector, it is unlikely that these tools would be sufficient to stratify the effects of many existing regulations in 50 CFR 679. For that reason, it is not possible to relate existing regulations on MRAs to changes in the value of groundfish resources and status quo fishing privileges in the H&G trawl C/P sector.

Certain management features of the H&G trawl C/P fisheries provide some insight into the economic status of this sector. For example, members of the H&G trawl C/P sector participate in a regulated open 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 returns to capital and a larger fleet than necessary to efficiently prosecute a fishery. Given the type of entry system, management regime, and variability in biological aspects (e.g., long term stock size) of these fisheries, there is substantial uncertainty regarding the economic condition of this sector under Alternative 1. When a given species is closed to directed fishing, and MRA accounting is required, fishery managers often observe a decrease in fishing effort on the species closed to directed fishing. In any case, the use of MRAs and the existing accounting system probably have an effect on the economic decisions of this sector. As a result, the economic effects of these of directed fishing closures may include short term change in revenues or costs.

One regulatory factor that could introduce changes from the current fishing regime for this sector is the implementation of the Amendment 79 Groundfish Retention Standard (GRS) in 2008 (CFR 71 FR 17362). 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 range from tens of thousands, to hundreds of thousands of dollars, per vessel. Producer surplus for the H&G 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 mandated first year groundfish retention rate of 65 percent only applies to vessels greater than or equal to 125 ft LOA. This GRS percentage does not exceed historical retention rates for most vessels in this size class. The rate rises above the historically observed rates of some portion of this sector, in 2009. During that year, it is possible that some vessels in the sector may be compelled to retain a certain portion of groundfish that is of a size or sex ratio that is less valuable than other catch compositions they may have retained without the GRS.

If fishing conditions and rules governing this fishing year continue, the H&G trawl C/P sector under Alternative 1 is likely to continue to focus its fishing effort on several flatfish species, as well as 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 could easily decline compared with current rates, but overall the retention rates, while likely to rise under the GRS, could easily continue to lag behind other BSAI sectors.

With the possible exception of a proposed rule to allow for formation of fishing cooperatives in the H&G trawl C/P sector, new management measures (approved by the Secretary) are not expected to dramatically alter wholesale product revenues realized by the H&G trawl C/P sector 2007, compared with previous years (all other economic factors 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 required to be produced, as a result of retaining fish that would otherwise have been discarded, because of economic reasons (e.g., fish of sizes that are in lower 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. No data are readily available to predict how consumer surplus might be altered for the mix of groundfish species produced by the H&G trawl C/P sector in the near future. Since the initial product sold by members of this sector is delivered to Asian markets for reprocessing, 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. No data exist to suggest how (or if) prices paid by consumers for groundfish would change under Alternative 1, although NMFS wholesale price data suggest that some groundfish prices have varied over time and location.

Potential profits (or surplus) to producers in the H&G 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 H&G trawl C/P sector participants report that they are compelled to compete for groundfish against other participants within and outside their sector, while a species or fishery is open to directed fishing, and compete for incidental catches of valuable species when those species are closed to directed fishing. Under a race-for-fish type of access management regime, the quality of the groundfish harvested may be negatively impacted, as participants adopt fishing techniques to maximize catch rates. Diminished product quality could reduce 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 efficiently process the catch. If fish are held too long, prior to processing, quality will decline. Generally, participants in the H&G trawl C/P sector are equipped to produce whole, or head-and-gutted, frozen products. Production of these products is likely to continue. In addition, participants in the H&G trawl C/P sector must comply with the GRS, which also could limit production efficiency. The GRS establishes a minimum aggregate amount of groundfish species that must be retained at the end of a year (starting in 2008, at 65 percent and increasing annually to 85 percent). Additional requirements to retain groundfish could easily increase the operating costs of some H&G trawl C/P, but the magnitude of these effects is unknown.

#### **5.7.1.8 Incidental Catch of groundfish species in Alternative 1**

One of the purposes of the current instantaneous MRA accounting requirement is to limit 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. The NMFS series catch reporting system assigns all groundfish catch an “incidental” or “target” designation. This estimate is generated by an algorithm that assigns a target fishery designation to each haul made by a C/P and each delivery made by a catcher vessel based on the predominant species. The only exception to this algorithm is for pollock, which is assigned based on gear type. Table 20 shows the amount of incidental catch of groundfish by trawl and fixed gear sectors when a given species is not the target. The amount of incidental catch by the H&G trawl C/P sector in all years and by all target groups is consistently higher than the incidental catch of other sectors. 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 also vary greatly by individual target in the H&G trawl C/P sector. For example, the amount of rock sole caught incidentally is several times greater than the amount of “other rockfish” species.

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 H&G trawl C/P sector to be a desirable candidate for extending MRA accounting. Table 20 shows the percentage of incidental catch of groundfish in the H&G trawl C/P sector by target fishery between years 2003 and 2006 by area.

- In the BSAI rock sole target fishery; Pacific cod, pollock, and yellowfin sole are the largest sources of incidental catch at 11.1 percent, 15.6 percent, and 16.6 percent, respectively.
- In the yellowfin sole target fishery; Alaska plaice, pollock, and rock sole are the largest sources of incidental catch at 8.0 percent, 11.5 percent, and 9.3 percent, respectively.
- In the flathead sole target fishery, pollock, arrowtooth flounder, and yellowfin sole are the largest sources of incidental catch at 16.3 percent, 10.7 percent, and 10.7 percent, respectively.
- 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, arrowtooth flounder, Atka mackerel, and pollock are the largest sources of incidental catch at 4 percent, 4 percent, and 3 percent, respectively. There is no directed fishery on POP in the BS, thus no data are included on this area/species combination.

Table 20. Percentage of incidental catches in target fishery from 2003 and 2006 for the H&G trawl C/P sector.

Incidental Catch Species	Target Fishery								
	Mackerel EAI	Mackerel CAI	Mackerel WAI	POP EAI	POP CAI	POP WAI	Flathead Sole	Rock Sole	Yellowfin Sole
Alaska Plaice	0.03	0.00	0.00	0.00	0.00	0.00	2.99	3.07	9.73
Atka Mackerel	--	--	--	4.37	1.76	0.89	0.24		0.03
Arrowtooth Flounder	3.23	0.20	0.17	5.00	2.68	1.83	10.73	1.03	0.47
Other Flatfish	0.58	0.00	0.03	0.10	0.07	0.08	0.34	2.08	0.96
Flathead Sole	0.26	0.00	0.01	0.06	C	0.02	--	2.64	1.73
Greenland Turbot	0.05	0.28	0.03	2.80	0.23	C	0.44	0.02	0.00
Northern Rockfish	3.68	5.02	7.82	0.43	0.56	1.81	0.01	0.00	0.00
Other Species	1.16	0.88	0.85	0.65	1.11	0.71	6.33	2.88	2.48
Pacific Cod	3.64	2.86	2.65	2.70	0.46	0.38	9.78	11.08	3.44
Pollock	1.55	0.43	0.43	3.26	6.51	2.51	16.29	15.61	8.46
Pacific Ocean Perch	3.98	2.30	5.86	--	--	--	0.17	0.00	0.01
Other Rockfish	0.94	0.19	0.11	0.16	0.43	0.42	0.09	0.00	0.00
Rocksole	0.64	0.21	0.10	0.16	0.14	0.02	7.61	--	9.20
Sablefish	0.10	0.00	C	0.51	1.15	0.02	0.06	0.01	0.00
Squid	0.00	0.01	0.03	0.06	0.07	0.07	0.01	0.00	0.00
Shortraker/Rougheye Rockfish	0.00						.00	C	0.00
Yellowfin sole	0.08	0.00	0.00	0.00	0.00	0.00	10.65	16.63	-

## 5.7.2 Impact Analysis for Alternatives 2, 3, and 4:

Projecting any measurable change to the firms and operations of the H&G trawl C/P sector (e.g., changes to groundfish retention from Alternatives 2, 3, and 4, or potential changes within a season for management purposes) is difficult for a number of reasons. One reason for this difficulty is that there is relatively little difference between the alternatives. Among the many regulations governing groundfish fishing in the BSAI, these three action alternatives differ only in the maximum interval of time that an H&G trawl C/P processor would have to comply with an MRA percentage. Alternative 2 would, at most, provide one fishing week to account for the retained amount allowed in regulation, while Alternative 3 would allow for account to occur at the time of any product offload. Alternative 4 integrates some elements from Alternatives 1 and 2 by changing MRA accounting for some species and locations to the end of a fishing trip, and by retaining the status quo instantaneous MRA accounting for Atka mackerel and Pacific cod in other areas of the BSAI.

Another reason for the difficulty in evaluating the alternatives is that only very limited data on resource use (and other economic information) are available for projecting changes to producers or consumers. Some of the information that would aid in understanding potential changes to the fisheries exploited by the H&G trawl C/P sector under Alternatives 2, 3, and 4 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?

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 information does not exist for this sector, or it is not sufficiently stratified to project changes in surplus to producers. The following sections include, where possible, discussion of the qualitative effects of the action alternatives on the H&G trawl C/P sector.

### 5.7.2.1 Recent changes to regulations on pollock MRA accounting

Regulations at 50 CFR 679.28 on offload-based accounting intervals for pollock in the H&G trawl C/P sector are the only recent BSAI test case for relaxing an MRA accounting interval for BSAI groundfish species. While many economic and biological factors may impact the vessel operator's decision to retain groundfish, the 2004 regulations extending the accounting interval for BSAI pollock when that species is closed to directed fishing, has provided 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 H&G trawl C/P sector deliveries, the policy of extending

the accounting interval was likely to increase retention of pollock. This program was implemented on June 14, 2004, and during 2005. When compared to catch and retention data from 2004, retention of pollock in 2005 and 2006 did increase in most months (Figure 6). While the reported 2005 and 2006 increases in H&G trawl C/P sector pollock retention may not be directly transferred to the species considered in Alternatives 2, 3, or 4, the data suggest a potential connection between the length of time available to align incidental species with the required basis species and the incentive to retain these incidental species.

NMFS catch data for pollock show that incidental catch of this species by H&G trawl C/Ps from January through October 2005, was 22,600 mt, which was less than for the same time period in 2004 (26,300 mt; Figure 12). In 2006, incidental catch of pollock by the H&G trawl C/P sector was less than 20,000 mt during the same 10 month interval. The total groundfish catch in the non-pollock fisheries for January through April was about 236,000 mt for 2004, 2005, and 2006, 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 fishery and the remainder in the yellowfin sole, rock sole, and flathead sole fisheries (in descending order).

Under the 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 chances that a maximum amount of incidental species could eventually be caught, retained, and delivered for each trip. This type of front loading assumes enough basis species will be caught by the trip's end to bring the retained incidental catch amount into compliance with MRA rates; otherwise, incidental species would have to be discarded. At this point, the MRA species being discarded has a higher unit value (imposes a greater economic cost) having undergone some level of "value-added" handling by the operator (e.g., primary processing, freezing).

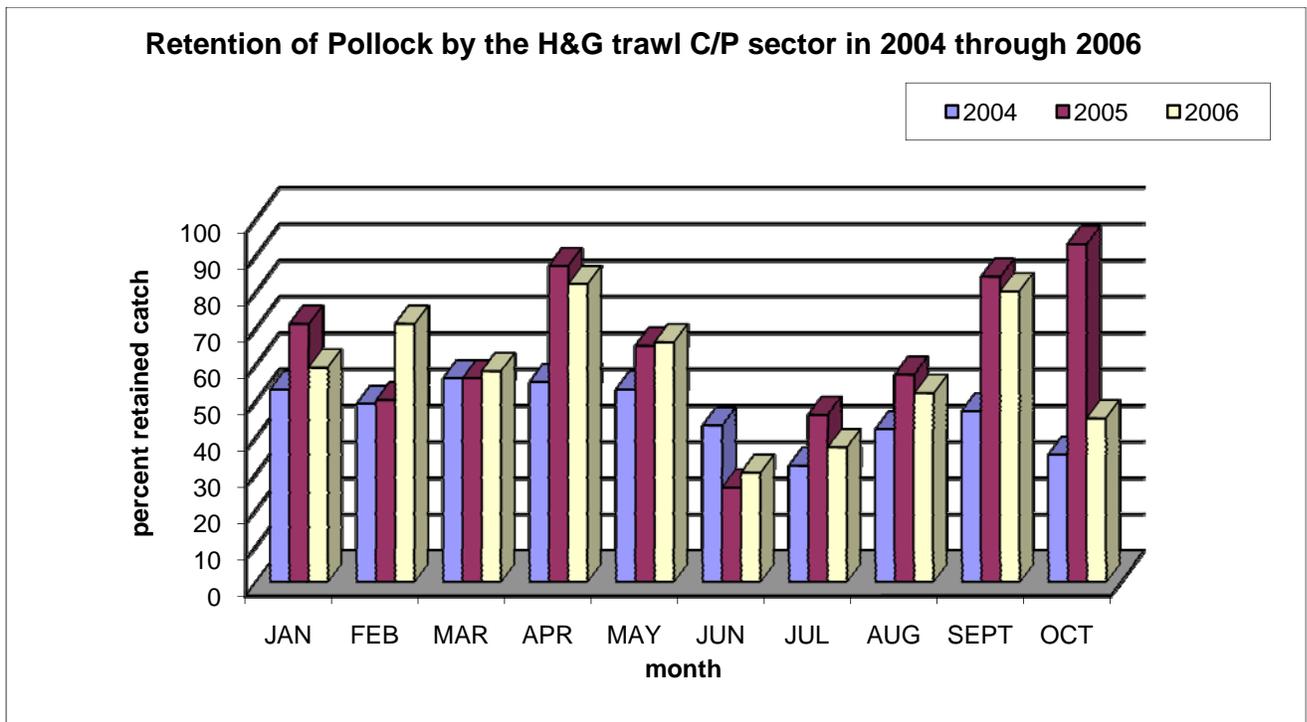


Figure 6. Monthly retained catch of pollock by the H&G trawl C/P sector, 2004-2006.

#### 5.7.2.2 Comparison of MRA accounting when BSAI pollock is closed to directed fishing with Alternative 4.

As described in section 4.2.2.1, in 2004 NMFS implemented a longer offload based accounting interval for all BSAI pollock incidental catch, compared with the approach applied to flatfish, Pacific cod, and Atka mackerel in this December final action. During deliberations at the December 2006 Council meeting, the Council discussed reasons why Alternatives 2 and 4 were constructed with a shorter MRA accounting interval compared with the previously applied offload requirement for pollock MRA accounting.

- Except during a narrow interval of time early in a fishing year, when roe bearing pollock may be caught incidentally by the H&G trawl C/P sector, pollock is not a valuable species for this sector when compared with many other groundfish species. As a result, data on incidental catches of pollock demonstrate very little targeting of pollock by the H&G trawl C/P sector, since the offload based accounting rule has been implemented. Unlike pollock, many other groundfish species are considered by this sector to be valuable targets throughout much of the year, and this was reported to the Council at its December 2006 meeting. In comparing two groundfish species, both closed to directed fishing, where species “A” has a comparatively higher value than species “B”, species “A” may provide a different incentive to accurately report production numbers, than does species “B”. Because several species included in Alternative 4 are, at least, reported to have higher processed prices than pollock, and this regulation is intended to minimize any new burden on enforcement, a shorter rather than the longer MRA accounting interval has been recommended for pollock.

- Because of the allocations that occurred under AFA, pollock is never open to directed fishing for the H&G trawl C/P sector. In 1997, Amendment 49 to the BSAI required that when pollock and Pacific cod are closed to directed fishing, a vessel (including any H&G trawl C/P) must produce a primary product from all fish of that species brought on board the vessel, up to the point that the round-weight equivalent of primary products on board equals the MRA for that species. Pollock MRAs are listed at 20% for most target species listed in Appendix 2. The lack of a directed pollock fishery for members of the H&G trawl C/P sector may create some production constraints for this fleet. Process incidental catches of pollock, owing, in part, to the smaller vessels that make up this fleet and the very different physical plant requirements for processing “flat” versus “round” groundfish, can be problematic. Some processing operations in this sector are unable to easily and quickly switch back and forth between the proportions of pollock and flatfish processed during a fishing trip, because of the physical differences between these species. This transition tends to be more difficult while an H&G trawl C/P is actively processing flatfish. NOAA Office of Law Enforcement believes that it is unlikely for members of the H&G trawl C/P sector to “top off” on pollock, when it is closed to directed fishing, even though the sector is allowed to account for MRAs at the time of offload. Retention or discarding of most other groundfish species is not constrained by IR/IU. Markets likely determine the incentive to “top off” with those groundfish species.
- ABC and TAC for pollock are large compared with TACs and ABCs for some of the species included by the Council in this MRA. There is a larger margin for error if pollock catches from an offload based accounting system were to result in increased harvests, as the H&G trawl C/P sector is not likely to remove enough of this species to be a conservation concern.
- The Council passed the MRA action for pollock in 2004. During that period, closed directed fishing and MRA have become important tools to slow the rate of prey species taken from SSL protection areas. NMFS is aware that changes to this established fishing control may require additional consultation and spur public interest. The H&G trawl C/P sector noted at the December 2006 meeting that they would prefer to avoid delay of this action through intensive agency review of potentially controversial elements. NMFS would have needed to spend much more time reviewing this action and receive confirmation from NOAA Office of Law Enforcement and GCEL if an offload based criterion for these species was adopted by the Council. The end of fishing trip approach involves less management and enforcement uncertainty, and may be implemented more quickly.

### 5.7.2.3 Alternatives 2, 3, and 4 sector and management impacts

Increases in pollock retention following newly implemented pollock MRA accounting regulations could indicate that relaxed MRA accounting for other groundfish species would increase the proportion of groundfish retention under Alternatives 2, 3, or 4. Changes in retention of flatfish resulting from the alternatives, however, are unlikely to alter the total stock for any species considered in any of the action alternatives. In the event that retention rates and retention amounts increase due to any of the action alternatives, when compared with the recently observed fisheries (i.e., Alternative 1), and discard quantities decrease, total discards generated by this fleet are not likely to alter the long term yield of flatfish stocks. Total discards from the H&G trawl C/P sector 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 annual TACs for all groundfish species are not likely to change under any alternatives considered, unless some natural variation in stocks, or other event external to the action alternatives, impacts these populations. To the extent that groundfish 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 H&G 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 of the alternatives on existing TACs or management of these species is discussed in Section 4.1. That analysis provides information on why rockfish species, other than AI POP, were removed by the Council from the action Alternatives 2, 3, and 4 (and options) at the June and December 2006 Council meetings (rockfish data and discussion of tradeoffs for those species are in Appendix 3).

It is likely that a rational fishing operation would respond to the economic incentive to maximize the value of each trip or aggregation of trips. If Alternatives 2, 3, or 4, for example, were to include certain rockfish species (e.g., BS POP), it would provide increased opportunity to top-off on higher valued “non-target” species, 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 of BS POP could increase the overall catch, managers may choose to close some 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 (e.g., at too high a rate, resulting in approaching a TAC, or an ABC). As a result of this uncertainty, BS POP was not included in the Council’s preferred alternative. A comparison of how each species relates to some of the Council objectives for this action and other factors are identified in the Council’s problem statement (Section 4.0),

highlights certain advantages of changing MRA accounting for species that would not increase management risk or do not create additional uncertainty for remaining within the specified ABC. That comparison also identifies species that have a higher expectation that retention of that species could be increased by including that species in the action alternatives.

Table 21 summarizes some of the data presented in Section 4.2, by providing species specific information on potential tradeoffs for adjusting the MRA accounting interval for each groundfish species, as defined in Alternatives 2, 3, and 4. The following questions are generally applied to each species under consideration for the action alternatives. Note that the years selected for comparison in Table 21 are intended to provide some overlap between years for TAC estimates, catches, MRA percentages, stock status, retention, and discard information.

- Has the H&G trawl C/P sector identified this species as one that would assist in improved groundfish retention?
- What are the average catches, and the 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 increase 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 intervals of MRA accounting?
- Are there additional management concerns with extending the MRA accounting interval 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 interval for the MRA computations for this species (other than those identified in Alternative 3)?

Table 21. 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 H&G trawl C/P sector.

Species Considered	Sector request for MRA accounting change?	OFL 2005- 2007 (mt)	TAC 1 2005-2007 (mt)	Average catch 2003-2006 (mt)	MRAs (%)	Stock Status -Length of Recruitment	Retention & discard rates, amount retained or discarded
<b>Yellowfin sole</b>	Yes	148,000, 144,000, 160,000	90,686, 95,701 (05 to 06)	73,610	20-35	Tier IIIa Not overfished – above target biomass Fast growth and early age of recruitment	In 2006, total discards of yellowfin sole were 7,260 mt. Average retention rate was 89% from 1999 to 2006.
<b>Flathead sole</b>	Yes	70,200, 71,800, 95,300	19,500, 19,500 (05 to 06)	13,330	20-35	Tier III a Not overfished –declining biomass Fast growth and early recruitment	In 2006, total discards of flathead sole were 2,830 mt. Average flathead sole retention rate was 81% from 1999 to 2006.
<b>Rock sole</b>	Yes	157,000, 150,000, 144,000	41,500, 41,500 (05 to 06)	36,030	20-35	Tier III a Not overfished –declining biomass Moderately slow growth and recruitment	In 2006, total discards of Northern rock sole were 2,290 mt. Average N. rock sole retention rate was 59% from 1999 to 2006.
<b>Aleutian Islands POP</b>	Yes	15,000, 16,000, 18,000	11,680, 11,600 (05 to 06)	10,050	5-15	Not overfished –below target biomass Slow growth and slow recruiting	In 2006, total discards of Aleutian Islands POP were 1,910mt. Average A,I, POP retention rate was 64% from 1999 to 2006. <sup>12</sup>
<b>Arrowtooth Flounder</b>	Yes	132,000 166,000, 193,000	12,000, 13,000 (2005 to 2006)	11,500	35	Tier III a Not overfished – above target biomass. Fast growing & recruiting	In 2006, total discards of arrowtooth flounder were 5,510. Average aggregate arrowtooth flounder retention rate was 37% from 1999 to 2006. <sup>13</sup>

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

<sup>13</sup> Due to confidentiality, the reported Aleutian Islands POP retention rate of 63 percent is based on retention rate for all rockfish, including POP

<b>Species Considered</b>	<b>Sector request for MRA accounting change?</b>	<b>OFL 2005- 2007 (mt)</b>	<b>TAC from 2005 - 2007 (mt)</b>	<b>Ave. catch 2003-2006 (mt).</b>	<b>MRA (%)</b>	<b>Stock Status -Length of Recruitment</b>	<b>Retention &amp; discard rates, amount retained or discarded</b>
<b>Atka mackerel</b>	Yes	147,000, 130,000 & 86,900	63,000	54,720	0 -20 20 (most basis species)	Tier III a Not overfished –above target biomass Fast growth and early recruitment	Total 2006 discards of Atka mackerel were 2,200 mt. Retention of this species was typically 85% to 89% from 1999 to 2006. Increasing the MRA accounting interval for Atka mackerel in SSL critical habitat may require further review under Section 7 of ESA if Alternative 2 or 3 is selected.
<b>Pacific cod</b>	Yes. Primary interest is when AM 85 increases portion of year cod is on bycatch.	265,000, 230,000, 207,000	206,000 and 190,000	32,620	20 (most basis species)	Tier III a Not overfished –declining biomass Moderately slow growth and recruitment	Total 2006 discards of Pacific cod were only 590 mt. Increased discards of this species are possible when Amendment 85 is implemented. Increasing the MRA accounting interval for Pacific cod in SSL critical habitat may require further review under Section 7 of ESA if Alternative 2 or 3 is selected.
<b>BS POP</b>	Little interest expressed by H&G trawl C/P	14,600, 14,800, 26,100 (BS & AI)	TAC for 2006 and 2007 was 1,400 mt	232 mt.	0 to 15 for most species	Tier III a Not overfished –declining biomass Slow growth and long lived.	No directed fishery in BS. Total discards for this sector were approximately 86 mt in 2006, with a retention rate from 1999 to 2006 of 62% . Management and enforcement concerns with changing MRA accounting for POP in this area.

Sector and management effects of Alternatives 2, 3 and 4, with implementation of Amendment 80 and 85 for members of Amendment 80 co-ops: The final rules for the Amendment 85 and Amendment 80 were approved by the Secretary in June 2007 and are a component of the status quo. As depicted in Appendix 1, MRAs are no longer applied to the six Amendment 80 allocated species under Amendment 80. For any H&G trawl C/P electing to enter a cooperative, an allocated species is never closed to directed fishing, with one exception. The exception would be when an H&G trawl C/P vessel catches Pacific cod or Atka mackerel in a SSL protection area. Thus, there is no change to applying the MRA accounting adjustment, for co-op caught fish harvested under Amendment 80. Under Amendment 80, co-op management has provided the H&G 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. Thus, Alternatives 2 through 4 provide no additional flexibility to co-op vessels for catch of Amendment 80 species included in the action alternatives.

- Sector and management effects of Alternatives 2, 3, and 4 with implementation of Amendments 80 and 85 for H&G trawl C/Ps not in a co-op: If Alternatives 2, 3 or 4 are approved, any one of them could assist H&G trawl C/Ps, not in a co-op, by providing more flexible MRA accounting for species selected in the action alternatives. One example of this would be how the management of Pacific cod, under any action alternative would apply MRA accounting. Under Amendment 85, 13.4 percent of the total Pacific cod TAC that has been annually allocated to the H&G trawl C/P sector. MRAs still apply to the portion that is left for vessels that elect not to be in a cooperative (these vessels would be fishing in what essentially is a limited access fishery). If Alternative 4 is implemented (this also applies to Alternatives 2 and 3), vessels that do not enter a cooperative would still be required to comply with a 20 percent MRA for Pacific cod. They would, however be able to account for MRAs at the end of a fishing trip in Alternative 2 and 4, and at offload for Alternative 3. That could be particularly helpful, to one of these vessels fishing in the limited access fishery, especially if the Pacific cod fishery is closed to directed fishing for a greater portion of the year as compared with the status quo. In comparison with the amount of time that the Pacific cod fishery is open to directed fishing in recent years, it is likely that the limited access fishery on Pacific cod could be closed for a greater portion of the year under Alternatives 2, 3 and 4. A figure depicting how management would work under the action alternatives is included in Appendix 1.

#### **5.7.2.4 Vessel safety under Alternatives 2, 3, and 4**

Alternatives 2, 3, or 4 are not 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 H&G 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 with which to determine how Alternative 2, 3, or 4 will change fishing or vessel loading practices that could alter the risk associated with vessel operation. NMFS is not aware of any anecdotal information that would suggest that vessel safety for the H&G trawl C/P sector could be adversely impacted by these action alternatives.

### 5.7.2.5 Alternatives 2, 3, and 4: Potential changes in quality of groundfish

As noted in Alternative 1, the capacity to evaluate quality changes in groundfish fishery production at any market level, with respect to current or proposed regulations, is limited. Most of the information available on the relative value of species exploited by the H&G trawl C/P sector is anecdotal. No data are readily available to determine if an increase in the instantaneous MRA accounting interval would contribute to a significant change in product quality.

#### Enforcement Implications

The Alternative 1 description of H&G trawl C/P vessel compliance with MRA regulations are provided in the preceding section (5.6.1.6). Most of that description applies to Alternatives 2, 3, and 4 with some notable exceptions.

Recordkeeping and reporting regulations at 50 CFR 679.5, require the submission of copies of the DCPL to NOAA Office of Law 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 (Alternative 2 and 4) would be problematic.

If the MRA accounting interval were changed until 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 enforcement by either NOAA Office of Law Enforcement or U.S. Coast Guard personnel during dockside or at-sea boarding. It is possible that under Alternatives 2, 3, or 4, that NMFS enforcement may increase its review of weekly data to track an increasing number of species for MRA compliance at the end of a fishing trip or at offload. Significantly, NOAA Office of Law Enforcement personnel would continue to conduct audits of compliance with MRA requirements based upon analysis of WPR data.

If the MRA compliance interval was changed to time of offload, the U.S. Coast Guard could only determine compliance for the fishing trips prior to the current trip. That is, U.S. Coast Guard cutter boarding parties would generally be 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 enforceable until the trip ended, or the vessel offloaded product. However, U.S. Coast Guard boarding parties could notify NOAA Office of Law Enforcement of vessels where it was determined that a significant amount of bycatch species in excess of the MRA was aboard, and the vessel might be checked at offload to insure they were then in compliance with MRA requirements. 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. As MRAs are enforced for each groundfish fishing vessel, 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.

No predictive models exist to describe how operations in this sector will react to relaxed MRA accounting intervals. NOAA Office of Law Enforcement staff experience in compliance behavior under existing MRA regulations is the basis for much of the information provided in this section. 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 and the preferred Alternative, or 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 in order to comply with MRA requirements, NOAA Office of Law Enforcement expressed concern that there is more of an incentive for vessel operators to 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”, up to the time of beginning offload, could increase the likelihood of unlawful retention of groundfish in excess of MRA standards. This would be accompanied, presumably, by fraudulent recordkeeping and reporting. NOAA Office of Law Enforcement believes that Alternative 3 increases the likelihood of non-compliance, compared to the 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, National security, and high seas fisheries enforcement. Under the at-offload compliance alternative, NOAA Office of Law Enforcement agents and officers would principally bear the responsibility for enforcement of MRA regulations, especially for an H&G trawl C/P vessel’s last fishing trip of a season. If NOAA Office of Law Enforcement conducted compliance inspections of C/P vessels at rates more frequently than existing levels, any increase in enforcement of MRAs would likely require reductions of activities in other areas, absent increases in enforcement resources.

Under an Amendment 80 rationalized fishery, some species are allocated, while others are unallocated and 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, regarding the co-ops that are formed under Amendment 80. However, given that MRAs continue to apply to certain allocated or non-allocated species, and to species that were harvested outside of cooperatives, advantages of Alternative 2 and 4 over Alternative 3 pertaining to enforcement of MRAs would likely also exist within the rationalized H&G trawl C/P sector.

NOAA Office of Law Enforcement staff analyzed other specific enforcement and compliance issues relative to Alternatives 1, 2, 3, and 4. Without providing specifics which could compromise enforcement of MRA regulations, NOAA Office of Law Enforcement believes the week-ending MRA compliance interval, 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.

While Alternatives 2 and 4 would apply MRA accounting for selected groundfish species at the end of a fishing trip, Alternative 4 introduces an additional trip trigger and instantaneous accounting of MRAs in SSL protection areas. One benefit of this additional trip trigger would be to assist NOAA Office of Law Enforcement officers in obtaining an area specific accounting of basis groundfish species retained that may be matched with retained groundfish species, closed to directed fishing. Without this feature, an H&G trawl C/P vessel could choose to move outside

of a SSL protection area to accumulate the necessary basis species, if that vessel operator believed that insufficient basis species existed in the protection area. That would be a “technically” lawful method of meeting MRA’s in SSL protection areas, but would not be consistent with the Council intent to retain status quo accounting when a vessel enters or leaves one of the Atka mackerel or Pacific cod SSL protection areas that NMFS may close to directed fishing. These additional accounting strata will require a modest increase in enforcement tracking and monitoring of MRAs. The additional accounting is identified by NOAA Office of Law Enforcement as manageable, and would not impose sufficient burden to impact other enforcement activities.

Finally, under Alternative 4, triggering a new fishing trip when an H&G trawl C/P enters or leaves a SSL protection area, would create additional data on how catch of some species change between offloads. These records would be helpful to enforcement officers auditing MRA accounting compliance.

#### **5.7.2.6 Management, enforcement, and enforcement costs of Alternatives 2, 3, and 4**

##### **Impacts upon Management and Management costs**

The potential impacts of the action alternatives on resource use, management, and fishery conservation, of adjusting the accounting interval are discussed throughout Section 5.6.2. As a general observation, under Alternatives 2, 3, or 4, the 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 an offload (Alternative 3). Several triggers exist in regulation that initiate a new fishing trip, other than the interval of time between a fishing trip, which would still apply under Alternatives 2 and 4. These additional triggers (listed in the definition of a fishing trip) also apply to Alternative 3. These additional triggers include: (1) directed fishing is prohibited for a species, (2) if a vessel moves into an area with a different directed fishing closure, or (3) if that vessel moves into an Atka mackerel/Pacific cod SSL protection area.

As identified in the EA and in Section 5.6.2.2, 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 to result in more conservative management of a species. For example, if Alternatives 2, 3, or 4 were to include certain species, such as BS POP, it could provide increased opportunity to top-off with higher valued incidental species, rather than accumulating them in as incidental to normal fishing operations. While certain options in the action alternatives may achieve 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 or that is approaching TAC or OFL. This could impact the cost of managing some species, though costs associated with these possible changes are indeterminate.

Each of the Alternatives 1, 2, 3, and 4 are assumed to apply MRA accounting regulations in a manner that is consistent with current regulations. For example, if a vessel catches Pacific cod

for a CDQ group in SSL protection areas, the same (preferred alternative) MRA accounting interval would apply. Applying the changes in the MRA accounting interval while the H&G 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 5.5.5, 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 NOAA Office of Law Enforcement or the U.S. Coast Guard to assess compliance, if the methods for calculating MRAs are consistent for vessels and species in both CDQ and non-CDQ fisheries. Changing the MRA accounting interval to the H&G trawl C/Ps in both their CDQ and non-CDQ fisheries would simplify recordkeeping, compliance, and enforcement.

#### **5.7.2.7 Alternatives 2, 3, and 4: Vessel operations and implications for costs and benefits to the sector**

Extended accounting of the MRA for selected groundfish species under Alternatives 2 and 3 provides increased opportunity for vessels in the H&G 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. 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 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.

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, 3, or 4 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), members of the H&G 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 interval 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 any of the action alternatives on the H&G 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 vessel operators are experiencing to reduce discards.

If a groundfish species selected by the Council under Alternatives 2, 3, or 4 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, 3, or 4 has a **higher** relative value than other species in the catch, the value to the H&G trawl C/P sector from the implementation of the Alternative 2, 3, or 4 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 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 may “top-off”, if they wish.

With Alternatives 2, 3, and 4, again assuming the incidental species is economically desirable 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 basis species to comply with the MRA. Given this added incidental catch accounting flexibility, some vessels may shift the time they choose to discard incidental groundfish catch from early in a fishing trip, to a later time in the fishing trip.

For Alternatives 2, 3, or 4, implementing a change in MRA accounting for groundfish species, along with the selection of the specific species options identified in Alternative 4, are unlikely to create short term or long term impact to stock abundance or distribution. 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 (compared with Alternative 1, 2, and 4). If that were to occur, Alternative 3 could have similar impacts on the H&G trawl C/P sector, but as noted in section 5.6.1.6 of this document, additional concerns exist with the manageability and enforcement under that alternative. The preferred alternative has the potential for improving the value of the species composition retained by the H&G trawl C/P sector.

### **Catching and Processing Operations under Alternatives 2, 3, and 4**

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

1. Vessels may not take advantage of the extended MRA accounting interval provided for in Alternatives 2, 3, and 4, if an incidental species is perceived to be less valuable than other species that could be retained in a trip. Under those conditions, these action alternatives may not result in any change in fishing practices, nor change the costs and revenues of H&G trawl C/P operations compared with Alternative 1.

2. If the MRA species is perceived to be a more valuable species by this sector, in comparison with other species caught, the H&G 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*<sup>14</sup> to improve the aggregate value of a fishing trip.

a. It is possible that Alternative 2, 3, or 4 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 interval. At this point, the operator has only two obvious choices; discard bycatch species until the MRA ratio is reached, or risk incurring fines and penalties for the overage. Which option is selected will depend upon the “perceived” likelihood of detection, the market value of the excess retained catch, and/or the comparative size of any attributable fines and penalties associated with the overage, should it be detected.

After implementation of the GRS, expected in 2008, the practice of “up-front” acquisition of MRA species during a trip, with the expectation of obtaining basis catch later, could lead to further 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, 3, or 4 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, 3, or 4, sorting, discarding, and processing inputs may change. Members of the H&G

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<sup>14</sup> 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 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 costs to the operator, especially compared to the alternative, which would have been to discard the excess bycatch “in-the-round”, at the time of catch.

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 three 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 are 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, 3, and 4 of the EA are intended to be less burdensome to H&G trawl C/Ps, in respect to retention of incidental groundfish catch. It is likely that the length of time available to an operator for MRA accounting may influence decisions of how to maximize both catch retention and the value of retained catch. Members of the H&G 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 interval duration is one factor effecting discard, retention, and utilization decisions, when vessel operators are determining how to optimize the value of retained catch.

For example, assume a vessel completed a tow within a day or two of a week ending date.<sup>15</sup> Assume further that it contained a high proportion of species that were economically desirable, but that could not be processed by the operator in the time available and still meet the weekly MRA requirement, under Alternative 2 or Alternative 4. Under either of these alternatives, that portion of the catch expected to exceed the MRA would have to be sorted and discarded in the round.

Under catch accounting provisions of Alternative 3, however, 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 and Alternative 4 (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 producing slightly higher groundfish retention. Alternative 2, 3, or 4 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.

The implementation of an additional fishing trip trigger when any of the vessels in the H&G trawl C/P sector enter or exit a SSL protection area could also have the effect of influencing the distribution of catch of species other than Atka mackerel and Pacific cod in those areas. This trip trigger increases the probability that some vessels in this sector may choose not to enter a

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<sup>15</sup> Recall that the end of a fishing week is one condition that triggers the end of a fishing trip.

protection area, even though some species are present in sufficient abundance and value to exploit, absent the additional trip trigger. That could encourage an H&G trawl C/P to deploy trawling gear in areas that have a different (and possibly less valuable) mix of groundfish species, to avoid the “new trip” requirement.

Without substantial data on cost and price of both inputs employed and outputs produced in the H&G 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 quantify the expected change in net benefit to the Nation from implementation of Alternatives 2, 3, or 4. Given the interest the H&G trawl C/P sector expressed in MRA accounting interval changes, embodied in Alternatives 2, 3, and 4, at the December, 2006 Council meeting, it appears industry believes this action is more likely to generate a larger producer surplus at the sector level, than Alternative 1.

#### **5.7.2.8 Additional Distributional Effects of Alternatives 2, 3, and 4**

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. While this potentiality cannot be wholly dismissed, it appears highly unlikely that this action would generate non-market environmental amenity values, considering the small changes in retention that may result from any one of the alternatives. Certainly, even if they did exist and could be quantitatively measured, passive-use values directly attributable to this proposed action would assuredly be *de minimus*.

#### **5.7.2.9 Effects on Communities under the Status Quo and Action Alternatives**

Fisheries may affect economic activity or other distributional impacts influencing 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 given community is a variable that may affect economic activity in a locality. Participation estimates, by residence, have been generated for the H&G 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 H&G 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, depending upon the size and complexity 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 H&G 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 H&G trawl C/P sector. Of these vessels, nearly all are “based” out of Seattle, or other nearby communities in western 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 metropolitan region economy, as a whole (e.g., Boeing, COSTCO, Microsoft, Safeco, Nintendo, and Starbucks).

## **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 deliver a very large proportion of the groundfish for onshore processing in the region, have been locally owned. Ownership is concentrated in two sectors, the <60' LOA hook-and-line/pot catcher vessels. Vessel ownership within the region is strongly clustered in Sand Point and King Cove, Alaska, 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 H&G trawl C/P vessel owners report they reside in this region.

## **Kodiak Island Region**

The Kodiak Island resident-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 H&G trawl C/P vessel owners report 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, as well as, 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 (although Icicle has announced that it has been purchased by a California-based venture capital investment firm). These facilities process a wide variety of seafood, including crab, halibut, salmon, herring, Pacific cod, pollock, and other groundfish. None of the H&G trawl C/P vessel owners report that they 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 Bering Sea pollock processing facilities (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. Little opportunity exists for Akutan residents to participate meaningfully in the Bering Sea pollock fishery. None of the H&G trawl C/P vessel owners report 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 H&G 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, 3, and 4. Significant benefits to other communities that are home to some of the other H&G trawl C/P fleet are not anticipated. Vessels located in those communities will continue to generate revenue from these fisheries. Changes in economic activity within 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.

## **Cooperative Formation for Alternatives 2, 3, and 4 (under Amendment 80)**

At the June 2006 Council meeting, members of the Council requested additional analysis of the potential effects of MRA accounting under Alternatives 2, 3, and 4, when Amendment 80 co-ops could be formed by members of the H&G trawl C/P sector. Under regulations for Amendment 80, (approved by the Secretary on September 10, 2007, vessels in a cooperative are no longer required to apply MRA accounting for certain groundfish species. The MRA restriction has been lifted for arrowtooth flounder, other flatfish, Alaska plaice, yellowfin sole, flathead sole, and rock sole in the BSAI. It has also been lifted for Pacific cod and Atka mackerel in the BSAI with the exception of any fishing that may occur in SSL protection areas. If the preferred alternative is implemented, H&G trawl C/Ps not in co-ops must apply MRAs at the end of a fishing trip for arrowtooth flounder, other flatfish, Alaska plaice, yellowfin sole, flathead sole, and rock sole. For SSL protection areas all H&G trawl C/Ps, regardless of whether they are in a co-op or not, must continue to apply MRAs as they do under current regulations (at anytime during a fishing trip).

In the instance, wherein non co-op vessels would be allowed to account for MRA amounts at the end of a fishing trip, this marginal change in accounting is not expected to have a material impact on co-op entry decisions. This is because the added flexibility offered under extended MRA accounting is unlikely to provide a substantial increase in expected weekly product value, compared with the value of internally trading catching privileges and the value of substituting more efficient catching/processing platforms for less efficient catching/processing platforms in an Amendment 80 co-op. 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 co-op 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 co-op opportunities for both decreasing sector costs (in an Amendment 80 co-op) and increasing revenues, through aggregate marketing of product,

and potential control over seasonal placement of product in markets. Also, Amendment 80 co-ops could provide a more effective tool for retention and utilization of catch, from the perspective of the firms in a co-op, than the tool of extending the MRA accounting interval. Under the co-op environment, co-op 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 co-op would have the opportunity to deploy other vessels to catch a target, or move the fleet to locations that conserve a scarce species allocation.

The probability that any of the alternatives would impact the ability of a co-op to form appears to be very small. Also the number of entities joining a co-op is unlikely to be impacted much by any choices available to the Council under Alternatives 2, 3, or 4. The remote possibility exists that an H&G trawl C/P vessel operator who is evaluating tradeoffs of co-op entry could consider extended MRA accounting as a variable in a co-op entry decision. Alternatives 2 or 4 may provide slightly more incentive to enter into a co-op compared with Alternative 3, if Alternative 3 (with its longer accounting interval) was anticipated to produce more highly valued incidental catches. But, the circumstances under which extended MRA accounting might significantly influence co-op entry decisions appear to be limited.

## **5.8 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 H&G 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 H&G trawl C/P sector to increase retention rates. Intertwined with the effects of existing accounting based on MRA proportions ( Table 11 of 50 CFR 679 (Appendix 3)) for the H&G 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 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 on H&G trawl C/Ps may not be commensurate with costs of avoidance.

Compared to Alternative 1, the action alternatives are less limiting to H&G trawl C/P retention of incidental groundfish catch, particularly when the accounting interval is changed to the end of a fishing trip (Alternatives 2 and 4), 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, if they believe they can access sufficient ballast (of basis species) 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.

The increased flexibility of a longer MRA accounting interval has the potential to increase the value of a fishing trip, by increasing retention of incidental catch (i.e., reducing sorting and discarding costs), but it also has the potential to induce more conservative management of

certain species by NMFS. For example, the analysis in the RIR shows that if Alternative 2 or Alternative 3 were to include BS POP, it could provide increased opportunity to top-off on this higher valued incidental species, rather than accruing incidental catches in a more cautious manner. Intentional “topping off” 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 may be expected to observe these removals and react by restricting directed fishing, or closing a fishery that is exploiting an incidental species at too high a rate, approaching a TAC, or approaching an ABC.

This analysis has previously identified the increased risk to approaching an ABC 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 Alternative 3, and a discussion of some implications of including these considered but 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 benefits 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, 3, or 4).

A brief treatment of subsistence use, non-consumptive or non-use values associated with BSAI fisheries is included in section 4.3 of the EA, though few if any incremental effects on these uses are anticipated. Only very limited data exist on the use of BSAI groundfish by Alaska Native cultures in this region. There is no known 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.

This proposed regulatory change would not result in any anticipated change to monitoring programs, or recordkeeping and reporting. Under Alternatives 1, 2, and 4, 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 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. Any auditing of MRA compliance, other than at the time of off-loading, 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. Auditing for MRA compliance at offload would limit the options of enforcement officers to determine if a vessel operator was chronically misreporting retention of some of the more valuable groundfish species. Depending on the species selected, the end of fishing trip interval for Alternatives 2 and 4, which would extend the

accounting for MRAs to as much as one week, presents an enforceable option. Even with the weekly MRA accounting interval 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 co-ops, concluding that it is unlikely that these alternatives would impact the H&G trawl C/P sector decisions to form an Amendment 80 co-op.

No conclusions can be reached regarding whether the potential effects of this action would lead to a change in net National benefits. In the context of the resource rents derived from Alaska groundfish fisheries, or even the H&G trawl C/P sector, this small adjustment to the accounting flexibility for MRAs is likely to be a trivial component of net National benefits.

## **5.9 Summary of the Significance Criteria**

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

Although the available data do not allow a quantitative 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 H&G trawl C/P sector. Given that industry has volunteered to assume these costs, it is likely that industry expects that this action will result in net benefits.

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

- 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.

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, 3, or 4 would not be expected to create a serious inconsistency or interfere with any actions planned by another agency, materially alter budgetary impacts on entitlements, grants, user fees, or loan programs or the rights and obligations of recipients; or raise novel legal or policy issues arising out of legal mandates, the President’s priorities, or the principles set forth 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 H&G 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 \$4.0 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 aboard a vessel (i.e., a C/P) 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 \$4.0 million, for all its affiliated operations, worldwide. 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**

Reasons why the Council considered this action are discussed in this section. In October 2005, vessel owners in the H&G trawl C/P sector requested in a proposal (Appendix 2) that the Council consider changing the accounting interval 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 H&G trawl C/P sector’s history of groundfish retention and utilization challenges resulting from specialized gear and multi-species catches this sector experiences. Trawl gear for this sector is deployed on the bottom, where a diverse group of groundfish species reside. While the H&G trawl C/P sector has improved the rate of groundfish retention since 1995, it continues to have the lowest retention rate in the BSAI among all sectors. For example, in 1995 the H&G trawl C/P sector had an overall groundfish retention rate of 59 percent. In 2001, groundfish retention rates for the H&G trawl C/P sector increased to 74 percent (i.e., a discard rate of 26 percent (Table 1)), but the groundfish retention rate was still well below the other sectors operating in the BSAI. Groundfish retention rates for the H&G trawl C/P sector fluctuated between 1997 and 2004. The estimated groundfish retention rates for the H&G trawl C/P sector were approximately 64 percent in 1997, 67 percent in 2004, and 78 percent of total catch in 2006. It is unclear how this rate might change under the status quo management, but H&G trawl C/P sector retention of groundfish in the BSAI has been consistently lower than other BSAI groundfish sectors. Relaxing the MRA accounting interval would, it is asserted, assist the vessels of the H&G trawl C/P sector to comply with bycatch provisions of the Magnuson-Stevens Act.

Each year, NMFS applies its authority to prohibit directed fishing for a species, in order to manage a specified quota for groundfish or prohibited species (e.g., salmon, crab, and halibut). When NMFS prohibits directed fishing, retention of incidental catches is allowed, but only up to an amount specified under MRA rules. The MRA establishes retainable proportions of incidental species, relative to species open to directed fishing. To comply with these retention rules, vessel operators calculate the MRA through three basic steps. First, they identify and calculate the round weight of the basis (or target) species onboard. 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 MRA amount to avoid

violation of current regulation. The vessel operator is required to calculate and comply with the MRA at all times during a fishing trip. While the effect of the existing regulation on fishing behavior is uncertain, members of the H&G 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**

The objective for this proposal is to provide additional opportunities for members of the H&G trawl C/P sector to retain selected groundfish species, while not subjecting incidentally caught species to increased exploitation, resulting in conservation concerns. This objective is encompassed by authorities contained in the Magnuson-Stevens Act. 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 Plans (FMPs) for Groundfish of the BSAI and GOA, respectively.

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 Section 5.3 and a discussion of historical groundfish retention rates for the H&G trawl C/P sector are detailed in Section 5.5 of this EA/RIR/IRFA.

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

The entities directly regulated by this action are trawl catcher/processor (C/P) vessels not expressly listed under the American Fishery Act (AFA) as AFA C/Ps at 50 CFR 679.4(l)(2)(i) operating in the Bering Sea and Aleutian Islands (BSAI) groundfish fisheries. The vessels of the H&G trawl C/P sector catch and process a highly mixed set of groundfish species, including a number of flatfish, Atka mackerel, pollock, and Pacific cod. The retained catch is frozen, usually after initial heading and gutting.

*Catcher/Processors:* Table 22 reports the number of BSAI trawl C/ P vessels that generated less than \$4.0 million in gross first wholesale groundfish revenue, annually, for the years 2002 through 2006;. Of those vessels, only one trawl C/Ps generated less \$4.0 million in gross revenues in 2006. However, because the threshold is based on company earnings from all economic activity, and not each individual vessel's groundfish harvest, these tables likely overestimate the number of small entities. The lack of ownership, affiliation, and contractual data preclude the calculation of exact numbers of small and large entities at the company level.

Because the number of entities that received less than \$4.0 million in annual gross first wholesale groundfish revenue is less than the minimum number of entities that can be displayed without censoring for confidentiality, it is not possible to display the amount of average gross earnings

that these vessels may have received. Total and average gross first wholesale groundfish revenue for all H&G trawl C/P processors from 2002 to 2006 are displayed in Table 23

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 entity size. The estimates developed for classifying small C/P 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.

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 \$24.5 million in 2006.

Table 22. Number of trawl catcher processing vessels in the BSAI that caught less than \$4.0 million ex-vessel value or caught and processed less than \$4.0 million first wholesale value of groundfish, by area, vessel type, and gear, 2002-2006.

Year	Number of Trawl C/P participating in the BSAI
2002	3
2003	2
2004	3
2005	2
2006	1

Source: CFEC fish tickets, weekly processor reports, NMFS permits, Commercial Operator's Annual Report (COAR), ADFG intent-to-operate listings. National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070.

Table 23. Total gross earnings of H&G trawl C/P Vessels from 2002-2006.

Year	Gross wholesale earnings of BSAI H&G Trawl C/P (\$ millions)	Average gross wholesale earnings of BSAI H&G Trawl C/P (\$ millions)
2002	137.9	6.3
2003	137.1	6.0
2004	175.9	8.0
2005	225.0	10.2
2006	240.6	10.9

Source: CFEC fish tickets, weekly processor reports, NMFS permits, Commercial Operator's Annual Report (COAR), ADFG intent-to-operate listings. National Marine Fisheries Service, P.O. Box 15700, Seattle, WA 98115-0070

## 6.8 Recordkeeping and Reporting Requirements

Compliance with MRAs is monitored by NOAA Office of Law Enforcement through examination of processed product weight information submitted in the daily production reports. Under the preferred alternative NMFS will require the submission of additional information on the daily production report to indicate when daily production report data corresponds with the start of a new fishing trip, because the vessel is entering or leaving a SSL protection area or the vessel is offloading any product from the vessel.

This additional information is necessary to monitor compliance with MRAs under the two new fishing trip triggers that would be added to this action.

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

This analysis did not reveal any Federal rules that duplicate, overlap or conflict with the proposed action.

## 6.10 Description of Significant Alternatives to the proposed action.

The RFA requires the IRFA to provide 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.]

The analysis describes 3 alternatives to the proposed action. For a more detailed description of each alternative, see sections 2.1 to 2.4.

The RFA encourages agencies to analyze alternatives that accomplish the objectives of the proposed action, but do so with potentially less impact on small entities. Alternative 1 is not consistent with the purpose and need identified for this action, because it would continue to apply instantaneous MRA accounting to five groundfish species harvested by the H&G trawl C/P sector in the BSAI. Alternative 1 did not address the primary objective of this regulation; namely, to provide opportunities for members of the H&G trawl C/P sector to increase retention of groundfish. Alternative 1 was the most restrictive and burdensome MRA accounting alternative for small entities.

Each of the action alternatives 2, 3, and 4 would relax the way MRAs are accounted for by small entities by providing more time for members of this sector to reconcile MRA and basis catch amounts. Members of the H&G trawl C/P sector provided testimony to the Council that this flexibility would be beneficial to many of the operators in this sector. Alternative 2 and Alternative 3 each provide some additional MRA accounting flexibility, when compared with the preferred Alternative 4, for SSL protection areas, because Alternative 4 continues to apply instantaneous accounting of MRAS in SSL protection areas.

In addition to addressing the purpose and need statement developed by the Council, a preferred alternative must be consistent with other Federal statutes. One important statute promoting conservation and protection of endangered or threatened species is the ESA. Atka mackerel and Pacific cod are two species that are considered to be prey species for SSL in critical habitat, and any action that could potentially remove excessive amounts of these two species from SSL protection areas may result in adverse effects requiring ESA Section 7 consultation. At times during a fishing season, retention of Atka mackerel and Pacific cod may be more valuable to the H&G trawl C/P sector than some flatfish species and/or pollock. In such cases, the potential for increased removals of these SSL prey species, when MRA accounting is extended to the end of a fishing trip in SSL protection areas, could potentially conflict with the primary SSL conservation purposes under ESA. Unlike Alternative 4, Alternatives 2 and 3 do not include the added ESA protection provided by continuing the current instantaneous accounting of MRAs for Atka mackerel and Pacific cod taken in SSL protection areas. Thus, conflicts with ESA obligations and objectives contributed to eliminating Alternatives 2 and 3 as preferred choices.

The longer MRA accounting period proposed for Alternative 3 was also considered by NMFS enforcement to provide additional motivation for operators of vessels in this fishery to inaccurately report catch and retention. At times, some of the groundfish species considered in Alternatives 2, 3, and 4 could have greater value to this sector than another groundfish target species. With audits of MRA accounting only being performed by enforcement officers at the time of offload (in Alternative 3), it would be feasible for an operator to monitor the presence of enforcement officers at the point of offload, and systematically underreport retained amounts of valuable species. This potential compliance problem, and the uncertainty inherent in controlling removals of SSL prey species in SSL protection areas under Alternative 2 or Alternative 3, provided the impetus for the Council to select Alternative 4 as the preferred alternative.

## **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." The preferred Alternative 4 proposes to rescind the requirement for instantaneous accounting of MRAs for selected species that are caught by the H&G trawl C/P sector. When a haul is completed that exceeds an MRA for a species early in a fishing trip, an H&G trawl C/P could postpone discarding that species, as long as they were able to add sufficient basis species before end of a fishing trip. If that longer decision horizon to comply with an MRA led to a smaller amount of discards, it is also possible it may lead to some improvement in retention of one or more groundfish species. To the extent that this proposed action provides improved opportunities to reduce discards, it is also consistent with the objective of National Standard 9. 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.

### **7.1.3 Consistency with FMP and policy**

The preferred alternative would also be consistent with sections of the Magnuson-Stevens Act that also emphasize the importance of minimizing bycatch, to the extent practicable. To address FMP 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 improved retention and improved utilization (IR/IU). If vessels make use of the provisions in this proposed change to MRA accounting, in a manner that increases retention of selected groundfish species this action could also contribute to these longstanding Council objectives.

# Chapter 8 Consultation and Preparers

## 8.1 List of Persons and Agencies Consulted

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Appendix 1: Management of H&G trawl C/P sector fisheries under Status Quo and Alternative 4 (preferred alternative).

## Current management of the H&G trawl C/P sector under Alternative 1

Until 2007, the primary system for access to and participation groundfish trawling by the BSAI H&G trawl C/P sector resembled a number of other U.S. groundfish fisheries. Members of the H&G trawl C/P sector were (and are at present) required to hold a valid Federal Fishing Permit and must have an LLP permit that is endorsed for BS or AI trawl C/P fishing in the BSAI. Catch of groundfish were (and are at present) contained by annual TACs. With the exception of BSAI Pollock, most BSAI groundfish species were open to directed fishing to multiple sectors at a given time, so H&G trawl C/Ps would compete for a portion of the TAC both with members of their own sector as well as members of other sectors. Despite the tendency of this type of regulated open access system to often lead to excessive catching capacity, increasingly complex and inefficient effort restraints, and a reduction in overall stock size, the Councils and NMFS rigid adherence to total allowable catch limitations have maintained healthy groundfish populations for all BSAI species caught by the H&G trawl C/P sector.

Substantial change to BSAI groundfish access privileges for the H&G trawl C/P vessels were passed by Congress from 2004 to 2007. In 2004 the Consolidated Appropriations Act of 2005 ((Pub. L. 108-447; December 8, 2004) defined the specific vessels and licenses that would be allowed to catch certain groundfish species using bottom trawl gear. In September 2007 the Secretary approved BSAI Amendment 80 and 85. Amendment 80 authorizes formation of fishing cooperatives for 6 species, including Pacific cod, caught by the H&G trawl C/P sector in the BSAI. Amendment 85 revised allocations of BSAI Pacific cod for trawl, jig, and fixed gear. The sectors included in the Pacific cod allocation program are AFA trawl C/Ps, H&G trawl C/Ps, AFA trawl catcher vessels, non-AFA trawl catcher vessels, longline C/Ps, longline catcher vessels  $\geq$  60 ft LOA, pot C/Ps, pot catcher vessels  $\geq$  60 ft LOA, fixed gear catcher vessels <60 ft LOA, and jig catcher vessels.

The following section describes how MRA accounting for Pacific cod and other groundfish species caught by the H&G trawl C/P sector operates under Amendments 80 and 85.

- *Effects of Alternative 1 for H&G trawl C/Ps in co-ops (Catching Pacific Cod):* Under Alternative 1, 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 Councils 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 are managed under a directed fishery, and when the Pacific cod allocation is reached for the Amendment 80 co-ops, all fisheries that may remove Pacific cod incidentally will be closed for the co-ops. Thus, MRAs do not apply to Amendment 80 vessels operating in a co-op. Under Amendment 80, co-op management is anticipated to provide the H&G 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  
with implementation of Amendment 80 and Amendment 85

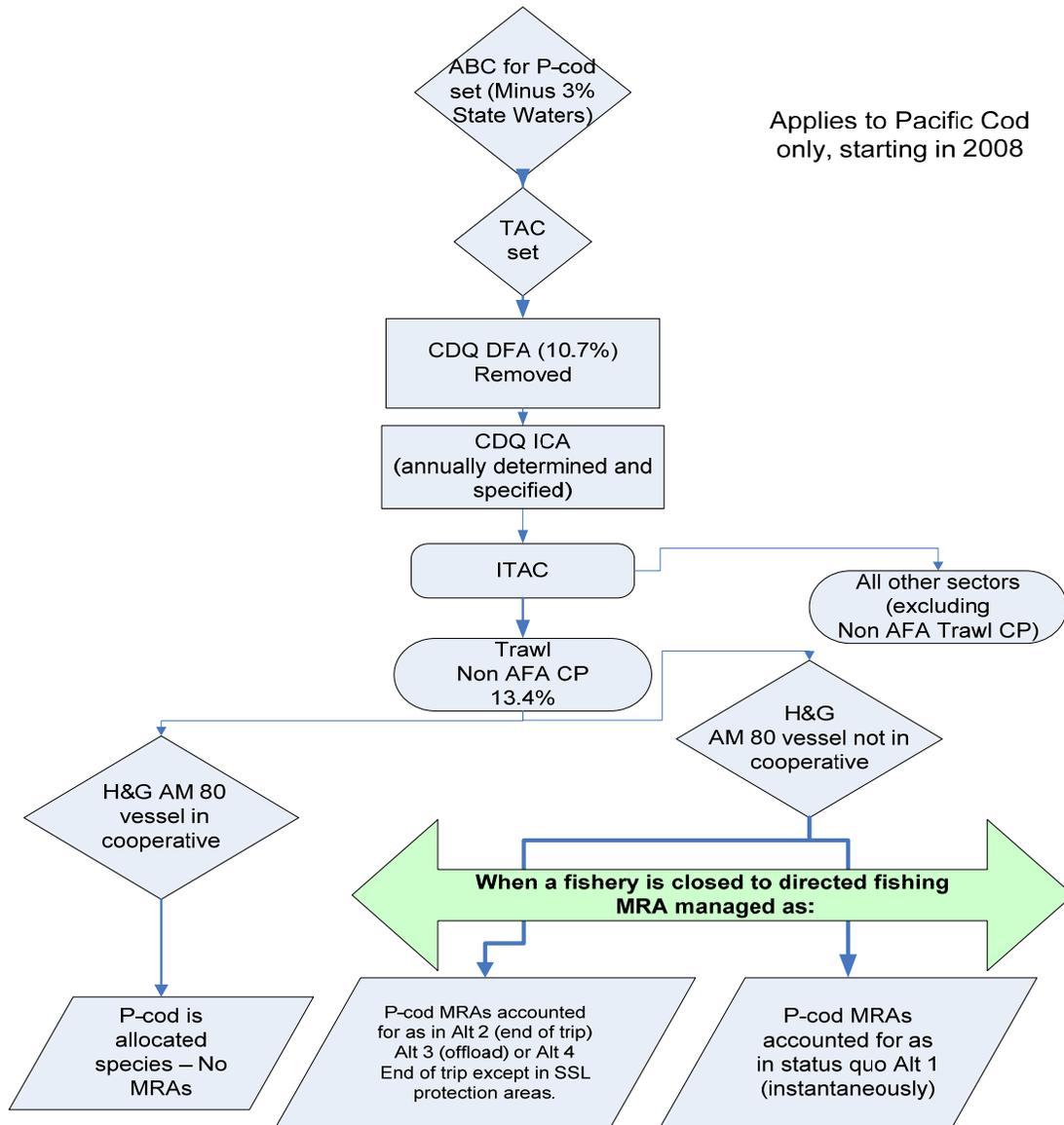


Figure 7. Management and options for applying MRAs to Pacific cod under Alternatives 1 through 4 with implementation of Amendment 80 and 85.

- Effects of Alternative 1 for H&G trawl C/Ps not in Cooperative (catching Pacific cod):  
As depicted in Figure 7, new MRA accounting would also apply to H&G trawl C/P vessels that choose to fish in the limited access fishery (and not join a co-op). It would be difficult for these vessels to increase annual removals of Pacific 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 effect of Alternatives 2, 3 or 4, may be to assist H&G trawl C/Ps that do not enter a co-op. To manage Pacific cod allocations for co-ops and vessels not in a co-op, NMFS managers may need to shift the in-season incidental catch allowance set for Pacific cod to a smaller amount compared with the amount set in recent years. That could restrict the amount of Pacific cod available to an H&G trawl C/P that chooses not to enter a co-op, and in turn increase the chances that the amount set aside for the pool of Pacific cod dedicated to the in-season incidental catch allowance, could be reached. Providing greater flexibility for an H&G trawl C/P to retain Pacific cod for the duration of a fishing trip could allow vessels that operate without a co-op to more effectively utilize the available in-season incidental catch allowance.

#### **Effects of Alternative 1 on H&G trawl C/Ps in co-ops (excluding Pacific cod)**

Under the Amendment 80 program, vessels operating in cooperatives that catch yellowfin sole, flathead sole, arrowtooth flounder, BS POP, Atka mackerel, and “other flatfish” are not 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 (Figure 8).

The Groundfish retention standard that will be implemented in 2008 is anticipated by the H&G 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.

#### **Alternatives 2, 3, and 4 Vessels in a Co-op (excluding Pacific cod)**

Under the Amendment 80 program, H&G trawl C/Ps that choose to operate in a cooperative, are no longer regulated by MRAs for the groundfish species allocated by Amendment 80 (Figure 5). An exception to this condition is for fishing on Atka mackerel in Steller sea lion protection areas (that would remain under status quo MRA accounting). MRA applicability would be removed through regulation, and cooperative allocations of groundfish to the H&G 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 (except for Pacific cod and Atka mackerel in Steller sea lion protection areas), and the exceeding of a co-op allocation for a species would be referred to NOAA Office of Law Enforcement. Because co-ops internally manage allocations for Amendment 80 species, the final rule for Amendment 80 has removed the applicability of MRAs to vessels participating in a cooperative for the species allocated under Amendment 80 in most of the BSAI. One exception to this is that MRAs still apply to Atka mackerel and Pacific cod in SSL protection areas. This action would be necessary regardless of any change to the MRA accounting interval under consideration through Alternatives 2, 3, and for Alternative 4.

#### **Vessels not in a co-op (all species included in Alternative 4)**

MRAs for continue to apply to groundfish caught by the component of the Amendment 80 sector that is not in a cooperative (Figure 8). Alternative 4 would also retain instantaneous accounting in Steller sea lion protection areas for Atka mackerel and Pacific cod.

Under Amendment 80 and Alternative 4, cooperatives are 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, BS Atka mackerel, and arrowtooth flounder (Figure9).

Species allocated to the Amendment 80 sector, but caught by vessels that choose not to join a co-op, are likely to continue to be managed by NMFS using directed fishing closures and species-specific MRA restrictions (Figure 9). For these non co-op vessels, however, the Council also selected certain species to which new MRA accounting standards apply, in accordance with Alternative 4, while continuing MRA accounting for the remaining groundfish species listed in Appendix 3, at status quo. Considering the list of MRA species in the Council’s December 2006 motion, the effect on the environment and BSAI groundfish sectors from any of the action alternatives involves substantial uncertainty. As noted in the EA Section 4.1., effects of the various alternatives, such as the potential effect of providing more opportunity for improving retention under Alternative 4 or creating an additional burden on management of this sector under Alternative 3, are only possible to consider in a qualitative manner, and any potential effects are probably best considered on an individual species basis.

In general, if a given species caught during a fishing trip (Alternative 2 and Alternative 4) or offload interval (under Alternative 3) is more highly valued than other species in the mixed trawl catches, an incentive could exist for higher retention of that species, up to the MRA. For the vessels not in a co-op, 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 Alternatives 2, 3, and Alternative 4 we are not aware of fundamental changes in business practices in the H&G trawl C/P sector that might occur, 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 Alternatives 2, 3, or 4 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 expect to generate some net benefit from that activity.

Alternative 1-4 MRA accounting for H&G trawl C/P sector for non- Amendment 80 species only, other than Pacific cod,

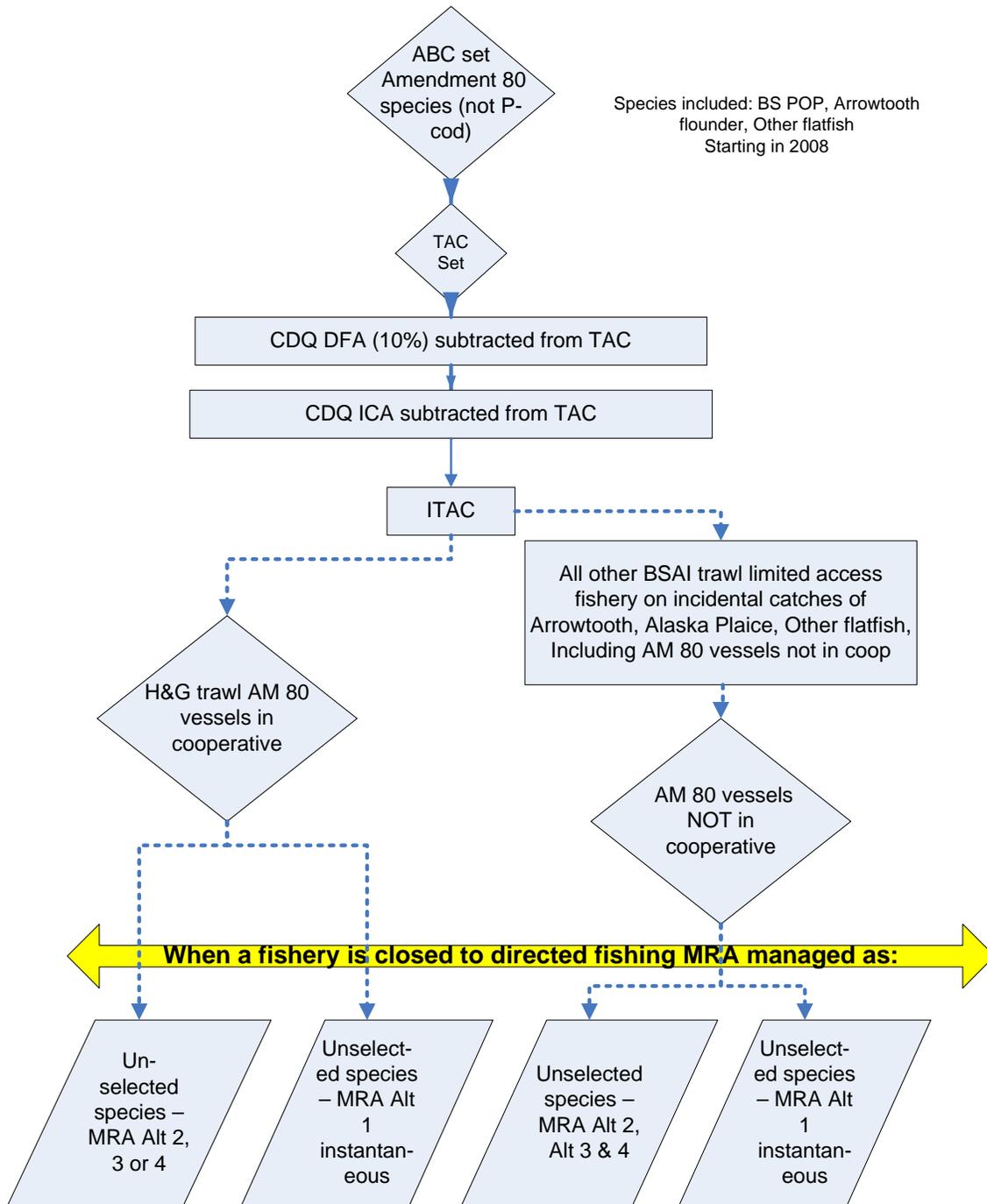


Figure 8. Diagram showing when MRAs apply to vessels in the H&G trawl C/P sector with Amendment 80 for non-Amendment 80 species under Alternatives 1 through 4.

MRAs applied to the non-AFA trawl C/P sector for allocated Amendment 80 species, other than Pacific cod, when Amendment 80 is implemented

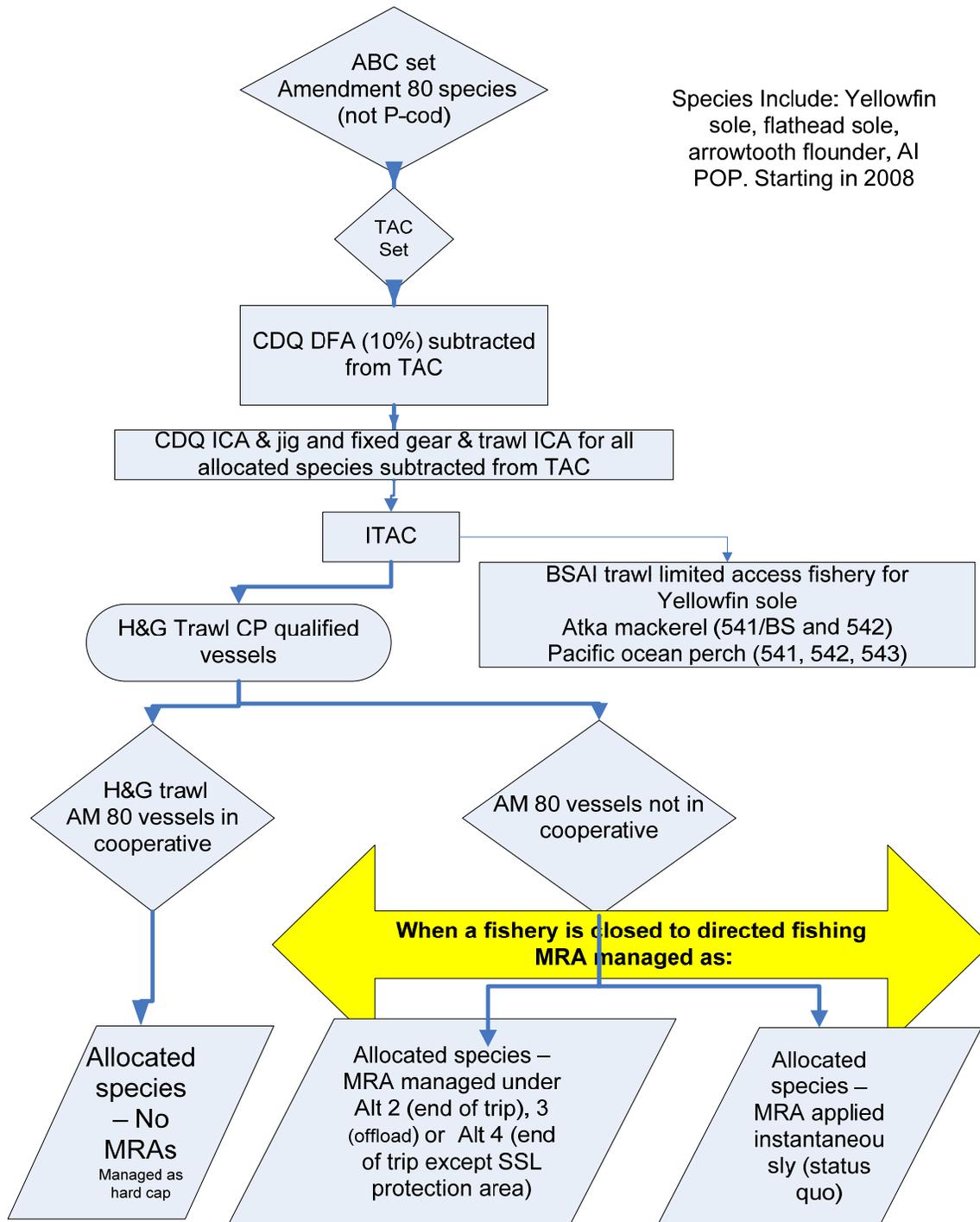


Figure 9. Diagram showing when MRAs apply to vessels in the H&G trawl C/P sector with Amendment 80 for allocated species only, assuming allocated species are managed under “hard caps.”



## Appendix 2: 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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### Appendix 3: Table 11 to Part 679–BSAI Groundfish MRAs

BASIS SPECIES		INCIDENTAL CATCH SPECIES <sup>5</sup>															
		Pollock	Pacific cod	Atka mackerel	Alaska plaice	Arrowtooth	Yellowfin sole	Other flatfish <sup>2</sup>	Rock sole	Flathead sole	Greenland turbot	Sablefish <sup>1</sup>	Shortraker/rougheye	Aggregated rockfish <sup>6</sup>	Squid	Aggregated forage fish <sup>7</sup>	Other species <sup>4</sup>
110	Pacific cod	20	na <sup>5</sup>	20	20	35	20	20	20	20	1	1	2	5	20	2	20
121	Arrowtooth flounder	0	0	0	0	na <sup>5</sup>	0	0	0	0	0	0	0	0	0	2	0
122	Flathead sole	20	20	20	35	35	35	35	35	na <sup>5</sup>	35	15	7	15	20	2	20
123	Rock sole	20	20	20	35	35	35	35	na <sup>5</sup>	35	1	1	2	15	20	2	20
127	Yellowfin sole	20	20	20	35	35	na <sup>5</sup>	35	35	35	1	1	2	5	20	2	20
133	Alaska Plaice	20	20	20	na <sup>5</sup>	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 <sup>5</sup>	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 <sup>5</sup>	5	20	2	20
193	Atka mackerel	20	20	na <sup>5</sup>	20	35	20	20	20	20	1	1	2	5	20	2	20
270	Pollock	na <sup>5</sup>	20	20	20	35	20	20	20	20	1	1	2	5	20	2	20
710	Sablefish <sup>1</sup>	20	20	20	20	35	20	20	20	20	35	na <sup>5</sup>	7	15	20	2	20
875	Squid	20	20	20	20	35	20	20	20	20	1	1	2	5	na <sup>5</sup>	2	20
	Other flatfish <sup>2</sup>	20	20	20	35	35	35	na <sup>5</sup>	35	35	1	1	2	5	20	2	20
	Other rockfish <sup>3</sup>	20	20	20	20	35	20	20	20	20	35	15	7	15	20	2	20
	Other species <sup>4</sup>	20	20	20	20	35	20	20	20	20	1	1	2	5	20	2	na <sup>5</sup>
	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 4: Alternatives considered and rejected by the Council at 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, roughey, 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 H&G 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 interval 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)<sup>16</sup>, or

**Option 2:** at the time of offload (changed from “point of offload”<sup>17</sup>).

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<sup>16</sup> 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.

Regulations for this action may need to add a condition to trigger a fishing trip for the non-AFA trawl C/P sector vessels when they enter or exit a Steller sea lion protection area.

## Alternatives for MRA accounting of selected species

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

**Alternative 2.** In the BSAI, allow the calculation of the MRA of yellowfin sole, rock sole, flathead sole, “other flatfish”, and arrowtooth flounder at the end of a fishing trip, for the H&G trawl C/P sector.<sup>3</sup>

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

**Alternative 3.** In the BSAI, calculate the interval 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 H&G trawl C/P sector.<sup>3</sup>

**Option:** Include Greenland turbot and rockfish species.

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<sup>17</sup> 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.

**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 H&G 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 4, average catches of all BSAI rockfish species between 1999 and 2006 (including AI POP) averaged approximately 17,300 mt, with 16,200 mt caught in the H&G 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 2006. 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 H&G trawl C/P sector.

Table 24. 2004 OFL, ABC, TAC and catch for various rockfish species harvested in the BSAI in mt.

<b>2004</b>	<b>OFL</b>	<b>ABC</b>	<b>TAC</b>	<b>Catch</b>
<b>Northern</b>	8,140	6,880	5,000	4,683
<b>Shortraker</b>	701	526	526	241
<b>Rougheye</b>	259	195	195	208
<b>Other</b>	1,280	960	960	317
<b>Total</b>	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 29). 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 3) 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 was considered as a potential groundfish species to include in Alternative 3, but appears to be of minimal or no interest to the H&G 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 15), Greenland turbot is aggregated with sablefish due to the small number of observations available on catches by processing operation. From 1999 to 2006, the total catch of Greenland turbot and sablefish averaged approximately 4,800 mt. In 2006, 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 2006 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 2006, 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 2006.

According to the 2006 SAFE document (NPFMC 2006a) 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 2006. In 2004 and 2006, 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 interval.

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 interval. 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.

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