Environmental Assessment/ Regulatory Impact Review/ Initial Regulatory Flexibility Analysis (EA/RIR/IRFA)

for an Amendment to the Regulations Implementing the Fishery Management Plan for Groundfish in the Bering Sea and Aleutian Islands

Enforcement Interval Change for Pollock Maximum Retainable Amounts (MRA)

Draft for Secretarial Review

Prepared for NOAA Fisheries–Alaska Region
and the
North Pacific Fishery Management Council

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Abbreviations and Acronyms

ABC	Allowable biological catch
ADF&G	Alaska Department of Fish and Game
AFA	American Fisheries Act
BSAI	Bering Sea and Aleutian Islands
CEQ	Council on Environmental Quality
CEY	Constant exploitation yield
CFR	Code of Federal Regulations
CG	Central Gulf of Alaska
CP	Catcher processor
CPUE	Catch per unit of effort
CRP	Comprehensive Rationalization Program
CV	Catcher vessel
DAP	U.S. Domestic processors
DPSEIS	Alaska Groundfish Fisheries Draft Programmatic Supplemental Environmental Impact Statement
EA	Environmental Assessment
EA/RIR/IRFA	Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis
EEZ	Exclusive economic zone
EFH	Essential fish habitat
EG	Eastern Gulf of Alaska
EIS	Environmental impact statement
EO	Executive Order
ESA	Endangered Species Act
FMP	Fishery management plan
FONSI	Finding of no significant impact
FR	Federal Register
FRFA	Final regulatory flexibility analysis
GOA	Gulf of Alaska
GRS	Groundfish retention standard
IBQ	Individual bycatch quotas
ICA	Incidental catch allowance
IFQ	Individual fishing quota
IRFA	Initial regulatory flexibility analysis
IR/IU	Improved retention and improved utilization
JVP	Foreign processors utilizing U.S. fishing vessels
LLP	License Limitation Program
LOA	Length overall
MMPA	Marine Mammal Protection Act
MRA	Maximum retainable allowance
MSA	Magnuson-Stevens Fishery Conservation and Management Act
MT (mt)	Metric tons

NEPA	National Environmental Policy Act
NOAA Fisheries	Formerly National Marine Fisheries Service (NMFS)
NOAA	National Oceanic and Atmospheric Administration
NOAA GC	National Oceanic and Atmospheric Administration General Counsel
NPFMC or Council	North Pacific Fishery Management Council
OFL	Overfishing levels
PRR	Product recovery rate
PSC	Prohibited species catch
RFA	Regulatory Flexibility Act
RIR	Regulatory Impact Review
SAFE	Stock Assessment and Fishery Evaluation
SBA	U.S. Small Business Administration
TAC	Total allowable catch
TALFF	Foreign fishing vessels
USFWS	U.S. Fish and Wildlife Service
WG	Western Gulf of Alaska
Sectors/Vessels/Facilities	
APAI-SP	Alaska Peninsula- Aleutian Islands shore plant
BSP-SP	Bering Sea pollock shore plant
FT-CP	Fillet trawl catcher processor
HT-CP	Head and gut trawl catcher processor
ST-CP	Surimi trawl catcher processor
TCV BSP ≥125	Bering Sea pollock trawl catcher vessels ≥ 125 feet in length
TCV BSP 60-124	Bering Sea pollock trawl catcher vessels 60 to 124 feet in length
TCV Div. AFA	Diversified AFA-eligible trawl catcher vessels
L-CP	Longline catcher processor
P-CP	Pot catcher processor
Regions	
APAI	Alaska Peninsula and Aleutian Islands Region. Includes the Aleutians East Borough and the Aleutians West Census Area.
WAIW	Washington Inland Waters Region. All counties bordering Puget Sound and the Strait of Juan de Fuca, including Clallum, Island, Jefferson, King, Kitsap, Mason, Pierce, San Juan, Skagit, Snohomish, Thurston, and Whatcom

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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 change in the regulations regarding the enforcement interval for maximum retainable amounts (MRA) of pollock used in implementing the Groundfish Fishery Management Plan for the Bering Sea and Aleutian Islands. The proposed action directly addresses the problem, as articulated by the Council, which is to reduce pollock discards by non-AFA vessels, while limiting their pollock catch to current levels. Current regulations prohibit the retention of a species closed to directed fishing in amounts that exceed the MRA percentage, and excess catch must be discarded. For most species, including pollock, a general default of 20 percent is established to slow the harvest of species that are closed to directed fishing - the rate is generally set high enough to avoid significant regulatory discards of these species when taken as incidental catch in other open fisheries. Under the current regulations, a vessel may not exceed the MRA at any time during a fishing trip (i.e., an instantaneous enforcement period). Two alternatives are considered as follows:

Alternative 1 - No Action/Status Quo

Under this alternative, the MRA for pollock continues to be enforced on an instantaneous basis, i.e., it is unlawful for a vessel to retain pollock in an amount that exceeds the MRA at any time.

Alternative 2 - Change the MRA Enforcement Interval for Pollock.

This alternative would change the enforcement of the pollock MRA to an offload to offload basis, allowing non-AFA vessels that have otherwise been forced to discard pollock, the option to retain additional pollock as long as they are under the MRA for pollock at the end of their trip. Four other interval options were considered and rejected as infeasible from an enforcement perspective or inconsistent with the goal to limit non-AFA pollock catches.

The purpose of the proposed regulatory change in Alternative 2 is to make it easier for non-AFA vessels to comply with the intent of the MRA limits on retained pollock, yet avoid unnecessary regulatory discards, thereby addressing the mandate in the Magnuson-Stevens Act to minimize bycatch (discards) to the extent practicable. The proposed regulatory change could potentially affect all vessels that catch pollock incidental to other target fisheries. However, as the analysis indicates, only the head and gut trawl catcher processor sector (HT-CP) appears to be constrained by the current instantaneous enforcement of the MRA—HT-CPs regularly have high enough incidental catches of pollock to be significantly affected by a change in the enforcement interval.

The analysis indicates that over the last four years, pollock discards by the HT-CP sector have averaged nearly 6 percent of HT-CP catch of groundfish, and that pollock discards constitute the largest component of discards (18 percent of all HT-CP discards are pollock). Because of pollock IR/IU regulations, it is presumed that all of these discards of pollock are regulatory discards resulting from prohibitions under American Fisheries Act (AFA) against pollock fishing by non-AFA qualified vessels. Overall, the HT-CP sector retains and makes product out of approximately 70 percent of their total groundfish catch. With the change in the MRA enforcement interval for pollock, the analysis indicates that overall retention rates of all groundfish by the HT-CP sector could increase by up to 2 percentage points without increasing the overall catch of pollock.

The analysis also indicates that a change in the MRA enforcement interval could be accomplished without significant cost to the HT-CP sector. There is, however, some concern on the part of participants in the directed pollock fishery that the change will lead to additional pollock catches. The analysis concludes that if pollock were a desired catch for the HT-CP fleet, the current MRA regulation would allow vessels to "top off" their trips with additional pollock. Data from NOAA Fisheries from 1999-2002, show only a few isolated instances when topping off may have occurred. In general, the data confirm claims by the HT-CP sector that pollock is less valuable to them than their target species.

1.0 Introduction

This document is an Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) for an amendment to the regulations implementing the Fishery Management Plan (FMP) for the groundfish fisheries in the Exclusive Economic Zone (EEZ—3 to 200 miles offshore) of the Bering Sea and Aleutian Islands management area (BSAI), as developed by the North Pacific Fishery Management Council (Council or NPMFC) under the Magnuson-Stevens Fishery Conservation and Management Act (MSA or Magnuson-Stevens Act).

The proposed action is intended to address the problem of discards of pollock in non-pollock target fisheries. In particular the action focuses on the multi-species cod and flatfish trawl fishery that is prosecuted by the group of vessels known collectively as the head and gut trawl catcher processors (HT-CP) after the type of processing and gear they employ. While there are improved retention/improved utilization (IR/IU) regulations in place prohibiting the discard of pollock, other regulations developed to implement American Fisheries Act (AFA) prohibit HT-CPS from targeting pollock. These AFA-related regulations require vessels to discard pollock if the amount of pollock on board exceeds the "maximum retainable amount (MRA)" for pollock.

The MRA for a groundfish species closed to directed fishing is calculated as a percentage of retained amounts of that species relative to the amount onboard the vessel of other groundfish species that are open to directed fishing. Current regulations prohibit the retention of a species closed to directed fishing in amounts that exceed the MRA percentage, and excess catch must be discarded. For most species, including pollock, a general default of 20 percent is established to serve as a general management tool to slow the harvest rate of a species, yet avoid significant discard amounts of these species to the extent they are taken as incidental catch in other open groundfish fisheries. Under current regulations, it is unlawful for a vessel to exceed the MRA at any time during a fishing trip. Under the preferred alternative, compliance with the MRA would be determined at the end of each offload. All other provisions related to the MRA would remain unchanged.

An environmental assessment (EA) is required by the National Environmental Policy Act of 1969 (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 documents required by NEPA. An environmental impact statement (EIS) must be prepared for major Federal actions significantly affecting the human environment.

The human environment is defined by the Council on Environmental Quality (CEQ) as the natural and physical environment and the relationships of people with that environment (40 CFR 1508.14). This definition means that economic or social effects are not intended by themselves to require preparation of an EA. However, when an EA is prepared and socioeconomic and natural or physical environmental impacts are interrelated, the EA must describe all of these impacts on the quality of the human environment.

NEPA requires that an EA discuss 1) the need for the proposed action; 2) the proposed action and alternatives; 3) the probable environmental impacts of the proposed action and alternatives; and 4) the agencies and persons consulted during preparation of the EA. 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 **Section 1.0** of this document. **Section 2.0** contains a description of the affected human environment, and **Section 3.0** contains information on the impacts of the alternatives on that environment, specifically addressing potential impacts on endangered species and marine mammals and cumulative effects.

Executive Order 12866 (E.O. 12866) requires preparation of a Regulatory Impact Review (RIR) to assess the social and economic costs and benefits of available regulatory alternatives, in order to

determine whether a proposed regulatory action is economically "significant" as defined by the order. **Section 4.0** contains a systematic description and analysis of the economic and social impacts of each of the alternatives.

Section 5.0 addresses the requirements of other applicable laws, including the MSA, Marine Mammal Protection Act (MPA), and Regulatory Flexibility Act (RFA), which includes the Initial Regulatory Flexibility Analysis (IRFA) in Section 5.3. The National Oceanic and Atmospheric Administration (NOAA) interprets the RFA to require analysis of adverse impacts on small entities which would be directly regulated by the proposed action. The major goals of the RFA are to: 1) increase agency awareness and understanding of the impact of their regulations on small businesses, 2) require that agencies communicate and explain their findings to the public, and 3) encourage agencies to use flexibility and to provide regulatory relief to small entities. The preparation of an IRFA emphasizes predicting significant adverse impacts on small entities as a group, distinct from other entities, and on the consideration of alternatives that may minimize the impacts, while still achieving the stated objective of the action.

The references cited in this document are listed in **Section 6.0** and a listing of agencies and persons consulted is provided in **Section 7.0**. A list of the document preparers is provided in **Section 8.0**.

1.1 Purpose of and Need for the Action

This section describes the problem facing the Council, NOAA Fisheries, and the groundfish industry, describes the need for action, and reviews the regulatory background of the discard and retention in the groundfish fishery of the BSAI.

1.1.1 The Problem Statement

In recent years, vessels in the HT-CP sector have discarded between 45 and 50 percent of the roughly 30,000 mt of pollock they have caught. These discards are primarily regulatory discards resulting from the fact that all vessels in the HT-CP sector but one are prohibited from participating in pollock fisheries by the regulations implementing the AFA—pollock are reserved primarily for the exclusive use of AFA-eligible vessels. **The problem facing the NPFMC and NOAA Fisheries is to develop a regulation that allows greater retention of pollock without increasing the catch of pollock by non-AFA vessels.**

Current regulations prohibit the retention of a species closed to directed fishing in amounts that exceed the MRA percentage, and excess catch must be discarded. For most species, including pollock, a general default of 20 percent is established to serve as a general management tool to slow the harvest rate of a species, yet avoid significant discard amounts of these species to the extent they are taken as incidental catch in other open groundfish fisheries. Under current regulations, it is unlawful for a vessel to exceed the MRA **at any time** during a fishing trip.

The current MRA regulations appear to be most difficult to work under at the beginning of a fishing trip when vessels are searching for schools of their target species and they do not have significant amounts of groundfish catch aboard. This may be particularly true for pollock which are ubiquitous and are often found intermingled with Pacific cod and flatfish, which are major targets of the HT-CP sector. If a non-AFA vessel catches a lot of pollock early in a trip, it is likely that much of it will be discarded, because there may not be enough non-pollock onboard meet the MRA standard. Later in the trip—after sufficient amounts of non-pollock groundfish have been caught and processed, it is easier for a vessel to accommodate a tow that includes larger amounts of pollock without being forced to discard it.

Under the proposed alternatives, compliance with the MRA for pollock harvested in the BSAI would be determined only at the end of a set time interval—alternatives for that interval range from a week to

the entire year. By calculating the MRA percentage for pollock only at the end of the time interval, the regulations will encourage pollock caught at the beginning to be retained rather the forcing pollock to be discarded. However, because pollock is a valuable resource—particularly to the AFA sectors and particularly during the late-winter and early spring when pollock roe is in peak condition—any change in the regulations would need to discourage non-AFA vessels from covertly targeting pollock. With the MRA enforced over longer time intervals, it may be easier to catch more pollock if the non-AFA vessel wishes. Pollock discard percentages are likely to be higher with shorter time intervals, but with a longer time interval it is easier to covertly target pollock and increase pollock catches. Thus, the appropriate time interval should not be too short, nor too long.

1.1.2 Regulatory Background

In December 1994, while addressing their comprehensive rationalization program (CRP), the NPFMC debated issues of bycatch and economic loss from discards in target fisheries, then unanimously adopted a motion to develop a set of regulatory options for implementing an improved retention/improved utilization (IR/IU) program for BSAI groundfish fisheries. The NPFMC identified the BSAI rock sole and mid-water pollock fisheries as two subject fisheries for initial evaluation and proposed that commercial groundfish trawl fisheries be required to reduce discards by retaining species which have historically been considered bycatch.

At its December 1995 meeting, the NPFMC adopted a draft IR/IU problem statement for public review. That statement reads as follows:

In managing the fisheries under its jurisdiction, the North Pacific Fishery Management Council is committed to: (1) assuring the long-term health and productivity of fish stocks and other living marine resources of the North Pacific and Bering Sea ecosystem; and (2) reducing bycatch, minimizing waste, and improving utilization of fish resources in order to provide the maximum benefit to present generations of fishermen, associated fishing industry sectors, communities, consumers, and the nation as a whole.

These commitments are also reflected in the Council's CRP problem statement:

The Council's overriding concern is to maintain the health of the marine ecosystem to ensure the long-term conservation and abundance of the groundfish and crab resources. As a response to this concern, a program to promote improved utilization and effective control/reduction of bycatch and discards in the fisheries off Alaska should address the following problems:

> *Bycatch and discard loss of groundfish, crab, herring, salmon, and other non-target species.*
>
> *Economic loss and waste associated with the discard mortality of target species harvested but not retained for economic reasons.*
>
> *Inability to provide for a long-term, stable fisheries-based economy due to loss of fishery resources through wasteful fishing practices.*
>
> *The need to promote improved retention and utilization of fish resources by reducing waste of target groundfish species to achieve long-term sustainable economic benefits to the nation.*

In May 1997, NOAA Fisheries completed an EA/RIR/IRFA of the improved retention and utilization options identified by the NPFMC as Amendment 49 to the BSAI Groundfish FMP. At its September 1997 meeting the NPFMC adopted Amendment 49. NOAA Fisheries prepared an implementation rulemaking and, after considering public comments, issued a final rule to implement Amendment 49 to the BSAI Groundfish FMP, effective January 3, 1998 [62 FR 63880]. The final rule requires 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. In addition, the final rule establishes a 15 percent minimum processing standard with no limit on product form,

beginning January 3, 1998, for pollock and Pacific cod and establishes a 15 percent minimum processing standard with no limit on product form, beginning January 1, 2003, for rock sole and yellowfin sole.

The potential negative impacts of IR/IU rules for flatfish on some sectors of the groundfish fisheries of the BSAI and GOA created the possibility that some entities currently participating in these fisheries might be compelled to discontinue their participation due to the economic burden the rules could place on their operations. The likelihood that the HT-CP sector would not be able to fully meet IR/IU flatfish rules became increasingly clear in 2000, during Council and industry deliberation on AFA processing sideboards, which would have protected non-AFA processors from AFA processors increasing their share of non-pollock fisheries. It was argued that, rather than limit AFA processors, it would be more practicable to provide relief from flatfish IR/IU to the HT-CPS.

At its June 2002 meeting the NPFMC developed a problem statement specifically to address the pending implementation of IR/IU regulations for the flatfish fisheries. This statement read as follows:

> *100 percent retention of rock sole and yellowfin sole (as currently scheduled) results in severe economic losses to certain participants in the fishery, while less than 100 percent retention of only these species is not enforceable.*

In October 2002, the NPFMC approved Amendment 75 to the BSAI Groundfish FMP, delaying implementation of IR/IU flatfish regulations for the BSAI until June 1, 2004. The NPFMC also initiated four trailing amendments with the expectation that these amendments could augment or replace IR/IU regulations for flatfish prior to the end of the delay period. Amendment A (as modified at the April 2003 Council meeting) establishes sector allocations in the BSAI and facilitates the formation of a fishery cooperative for non-AFA trawl catcher processors. Amendment B creates flatfish bycatch (discard) limits for the flatfish fisheries. Amendment C establishes a minimum groundfish retention standard (GRS). Amendment D exempts fisheries with less than a 5 percent IR/IU flatfish bycatch rate from IR/IU flatfish regulations.

Amendment 75 was only partially approved by the Secretary. The delay of imposing IR/IU requirements on catches of IR/IU flatfish in the BSAI was approved, while the date of June 1, 2004, on which this delay would have ended, was disapproved and, thus, eliminated. The practical effect of partially approving Amendment 75 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.

With the indefinite delay of the BSAI IR/IU flatfish program, Amendment D (now Amendment 76) no longer had any practical application in the BSAI, but still applied to the GOA (Amendment 72). Amendment B was rejected by the Council as infeasible following discussions between industry representatives and fishery managers. However, the NPFMC continued to pursue possible implementation of Amendments A (now Amendment 80) and Amendment C (now Amendment 79). At the June 2003 meeting the Council took final action on Amendment 79, approving a phased-in GRS for the non-AFA catcher processor sector in the BSAI, to begin in 2005. Further refinement of Amendment 80 will occur at the October 2003 Council meeting, with a target implementation of 2006.

At its June 2003 meeting, as part of its action on Amendment 79, the NPFMC also approved a revision of the MRA for pollock. The Council recognized that the MRA change was simpler to implement than the full GRS action and requested NOAA Fisheries to expedite the proposed pollock MRA action. The objective of the MRA change is to reduce regulatory discards of pollock in the directed fisheries for non-pollock groundfish species without increasing the overall amount of pollock that has historically been caught as incidental catch in these fisheries.

Regulations at 50 CFR 679.20(e) establish MRA percentages for groundfish species or species groups that are closed to directed fishing. The MRA is calculated as a percentage of the species closed to directed fishing relative to the retained amount of other species for which directed fishing is open. Amounts of a species closed to directed fishing onboard a vessel that are below or equal to the specified

MRA percentage for that species may be retained. In the case of pollock and Pacific cod, IR/IU requires vessels to retain 100 percent for these species up to the MRA. Amounts that are in excess of the MRA percentage must be discarded. Such discards that are required by the regulations are defined as regulatory discards.

MRA percentages serve as a management tool to slow the harvest rates of species closed to directed fishing by limiting the amount that can be retained on board a vessel [NMFS 1996]. By not placing these species on "prohibited" status, thereby prohibiting all retention, MRAs also serve to reduce regulatory discards of species when they are taken incidental to other directed fisheries. MRA percentages reflect a balance between the need to reduce the harvest rate of these species and the desire to minimize regulatory discards. Although MRA percentages limit the incentive to target on a species that is closed to directed fishing, fishermen can "top off'" their retained catch with these species up to the MRA amount by deliberately targeting the species [NMFS 1996].[1]

Under AFA regulations only certain vessels are eligible to participate in directed fisheries for pollock in the BSAI—all other vessels must operate under the pollock MRA, which limits their retention of pollock. At the same time non-AFA vessels must also meet IR/IU regulations that require retention of all pollock (with minor exceptions), up to the MRA. Thus non-AFA vessels must discard pollock when they have high incidental catches so that they retain no more and no less than 20 percent relative to the other retained groundfish they have on board. Precisely monitoring and tracking these conflicting limits, on a continuous, real-time basis poses a costly technical challenge for the industry.

1.1.3 Other Contextual Issues Surrounding the Proposed Regulation

The NPFMC has experienced increasing pressure to reduce groundfish discards in the fisheries under its jurisdiction. Because of this, they developed and approved, in 1996 and 1997, the original IR/IU amendments for pollock and Pacific cod as well as IR/IU actions for flatfish. Recognizing the fact that the immediate implementation of flatfish IR/IU regulations was impractical, the NPMFC delayed implementation until 2003—the delay would give the industry a chance to further develop markets for fish that were being discarded and to develop gears and other methods to avoid catch of unwanted fish.

While the pressure on the NPFMC to reduce discards of groundfish has not abated, in 2002 they recognized that a further delay of IR/IU for flatfish would be necessary in order to keep the HT-CP sector from demise. In October 2002, they approved a further implimentation delay of 18 months, with the admonition to the industry that unless they developed other measures to reduce discards, IR/IU would be implemented in June 2004.

NMFS partially approved the Council's action delaying the implementation of flatfish IR/IU indefinitely rather than until June, 2004. In light of NMFS' action, the NPFMC voted in June 2003, to approve Amendment 79 for the BSAI, which would implement a Groundfish Retention Standard. If approved by NMFS, the GRS program will establish an overall minimum groundfish retention standard for non-AFA trawl catcher/processors greater than 125'. The groundfish retention standard program would be phased in over a four-year period, starting in 2005, with the initial minimum retention standard set at 65 percent of total groundfish catch. In 2006, the minimum retention rate would increase to 75 percent, followed by five percent increases in both 2007 (80 percent) and 2008 (85 percent).

[1]Topping off is most likely with highly valuable species, such as sablefish and rockfish. Because these species are more valuable than the target species, there is no opportunity cost of with respect to use of limited freezer hold space—typically the constraining factor for trip lengths in the HT-CP sector. Topping off is less likely to occur if the value of the incidental catch species has the same or less value than the target species. Ironically, if a species has enough value to be considered for "topping off", existing MRA regulations may lead to higher total catch of the "closed" species, particularly if unintended incidental catch of the "closed" species in fisheries for "open" species is high. In this case, vessels may have to discard the "closed" species early in the trip until sufficient amounts of the open species are retained. Then if the vessels wishes to "top off" with the "closed" species it will have to catch amounts of fish that it earlier discarded.

Included in that action by the NPFMC was a change in the enforcement interval for the pollock MRA. From NPFMC's perspective, the MRA change is a part of the GRS amendment—the two are inextricably linked. It is only to expedite implementation of the MRA that a separate regulatory amendment for the MRA change is being considered. The NPFMC made it clear that the combination of the GRS program along with the necessary changes to the MRA were together extremely important in meeting the goals of minimizing bycatch to the extent practicable, while at the same time reducing the cost of the flatfish reduction program to the extent practicable.

1.2 Description of the Alternatives

During the development of the GRS, several options regarding the MRA for pollock were developed and discussed, including several options relating to the time interval for enforcement, as well as options to alter the MRA percent during the season. As indicated in the previous section, the Council rejected changes to the MRA percentage as counter-productive and inconsistent with the need to reduce discards without increasing the ability of non-AFA vessels to covertly target pollock. This section describes the MRA options examined in the GRS analysis and explains why the Council eliminated all but one MRA option—changing the enforcement interval to an "offload to offload" basis.

The following MRA Options were examined in the Draft EA/RIR/IRFA for the GRS proposed action, and are reported here for completeness. Changing the MRA enforcement interval for pollock to an "offload to offload" basis, and the "No Action" status quo alternative, are the two alternatives carried forward in the present MRA EA/RIR/IRFA.:

Option 1- No Action/Status Quo

Under this alternative, the MRA for pollock continues to be enforced on an instantaneous basis, i.e., it is unlawful for a vessel to retain pollock in an amount that exceeds the MRA at any time during a fishing trip. As noted, this alternative remains the "baseline" for purposes of the MRA analysis.

Option 2- Change the MRA Enforcement Interval for Pollock

This alternative would change the enforcement of the pollock MRA to a set interval of time. Modifying the time of enforcement to an interval of time would allow vessels that would have otherwise been forced to discard pollock to retain additional pollock, as long as they were under the MRA for the specified interval. For example, suppose a vessel's first haul of a trip is 25 percent pollock. Under the current instantaneous enforcement rules, the vessel would be required to discard at least 5 percent of the haul. Under a modified enforcement interval the vessel would have the option of keeping the additional five percent, as long as the vessel's total retained pollock amounted to no more than 20 percent of retained non-pollock groundfish by the end of the specified enforcement interval. The MRA for pollock would remain at 20 percent. Only the enforcement accounting interval would be adjusted.

The following enforcement interval suboptions were considered in the Draft EA/RIR/IRFA:

Suboption 2.1 – Weekly Enforcement Interval

Under this sub-alternative, it would be unlawful for the vessel to exceed the MRA for pollock, over a one-week interval. Vessels would be allowed to keep an amount of pollock equivalent to 20 percent of that week's total non-pollock retained catch.

Suboption 2.2 – Offload-to-Offload Enforcement Interval (**Preferred Alternative**)

Under this sub-alternative, it would be unlawful for a vessel to exceed the MRA for pollock on an offload-to-offload basis. Vessels would be allowed to keep an amount of pollock equivalent to 20 percent of that trip's total non-pollock retained catch.

Suboption 2.3 – Monthly Enforcement Interval

Under this sub-alternative, it would be unlawful for a vessel to exceed the MRA for pollock, on a monthly basis. Vessels would be allowed to keep an amount of pollock equivalent to 20 percent of that month's total non-pollock retained catch.

Suboption 2.4 – "A" & "B" Season Enforcement Interval

Under this sub-alternative, it would be unlawful for a vessel to exceed the MRA for pollock, based upon retained catch, during the "A" season. The same rule would then apply to the "B" season. Vessels would be allowed to keep an amount of pollock equivalent to 20 percent of each season's total non-pollock retained catch.

Suboption 2.5 – Yearly Enforcement Interval

Under this sub-alternative, it would be unlawful for a vessel to exceed the MRA for pollock, over the calendar year. Vessels would be allowed to keep an amount of pollock equivalent to 20 percent of that year's total non-pollock retained catch.

Option 3 – Change the MRA Percentage for Pollock

This option would adjust the MRA percentage for pollock to allow for greater retention by HT-CPs. The following seven MRA percentage options were considered in the Draft EA/RIR/IRFA for GRS:

Suboption 3.1 – Keep the MRA at 20 percent

Suboption 3.2 – Change the MRA to 25 percent

Suboption 3.3 – Change the MRA to 30 percent

Suboption 3.4 – Change the MRA to 35 percent

Suboption 3.5 – Change the MRA to 40 percent

Suboption 3.6 – Change the MRA to 45 percent

Suboption 3.7 – Change the MRA to 50 percent

Option 4 – Allow fishery managers to adjust the MRA Percentage for Pollock in season.

1.2.1 Alternatives Eliminated from Detailed Study

As indicated above, all but one of the options to change the interval over which the pollock MRA is calculated were rejected by the Council. Suboption 1, which would have calculated the pollock MRA on a weekly basis, was determined by NOAA Fisheries Enforcement to be infeasible because of the inability to determine which fish products in the vessel's hold were associated with catches from individual weeks. Enforcement would be feasible at a point when both fishing and processing have ceased and all fish in the vessel's hold or that have already been offloaded are associated with the given interval. Thus all intervals shorter than an offload to offload basis are infeasible from an enforcement perspective—instantaneous enforcement—as in the status quo—is the sole exception. Intervals longer than an offload to offload basis would be feasible if there is also a complete stoppage in fishing at the end of the interval and all fish retained during the interval are offloaded and accounted for.

While longer intervals were feasible from an enforcement perspective, they were judged by the Council as inconsistent with the problem statement and the goal to discourage covert targeting of pollock by non-AFA vessels. For example, if the MRA for pollock was calculated over the entire 'A' season it would be quite easy for non-AFA vessels to focus an entire trip on pollock (say, while roe content was at its peak) and still remain within the MRA. This would clearly be incongruous with the AFA which reserves the target pollock fishery exclusively for AFA eligible vessels and processors.

The second set of options included in the Draft EA/RIR/IRFA for the GRS would have increased the pollock retention rates by increasing the MRA percentage for pollock. However, these options were eliminated by the Council in their GRS decision because they did not meet the goal of keeping non-AFA

pollock catches to a minimum. Increasing the MRA percentage for pollock could increase the retention of pollock by reducing the number of instances when a vessel caught enough pollock to necessitate pollock discards. On the other hand, there is the possibility that increasing the MRA percentage of pollock would also increase the incentive to catch more pollock. While the HT-CP sector currently operates well under its incidental catch allowance (ICA) for pollock, raising the MRA percentage for pollock could increase the chance that the ICA would have to be increased if the overall amount of retained pollock approached the current ICA. If the ICA increased, it would reduce the amount of pollock available to the directed fishery.

Also eliminated from detailed study was an alternative whereby fishery managers could change the MRA percentage for pollock within a season according to how much pollock the HT-CP sector caught. This option was rejected, on the advice of NOAA Fisheries, because the complexities of intra-season rulemaking made the option infeasible.

1.2.2 Alternative Carried Forward in This Analysis

The following two alternatives have been carried forward in this EA/RIR/IRFA:

Alternative 1- No Action/Status Quo

Under this alternative, the MRA for pollock continues to be enforced on an instantaneous basis, i.e., it is unlawful for a vessel to retain pollock in an amount that exceeds the MRA at any time during a fishing trip.

Alternative 2- Change the Enforcement Interval of the Pollock MRA to an Offload to Offload Basis

This alternative would change the enforcement interval of the pollock MRA to an offload to offload basis. Modifying the enforcement period to an offload to offload interval would allow vessels that would have otherwise been forced to discard pollock to retain additional pollock, as long as they were under the MRA for the trip. For example, suppose a vessel's first haul of a trip is 25 percent pollock. Under the current instantaneous enforcement rules, the vessel would be required to discard at least 5 percent of the haul. Under this alternative the vessel would have the option of keeping the additional five percent as long as the vessel's total retained pollock amounted to no more than 20 percent of retained non-pollock groundfish by the time of the next offload. The MRA for pollock would remain at 20 percent. Only the enforcement accounting interval would be adjusted.

1.3 Consistency with the Problem Statement

The proposed action, as reflected by the alternative to the status quo, is consistent with the pollock MRA problem statement. The proposed action may result in an increase in the groundfish retention rate of the HT-CP sector, while limiting the ability of non-AFA vessels to covertly participate in the pollock fishery. The proposed action is also consistent with the Council's objective, as developed in the broader IR/IU problem statements, to reduce overall discards in the groundfish fisheries.

2.0 Affected Environment

This section describes the affected human environment, including the natural and physical environment (Section 2.1) and the relevant economic and social conditions (Section 2.2). The impacts of the proposed action and alternatives are the subject of Section 3.0.

This section draws on information in the revised draft programmatic supplemental environmental impact statement prepared for the BSAI and GOA groundfish FMPs (DPSEIS) [NMFS 2003a]. The DPSEIS contains detailed descriptions of features of the physical environment: threatened and endangered species; target groundfish species, prohibited species, other species, forage species, and non-specified species; essential fish habitat (EFH); seabirds; marine mammals; the socioeconomic environment; and the ecosystem. The DPSEIS is available for public review on the Internet at http://www.fakr.noaa.gov/. Detailed information on the economic and social status of the groundfish fisheries can also be found in *Sector and Regional Profiles of the North Pacific Groundfish Fisheries – 2001* [Northern Economics, Inc. and EDAW, Inc. 2002]. This document can be reviewed on the NPFMC's web site at http://www.fakr.noaa.gov/npfmc.

Detailed information on the impact of the groundfish fisheries on Steller sea lions is contained in the November 2001 SEIS on Steller sea lion protection measures [NMFS 2001]. This document includes in Appendix A the biological opinion on the effects of the pollock, Pacific cod and Atka mackerel fisheries on Steller sea lions and other ESA listed species.

Groundfish total allowable catches (TACs) and catch in 2002, along with final 2003 specifications of overfishing levels (OFLs), acceptable biological catches (ABCs), and TACs for the BSAI, are discussed in the environmental assessment/final regulatory flexibility analysis (EA/FRFA) for the 2003 TAC specifications for Alaska groundfish fisheries [NMFS 2003b]. For detailed life history, ecology, and fishery management information regarding groundfish stocks in the BSAI, see Section 3.5.1 of the DPSEIS. Additionally, 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 BSAI stock assessment and fishery evaluation (SAFE) reports.

2.1 Natural and Physical Environment

In this section, the condition of components of the natural and physical environment are briefly summarized with particular reference to the effects of groundfish discards. In general, it can be concluded that from a stock assessment point of view, groundfish discards (provided they are accurately estimated by species, size and weight) have no differential impact on fish populations compared to any other commercial fishing mortality [Hollowed 2003]. Similarly, the level of discards relative to natural sources of detritus and the absence of evidence that would relate changes in scavenger populations to discard trends suggest that the BSAI and GOA groundfish fisheries have insignificant ecosystem impacts through energy removal and redirection [NMFS 2003a].

2.1.1 Status of Groundfish Stocks in the BSAI

Complete descriptions of all groundfish stocks harvested in the BSAI are presented in Section 3.5.1 of the 2003 DPSEIS (NMFS 2003a). Additional information on the condition of these stocks is presented in the EA/FRFA for the 2003 TAC specifications for Alaska groundfish fisheries [NMFS 2003b]. This report indicates that none of the groundfish stocks in the BSAI are depleted or currently overfished.

Bycatch does not affect the condition of groundfish stocks. As indicated in the DPSEIS [NMFS. 2003a], management of these stocks does not allow the fishing mortality rate to exceed the overfishing level.

2.1.2 Status of Prohibited Species

Prohibited species in the groundfish fisheries include Pacific salmon (chinook, coho, sockeye, chum and pink), steelhead trout, Pacific halibut, Pacific herring and Alaska king and Tanner crab. Detailed information on the status of prohibited species is presented in Section 3.5.2 of the 2003 DPSEIS [NMFS 2003a]. A recent review of the status of crab stocks may be also be found in the *2002 Stock Assessment and Fishery Evaluation Report for the King and Tanner Crab Fisheries of the Bering Sea/Aleutian Islands Regions* [NMFS 2002a]. The effects of the groundfish fisheries in the BSAI and GOA on prohibited species are primarily managed by conservation measures developed and recommended by the NPFMC over the entire history of the FMPs for the BSAI and GOA and implemented by federal regulation. These measures include prohibited species catch (PSC) limits on a year round and seasonal basis, year round and seasonal area closures, gear restrictions and an incentive plan to reduce the incidental catch of prohibited species by individual fishing vessels.

Effects of prohibited species bycatch in the GOA and BSAI groundfish fisheries were evaluated in the DPSEIS [NMFS 2003a]. Current harvest practices have insignificant impacts on halibut and herring. However, the DPSEIS noted that some prohibited species are currently in a depressed (BSAI chinook) or overfished condition (*C. bairdi* crab, *C. opilio* crab, BSAI red king crab and BSAI blue king crab). Although the fishing mortality of depressed or overfished non-target species is minor, the additional mortality resulting from groundfish fisheries is not beneficial to these stocks. When cumulative effects are considered, conditionally significant adverse impacts due to fishing mortality are expected for depressed and overfished species. Conditionally significant adverse impacts are also expected for crab species due to changes in biomass.

2.1.3 Status of Forage Fish Species

The species referred to as forage fish species are limited to those species included in BSAI groundfish FMP Amendment 36 and GOA groundfish FMP Amendment 39. Management concerns with regard to forage fish, as well as current and planned research to address these concerns, are discussed in Section 3.5.4 of the 2003 DPSEIS [NMFS 2003a]. Because fishery independent surveys for forage fish have not been implemented, biomass estimates remain uncertain. However, preliminary estimates from ecosystem models suggest that standing stocks of forage fish are stable. Current harvest practices in the groundfish fisheries result in insignificant forage fish mortality because the level of catch is very small. No comparative baseline exists to determine prey availability, habitat suitability, or spatial temporal catch distribution impacts.

2.1.4 Status of Benthic Habitat and Essential Fish Habitat

All the marine waters and benthic substrates in the management areas comprise the habitat of groundfish. In addition, the adjacent marine waters seaward of the EEZ, adjacent State waters, shoreline, freshwater inflows and atmosphere above the waters constitute habitat for prey species, other life stages, and species that interact with groundfish species. Distinctive aspects of the habitat include water depth, substrate composition, substrate infauna, light penetration, water chemistry (salinity, temperature, nutrients, sediment load, color, etc.), currents, tidal action, phytoplankton and zooplankton production, associated species, natural disturbance regimes and the seasonal variability of each aspect. Substrate types include bedrock, cobbles, sand, shale, mud, silt and various combinations of organic material and invertebrates that may be termed biological substrate. Biological substrates present in management areas include corals, tunicates, mussel beds and tubeworms. Biological substrate has the aspect of ecological state (from pioneer to climax) in addition to the organic and inorganic components. Ecological state is heavily dependant on natural and anthropogenic disturbance regimes.

The BSAI and GOA groundfish FMPs contain descriptions of habitat preferences of the target species, and projects are underway to systematically present biological requirements for each known life history stage. A detailed analysis of interactions between groundfish fisheries and benthic habitat and EFH is provided in Section 3.6 of the 2003 DPSEIS [NMFS 2003a] and the EA/FRFA for the 2003 TAC specifications for Alaska groundfish fisheries [NMFS 2003b]. These analyses also provide the information necessary for an EFH assessment, which is required by the Magnuson-Stevens Act for any action that may adversely affect EFH.

2.1.5 Ecosystem Considerations

Ecosystem considerations for the BSAI groundfish fisheries are explained in detail in Appendix C of the EA/FRFA for the 2003 TAC specifications for Alaska groundfish fisheries (NMFS 2003b). This document provides updated information on biodiversity, EFH, consumptive and non-consumptive sustainable yields, trophic interactions, and human considerations. This information is intended to be used in making ecosystem-based management decisions such as establishing ABC and TAC levels. Additional information on the condition of the BSAI and GOA marine ecosystems is found in Section 3.10 of the 2003 DPSEIS [NMFS, 2003a].

Total commercial fishing removals in the BSAI and GOA are a small proportion of the total system energy budget and are small relative to internal sources of inter-annual variability in production. Energy flow paths do not seem to be redirected by discards and offal. Before improved retention requirements for Pacific cod and pollock were in place, it was estimated that the total offal and discard production was one percent of the estimated unused detritus going to the ocean bottom. The level of discards relative to natural sources of detritus and the absence of evidence that would relate changes in scavenger populations to discard trends suggest that the BSAI and GOA groundfish fisheries have insignificant ecosystem impacts through energy removal and redirection [NMFS, 2003a].

2.1.6 Status of Marine Mammals

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

Direct and indirect interactions between marine mammals and groundfish harvest occur due to overlap in the size and species of groundfish harvested in the fisheries that are also important marine mammal prey and due to temporal and spatial overlap in marine mammal foraging and commercial fishing activities. A detailed analysis of interactions between groundfish fisheries and marine mammals is provided in Section 3.8 of the 2003 DPSEIS [NMFS 2003a], Steller sea lion protection measures SEIS [NMFS 2001] and the EA/FRFA for the 2003 TAC specifications for Alaska groundfish fisheries [NMFS 2003b]. The DPSEIS [NMFS, 2003a] indicated that discards in the GOA and BSAI groundfish fisheries are not an important source of food for marine mammals.

2.1.7 Status of Endangered or Threatened Species

Species currently listed as endangered or threatened under the ESA that may be present in the BSAI and GOA are presented in Table 1. The group includes great whales, pinnipeds, Pacific salmon and steelhead, and seabirds. Of the species listed under the ESA and present in the action area, some may be negatively affected by groundfish commercial fishing. NOAA Fisheries is the expert agency for ESA listed marine mammals and anadromous fish species. The United States Fish and Wildlife Service (USFWS) is the expert agency for ESA listed seabirds. The fisheries as a whole must be in compliance with the ESA.

Table 1. ESA Listed Species in the BSAI and GOA

Common Name	Scientific Name	ESA Status
Northern Right Whale	*Balaena glacialis*	Endangered
Bowhead Whale [1]	*Balaena mysticetus*	Endangered
Sei Whale	*Balaenoptera borealis*	Endangered
Blue Whale	*Balaenoptera musculus*	Endangered
Fin Whale	*Balaenoptera physalus*	Endangered
Humpback Whale	*Megaptera novaeangliae*	Endangered
Sperm Whale	*Physeter macrocephalus*	Endangered
Snake River Sockeye Salmon	*Onchorynchus nerka*	Endangered
Short-tailed Albatross	*Phoebaotria albatrus*	Endangered
Steller Sea Lion	*Eumetopias jubatus*	Endangered and Threatened [2]
Snake River Fall Chinook Salmon	*Onchorynchus tshawytscha*	Threatened
Snake River Spring/Summer Chinook Salmon	*Onchorynchus tshawytscha*	Threatened
Puget Sound Chinook Salmon	*Onchorynchus tshawytscha*	Threatened
Lower Columbia River Chinook Salmon	*Onchorynchus tshawytscha*	Threatened
Upper Willamette River Chinook Salmon	*Onchorynchus tshawytscha*	Threatened
Upper Columbia River Spring Chinook Salmon	*Onchorynchus tshawytscha*	Endangered
Upper Columbia River Steelhead	*Onchorynchus mykiss*	Endangered
Snake River Basin Steelhead	*Onchorynchus mykiss*	Threatened
Lower Columbia River Steelhead	*Onchorynchus mykiss*	Threatened
Upper Willamette River Steelhead	*Onchorynchus mykiss*	Threatened
Middle Columbia River Steelhead	*Onchorynchus mykiss*	Threatened
Spectacled Eider	*Somateria fishcheri*	Threatened
Steller Eider	*Polysticta stelleri*	Threatened

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

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

Section 7 consultations with respect to the actions of the Federal groundfish fisheries have been done for all the species listed above, either individually or in groups. An FMP-level biological opinion was prepared pursuant to Section 7 of the ESA on all NOAA Fisheries-listed species present in the fishery management areas for the entire groundfish fisheries. On October 19, 2001, NOAA Fisheries released a biological opinion that concluded that the FMP's approach to protection measures would not likely jeopardize the Steller sea lion or its habitat. For additional information on Steller sea lions, readers are advised to see the Steller Sea Lion environmental impact statement (EIS). Additional information on all endangered or threatened species in the BSAI can be found in the Draft PSEIS of September 2003.

2.1.8 Status of Seabirds

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

Effects of discards in the GOA and BSAI groundfish fisheries on seabirds were evaluated in the DPSEIS [NMFS, 2003a]. A possible effect of discarding practices on seabirds would be to enhance food availability to bird populations that use scavenging as a source of energy. Increased food availability might increase survival or reproduction of scavenger populations that might be detrimental to other seabird species that have competitive interactions with scavenger populations. The groundfish fisheries were not expected to have population level effects on any seabird species. Although some piscivorus bird species, such as glaucous-winged gulls, might be gaining food subsidies from discards, there does not appear to be a population-level effect as a result of this subsidy.

2.2 Economic and Social Conditions

The most recent descriptions of the BSAI groundfish fisheries are contained in Appendix D of the EA/FRFA for the 2003 TAC specifications for Alaska groundfish fisheries [NMFS 2003b] and the 2003 DPSEIS [NMFS 2003a]. 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 3.9.2.4 of the DPSEIS describes the characteristics and activities of various classes of 1) catcher vessels – vessels that harvest groundfish and deliver their catch to processors; 2) catcher processors – vessels that both harvest and process groundfish; and 3) other types of processors – shore-based processors, floating inshore processors and motherships. A detailed discussion of these groundfish fleet classifications can be found in *Sector and Regional Profiles of the North Pacific Groundfish Fisheries–2001* [Northern Economics, Inc. 2002].

2.2.1 Overview of Pollock Discards in the BSAI Fisheries

The purpose of changing the MRA enforcement interval is to decrease the amount of regulatory pollock discards. These discards are currently concentrated in the HT-CP sector. In 1999, the HT-CP sector accounted for more than 48 percent of all BSAI pollock discards. Although pollock discards by HT-CP vessels have decreased since 1999 (Tables 2 and 3), this sector's share of total pollock discards has grown as a result of substantial decreases in pollock discards by other sectors. By 2001, the HT-CP sector's share of pollock discards had risen to more than 80 percent. Overall, pollock discards declined by nearly 45 percent between 1999 to 2001, from 31,000 mt to 17,700 mt. During this period the pollock discards of surimi and fillet trawl catcher processors fell from 2,760 mt to 340 mt. The pollock discards of shore plants, floating inshore processors and motherships fell from over 11,000 mt to just over 1,000 mt. Pot catcher processors had a negligible level of pollock discards in all three years. By 2001, pollock

discards had fallen to one percent or less of catch or delivered to processors in every sector except the HT-CP sector.

It should be noted that IR/IU regulations for pollock require that all pollock fit for human consumption be retained up to the MRA. Therefore, it can be presumed that the majority of the HT-CP discards are regulatory discards and that, if the HT-CP fleet was not constrained by the MRA for pollock, the fleet would have a pollock discard rate similar to that of other non-AFA sectors. It is also important to note that pollock represents a relatively small amount of the HT-CP sector's total catch (roughly 10 to 12 percent). By comparison, the species represents 95 to 98 percent of total catch in the directed pollock fisheries. The pollock discards of AFA-eligible vessels are a very minor component of their overall catch. In 2001, the sum of all AFA-eligible vessels' pollock discards was approximately 2,000 mt, or less than 0.3 percent for all sectors combined. This amount is one-seventh the amount discarded by the HT-CP sector.

Table 2. BSAI Pollock Discarded and Retained (mt) by Processor Sector, 1999-2001

Year	1999	2000	2001
Sector		Discarded Pollock (mt)	
Head & Gut Trawl CPS	14,955	14,600	14,447
Pot CPS	7	0	44
Longline CPS	578	1,004	991
Non-AFA Shore Plants/Floaters	422	532	343
Surimi/Fillet Trawl CPS	2,760	1,336	320
AFA Shore Plants/Floaters	10,582	4,812	1,119
Motherships	189	44	467
Total Pollock Discards	29,493	22,328	17,731
		Retained Pollock (mt)	
Head & Gut Trawl CPS	14,050	16,915	17,186
Pot CPS	2	12	13
Longline CPS	3,350	3,841	4,935
Non-AFA Shore Plants/Floaters	50	118	172
Surimi/Fillet Trawl CPS	410,809	481,427	603,555
AFA Shore Plants/Floaters	453,036	510,146	603,954
Motherships	100,199	114,094	140,419
Total Retained Pollock	981,496	1,126,553	1,370,234
		Total Pollock Catch (mt)	
Head & Gut Trawl CPS	29,005	31,515	31,633
Pot CPS	9	13	57
Longline CPS	3,929	4,845	5,926
Non-AFA Shore Plants/Floaters	472	650	515
Surimi/Fillet Trawl CPS	439,814	512,941	635,188
AFA Shore Plants/Floaters	433,632	479,979	605,073
Motherships	104,128	118,938	146,345
Total Pollock Catch	1,010,989	1,148,881	1,424,737

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-Alaska Fisheries Science Center (AFSC).

Table 3. Pollock Discard, Retention, and Catch Percentages by Sector, 1999-2000

Year	1999	2000	2001
Sector	Discarded Pollock as a Percent of Total Groundfish Catch		
Head & Gut Trawl CPS	5.6	5.0	5.3
Pot CPS	0.1	0.0	1.0
Longline CPS	0.5	0.7	0.7
Non-AFA Shore Plants/Floaters	1.2	1.4	2.5
Surimi/Fillet Trawl CPS	0.6	0.3	0.1
AFA Shore Plants/Floaters	2.1	0.9	0.2
Motherships	0.2	0.0	0.3
	Retained Pollock as a Percent of Total Groundfish Catch		
Head & Gut Trawl CPS	5.2	5.8	6.4
Pot CPS	0.0	0.3	0.3
Longline CPS	2.7	2.8	3.6
Non-AFA Shore Plants/Floaters	43.9	35.5	1.3
Surimi/Fillet Trawl CPS	92.4	94.9	97.8
AFA Shore Plants/Floaters	85.7	88.2	95.4
Motherships	98.8	98.1	99.1
Sector	Total Pollock Catch as a Percent of Total Groundfish Catch		
Head & Gut Trawl CPS	9.7	9.5	11.7
Pot CPS	0.1	0.3	1.3
Longline CPS	3.2	3.6	4.4
Non-AFA Shore Plants/Floaters	45.1	37.0	3.8
Surimi/Fillet Trawl CPS	93.0	95.2	97.9
AFA Shore Plants/Floaters	87.8	89.1	95.6
Motherships	99.0	98.1	99.4

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

2.2.2 Directly Affected Participants in the BSAI Fisheries

The pollock harvest involves two main groups of participants in the BSAI fisheries: 1) vessels that catch BSAI pollock as an incidental species—non-AFA vessels, and 2) vessels and processors that use BSAI pollock through directed effort—AFA vessels and processors. A change in the MRA enforcement interval for pollock is likely to have a direct effect on the amount of pollock retained from incidental catches for some portions of the first group, and it may have an indirect effect on the second group if there is an increase in the total amount of pollock that is taken incidentally. This section examines the directly affected participants, while Section 2.2.3 provides an overview of the indirectly affected participants.

The MRA for pollock currently has the greatest impact on the HT-CP sector, as only HT-CP vessels catch significant amounts of pollock incidentally in other groundfish fisheries. Other non-AFA vessels are seldom affected by the MRA for pollock on a haul-by-haul basis. Table 4 shows the number of vessel reporting weeks in 2001 in which sectors of non-AFA vessels caught enough pollock to exceed the MRA and were thus forced to discard pollock catch. In the HT-CP sector, pollock catch exceeded 20 percent in 151 of 682 vessel reporting weeks, or 22 percent of all weeks. The pollock catch in these weeks totaled roughly 15,400 mt. In comparison, the L-CP and P-CP sectors had few, if any, vessel reporting weeks in which pollock catch exceeded the MRA standard. The P-CP sector had no reporting weeks in which pollock catch was above 20 percent and only one week in which pollock accounted for 10-15 percent of the total catch. L-CP vessels caught enough pollock to exceed the MRA standard in 9 of 1,264 reporting weeks, or less than one percent of all weeks. The pollock catch in these weeks totaled about 220 mt of pollock. The L-CP sector had 26 vessel reporting weeks in which pollock accounted for 10-15 percent of the total catch.

Table 4. Frequency and Tons by Groupings of Pollock Catch as a Percent of Retained Catch by Processing Sector, 2001

	Pollock Catch as a Percent of Retained Catch							
Sector	**0%**	**< 5%**	**5% - 10%**	**10% - 15%**	**15% - 20%**	**20% - 30%**	**30% +**	**Total**
				Number of Vessel Reporting Weeks				
HT-CP	131	98	116	100	86	94	57	682
P-CP	61	2	0	1	0	0	0	64
L-CP	361	524	256	88	26	9	0	1,264
Total	**553**	**624**	**372**	**189**	**112**	**103**	**57**	**2,010**
				Metric Tons of Pollock Catch				
HT-CP	63	728	2,831	4,420	5,596	8,596	6,851	29,084
P-CP	3	4	0	50	0	0	0	57
L-CP	35	1,540	2,200	1,347	581	222	0	5,925
Total	**101**	**2,273**	**5,031**	**5,817**	**6,176**	**8,818**	**6,851**	**35,066**

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

Data compiled for this analysis by the NPFMC in July 2003 indicate that there were only 14 instances among 1,427 unique ADF&G groundfish fish tickets for non-AFA catcher vessels in 2001 in which BSAI pollock was between 10 and 20 percent of total landings. These fish tickets—less than 0.1 percent of all non-AFA catcher vessel fish tickets—reported a total of 50 mt of pollock landed. These data suggest that non-AFA catcher vessels are not constrained by the MRA for pollock.

2.2.2.1 Current Characteristics of the HT-CP Sector

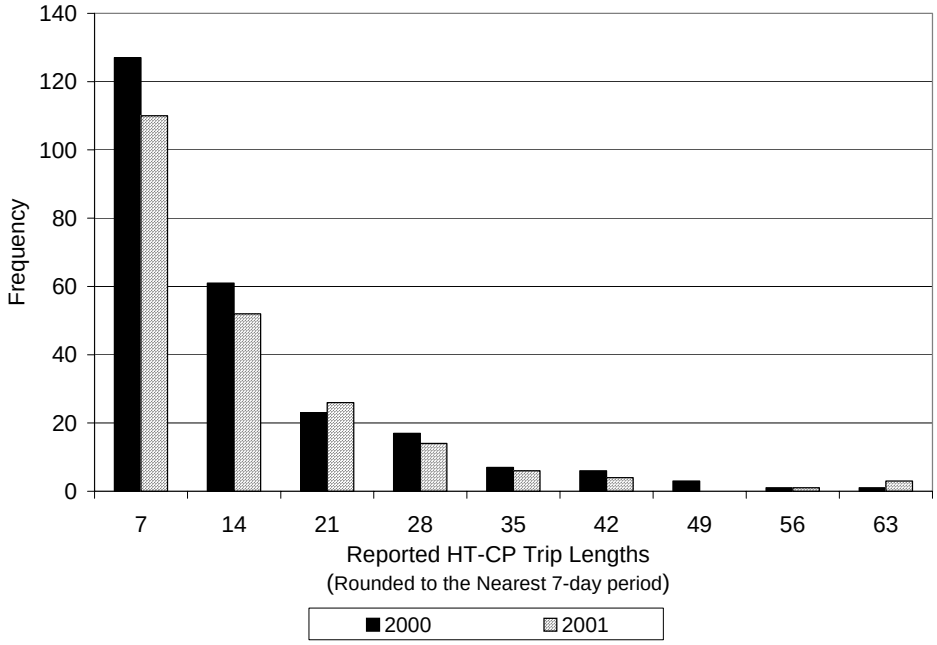
The above section indicated that only HT-CP vessels catch significant amounts of pollock incidentally in other groundfish fisheries. Therefore, of the participants in non-pollock target fisheries, only vessels in the HT-CP sector are likely to be affected by the proposed action.

The HT-CP fleet consists of a relatively wide variety of vessels that ranges from 103 feet to 295 feet in length. Approximately one-third of the 23 to 24 vessels in the fleet that have fished in the BSAI in recent years are less than 125 feet. Most of the vessels in the HT-CP class are limited to producing headed and gutted products. The majority of these vessels operate exclusively in the BSAI, but some of the smaller boats operate in the GOA, as well. Flatfish species—yellowfin sole and rock sole, in particular—are the primary targets of the HT-CP fleet. Atka mackerel and various rockfish species have also been very important to the class. Because this class pursues a wide range of species, vessels fish more days than other catcher processors and operate about 9 months per year. A fishing rotation might include Atka mackerel in January; rock sole in February; flathead sole, Pacific cod, and other flatfish in March and April; yellowfin sole in June; rockfish in July; and yellowfin sole and some Atka mackerel from August to December. Maintenance and shipyard work is generally conducted from late October through early January. [IAI, 1998].

Trip lengths for vessels in the HT-CP sector are not directly reported. However, all catcher processors are required to send an offload report to NOAA Fisheries if they make an at-sea transfer. Analysts developed trip length data in Figure 1 by combining weekly reports in the blend data with at-sea transfer reports made to NOAA Fisheries in 2000 and 2001.[2] Data used in the figure indicated that the average trip length for the sector in 2000 and 2001 was approximately 14 days.

[2]Offload reports provided by NOAA Fisheries were, in many instances, verified with vessel owners for accuracy.

Figure 1. Frequency of Offloads in the HT-CP Sector, 2000-2001



Source: NOAA Fisheries Offload Report [Passer, 2003], and NOAA Fisheries Blend Data.

Since the prohibition of roe stripping in 1991, these vessels have not targeted pollock because the price of headed and gutted pollock almost never covers the cost of producing this product, with the exception of the pollock roe season. Furthermore, all but one of the HT-CPS have been excluded from participating in directed fishing for pollock since implementation of the AFA in 1999. Moreover, the opportunity cost is high when scarce hold capacity is devoted to lower-valued products. Table 5 shows the number of HT-CP vessels, their reported harvest and the wholesale value of their product.

Table 5. Participation of HT-CPS in Non-Pollock Target Fisheries, 1995-2001

	1995	1996	1997	1998	1999	2000	2001
Number of Vessels	32	28	28	23	24	24	23
Metric Tons Reported (1,000)	303	327	354	271	268	294	265
Wholesale Product Values ($Millions)	174.8	197.6	161.3	121.7	138.5	151.5	196.6

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

Groundfish retention rates among HT-CP vessels have shown improvement. In the yellowfin sole fishery, the retention rate increased from 53 percent in 1995 to 73 percent in 2001. Other fisheries like the rock sole, flathead sole, Pacific cod and other flatfish fisheries had retention rates below 50 percent in 1995. With the exception of the other flatfish fishery, retention rates had climbed to above 65 percent by 2001. Retention rates in the Atka mackerel and rockfish fisheries also improved between 1995 and 2001. Retention in the Atka mackerel fishery drifted upward to a high of 86 percent in 2000, while the retention rate in the rockfish fishery increased from 80 percent in 1996 to 95 percent in 2000.

As shown in Table 6, pollock was the largest single component of total (economic and regulatory) discards by the HT-CP fleet in 2001. Under the IR/IU regulations for pollock, pollock (up to 20 percent of other retained groundfish species open for directed fishing) must be retained during a fishing trip. However, pollock catch amounts in excess of the 20 percent ceiling must be discarded according to the MRA. Therefore, all discarded pollock are presumed to be regulatory discards. Only one HT-CP vessel is allowed to participate in directed fishing for pollock under the AFA. HT-CPs must also discard incidental catches of various other groundfish species when directed fishing for those species is

prohibited—for example when a seasonal apportionment or TAC has been reached or if a PSC closure is in effect. During such closed periods, vessels may continue to operate in fisheries that remain open, but they can retain no more than the MRA's for closed species. In 2002, the HT-CP fleet discarded over 15,800 mt of pollock (regulatory), 20,000 mt of rock sole, yellowfin sole, flathead sole, and other flatfish (regulatory or economic) combined and over 800 mt of sablefish and Greenland turbot during periods for which directed fishing for those species was closed. In total, approximately 36,000 mt of the 81,000 mt (44 percent) of groundfish discarded by the HT-CP fleet in 2002 might be considered regulatory discards.

Table 6. Total Regulatory and Economic Discards in BSAI Fisheries by the HT-CP Sector

	1999	2000	2001	2002
	Discards (Thousands of mt) by Species			
Atka Mackerel	4.70	2.60	4.30	7.4
Arrowtooth Flounder	6.80	5.50	6.60	5.5
Flathead Sole	2.70	3.30	2.10	2.6
Other Flatfish	12.50	12.77	8.80	14.2
Other Groundfish	7.30	8.80	8.50	9.7
Pacific Cod	1.30	0.70	0.79	1.1
Pollock	14.95	14.60	14.46	15.9
Rockfish	6.80	5.50	7.59	5.1
Rock Sole	20.00	23.56	8.60	15.3
Yellowfin Sole	11.22	12.72	7.65	10.2
Turbot/Sablefish	0.40	0.28	0.49	0.3

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

2.2.2.1.1 Pollock Catches by the HT-CP Sector

As discussed in the previous section, pollock has been the highest single component of discards of the HT-CP fleet. Since 1999 and the implementation of AFA, the HT-CP fleet has generally been precluded from targeting pollock—the exception is the Ocean Peace which is AFA-qualified. Regulations to prevent vessels that are not AFA-qualified from targeting pollock require that pollock may not be retained in excess of 20 percent of all other retained catch. This section examines pollock catches in the HT-CP sector from 1998, the first year of IR/IU, through 2002. The section will show pollock catches and discards by quarter to examine whether there are periods of time when pollock catches are higher. The section will also look at the distribution of pollock catches among the HT-CP sector to examine the question of whether some vessels have higher catches of pollock than others, and it will also look at haul by haul observer data to determine whether there are tendencies among the fleet for "topping off". The following conclusions regarding pollock catches were found:

- Overall, it appears that pollock discards by the HT-CP sector increased significantly in 1999, the first year of AFA
- In some years, pollock catches by the HT-CP sector are highest in the first quarter and in other years are highest in the third quarter
- Discards of pollock have generally been highest in the first quarter
- Over half of the pollock is caught by 25 percent of the vessels in the HT-CP sector
- In 2000 and 2001 observer data, less than 5 percent of the observed hauls had over 50 percent pollock
- In 2000 and 2001 observer data, over 80 percent of the observed hauls had less than 20 percent pollock
- A regression of 2000 and 2001 observer data did not indicate significant "topping off" behavior

Table 7 shows pollock catches of the HT-CP fleet from 1998-2002 by quarter. Overall pollock catches have increased since 1998, but there has also been an overall increase in pollock abundance during that time period. There was speculation, *a priori*, that pollock catches would be higher in the first quarter because of high valued pollock roe. In 1999 and again in 2001 pollock catches were highest in the first quarter, but in the other 3 years pollock catches were highest in the third quarter.

Table 8 shows the percentage of pollock that was discarded by the HT-CP sector from 1998-2002. Although only one year of data are available, discards under IR/IU before AFA were lower that discards have been after AFA—in 1998 just over 30 percent of the pollock was discarded while every year since 1999 has seen discards of pollock greater than 45 percent. Discards are generally highest in the first quarter, but the difference within the first three quarters does not appear to large.

Table 7. Total Pollock Catch of HT-CP Vessels by Quarter and Year, 1998-2002

Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Sector Total
			Pollock Catch (mt)		
1998	7,395	2,680	11,025	3,007	24,107
1999	12,288	7,456	7,733	1,528	29,005
2000	9,244	6,579	11,214	4,478	31,515
2001	9,403	3,752	11,671	6,807	31,633
2002	14,383	6,630	8,781	3,736	33,529
			Percent of Total Pollock Catch		
1998	30.7	11.1	45.7	12.5	100.0
1999	42.4	25.7	26.7	5.3	100.0
2000	29.3	20.9	35.6	14.2	100.0
2001	29.7	11.9	36.9	21.5	100.0
2002	42.9	19.8	26.2	11.1	100.0

Source: Blend data supplied by NOAA Fisheries-AFSC

Table 8. Percent of Pollock Discarded by of HT-CP Vessels by Quarter and Year, 1998-2002

Year	First Quarter	Second Quarter	Third Quarter	Fourth	Sector Total
			Percent of Pollock Discarded		
1998	42.7	18.0	29.2	17.4	30.6
1999	62.7	50.1	39.5	29.9	51.6
2000	43.6	42.1	59.9	24.2	46.3
2001	51.8	34.7	51.0	34.1	45.7
2002	58.8	51.9	26.0	45.3	47.3

Source: Blend data supplied by NOAA Fisheries-AFSC

Table 9 shows the distribution of pollock catches within the HT-CP sector by quartile—each quartile consists of 25 percent of the fleet with Quartile 1 containing vessels with the lowest pollock catch and Quartile 4 containing the vessels with the highest pollock catch. In most years, the 25 percent of the fleet with the lowest catch of pollock (Quartile 1) accounts for less than 10 percent of the pollock, while Quartile 4 accounts for nearly 50 percent of the pollock.

Table 10 shows pollock discards as a percent of pollock catches by quartile. Quartile 4 has discarded over 50 percent of their pollock since 1999, while Quartile 1 has averaged less than 40 percent.

Table 9. Pollock Catch by Year and Quartile of HT-CP Vessels, 1998-2002

	Quartile of HT-CP Vessels with Pollock Catch *				Sector Total
	Quartile 1	Quartile 2	Quartile 3	Quartile 4	
Year	Pollock Catch (mt)				
1998	752	2,826	7,208	13,322	24,107
1999	858	3,725	7,331	17,091	29,005
2000	1,721	4,543	8,939	16,312	31,515
2001	2,544	5,717	8,743	14,629	31,633
2002	3,116	5,674	9,405	15,333	33,529

Source: Blend data supplied by NOAA Fisheries-AFSC.

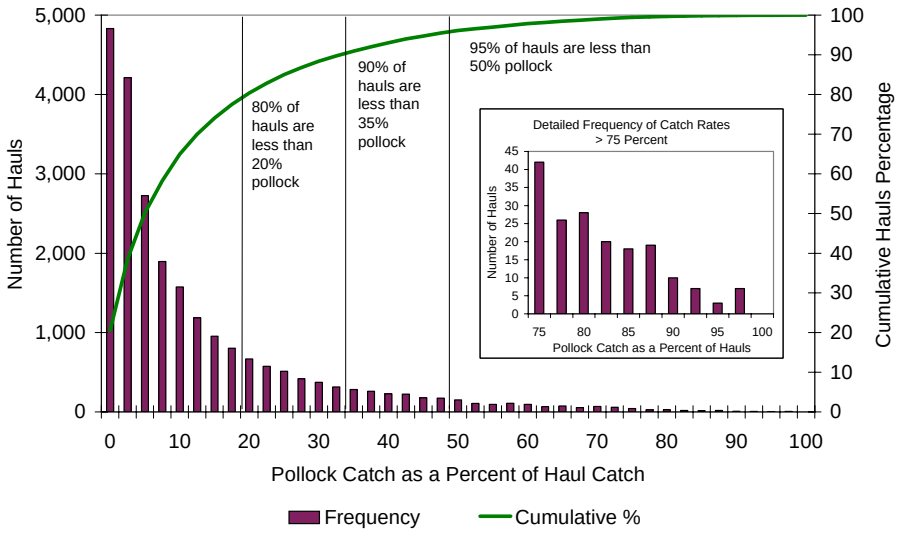
Table 10. Percent of Pollock Discarded by Year and Quartile of HT-CP Vessels, 1998-2002

	Quartile of HT-CP Vessels with Pollock Catch *				Sector Total
	Quartile 1	Quartile 2	Quartile 3	Quartile 4	
Year	Percent of Quartile's Pollock Catch Discarded				
1998	14.1	29.2	26.2	36.6	30.6
1999	29.6	39.8	54.7	53.9	51.6
2000	27.6	43.3	43.7	50.6	46.3
2001	39.3	45.9	39.5	50.4	45.7
2002	40.3	42.3	45.5	51.8	47.3

Note: Vessels are placed into quartiles according to amount of pollock catch in each year.
Source: Blend data supplied by NOAA Fisheries-AFSC

Observer data from was used to examine haul by haul catches of pollock by the HT-CP sector from 2000-2001—a total of 11,834 haul were examined. Figure 2 shows the distribution of hauls in terms of pollock catch as a percentage of total catch. In the figure the bars represent the number of hauls (left vertical axis) with a corresponding pollock percentage (horizontal axis). The line shows the cumulative percent of hauls and uses the right vertical axis. In over 80 percent of the hauls pollock accounted for less than 20 percent of total catch, while less than 5 percent of the hauls had pollock catches greater than 50 percent of the total catch weight.

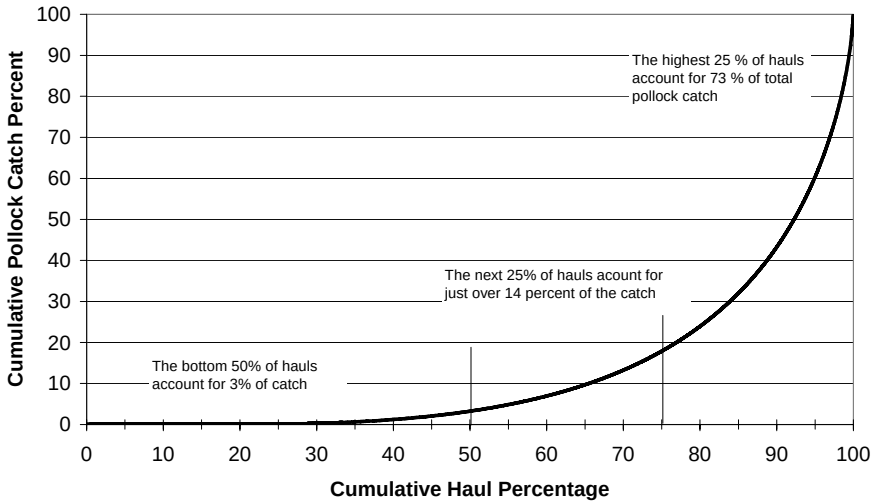
Figure 2. Distribution of Pollock Incidental Catch Rates, 2002



Source: NMFS Observer Data 2000-2001, provided by NMFS-AFSC.

Figure 3 shows cumulative pollock catches from observer data (sorted from lowest pollock catch to highest). As seen in the figure, 50 percent of the haul with the lowest amount of pollock accounted for approximately 3 percent of all of the pollock observed, while 25 percent of the hauls accounted for 73 percent of observed pollock.

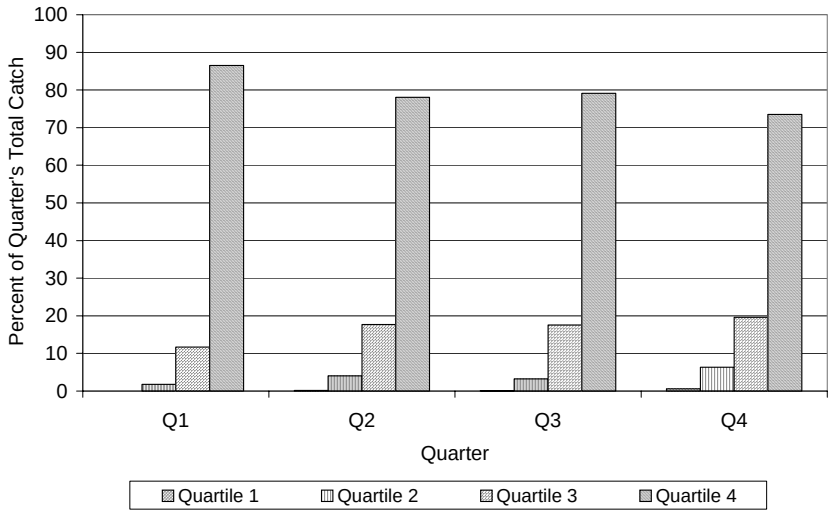
Figure 3. Pollock Catch by Cumulative Number of Hauls, 2002



Source: NMFS Observer Data 2000-2001, provided by NMFS-AFSC.

Figure 4 shows the distribution of pollock catches by quartile and quarter. Quartiles were created by placing each observed haul into one of four bins based on the hauls ranking in terms of pollock as a percent of total catch. The lowest 25 percent of hauls go into Quartile 1, the 25 percent of hauls with the highest percentages of pollock are in Quartile 4. The figure shows that the vast majority of pollock are caught in 25 percent of the hauls. During the course of the year the highest quartile's catch of pollock drops from over 85 percent in the first quarter to less than 75 percent in the fourth quarter.

Figure 4. Pollock Distribution Across Haul Quartile by Calendar Quarter, 2000-2001



Source: NMFS Observer Data 2000-2001, provided by NMFS-AFSC.

The data in Figures 2-4 suggest the possibility of off "topping off" behavior, but do not confirm that topping off actually occurred. Topping off is indicated if hauls at the end of a trip contain higher percentages of pollock than hauls during the remainder of the trip. To test for topping off, hauls were marked if they were the last observed hauls during a trip and a regression analysis was run. The last haul was not a significant predictor of pollock percentages. In fact the regression analysis indicated that the later the haul was in the trip the lower the percentage of pollock in the catch. The only significant predictor of pollock percentages was found when hauls were divided into bins indicating the part of the trip in which they occurred—with 10 bins per trips. In this case, the first parts of the trip had a significantly higher catch of pollock than the later parts of the trip.[3]

[3]In statistical terms the model regressing the "decile" variable and an intercept against pollock percentage was not a good model—the regression model's R^2 statistic was only 0.0015. However, in this model, "decile" had a coefficient of -4.30 with an alpha less than 0.001.

2.2.2.2 Current Ownership and Management Patterns in the HT-CP Sector

In recent years, 22-26 vessels have been considered part of the HT-CP sector. According to the industry associations, Groundfish Forum and At-Sea Processors Association, ownership or management of the fleet is concentrated in 11 companies, as shown in Table 11.

Table 11. Ownership/Management of the HT-CP Sector, 2003

Owner/Manager	Vessel Name	Groundfish Forum Status
Arctic Sole Seafoods Seattle, WA	*F/T Alaskan Rose (Tremont)*	Member
Cascade Fishing, Inc. Seattle, WA	*F/T Seafisher*	Member
Fishing Company of Alaska Seattle, WA	*F/V Alaska Juris*	non-Member
	F/V Alaska Voyager (not active since 1998)	non-Member
	F/V Alaska Victory	non-Member
	F/V Alaska Warrior	non-Member
	F/V Alaska Ranger	non-Member
	F/V Alaska Spirit	non-Member
Fishermen's Finest Seattle, WA	*F/V American #1*	non-Member
	F/V US Intrepid	non-Member
F.J. O'Hara & Sons Seattle, WA	*F/T Defender*	Member
	F/T Enterprise	Member
Golden Fleece, Inc. South Bend, WA	*F/V Golden Fleece*	Member
Iquique U.S., L.L.C. Seattle, WA	*F/T Arica*	Member
	F/T Cape Horn	Member
	F/T Rebecca Irene	Member
	F/T Unimak Enterprise	Member
Jubilee Fisheries Seattle, WA	*F/T Vaerdal*	Member
Kodiak Fish Company Bellingham, WA	*F/T Alliance*	Member
	F/T Legacy	Member
Trident Seafoods Seattle, WA	*F/T Bering Enterprise* (not active since 1997)	non-Member
	F/T Harvester Enterprise (not active since 1997)	non-Member
U.S. Seafoods Seattle, WA	*F/T Ocean Peace*	Member
	F/T Seafreeze Alaska	Member
	F/T Ocean Alaska (Beagle) (not active since 2000	Member

Source: Groundfish Forum and At-Sea Processors Association, 2003

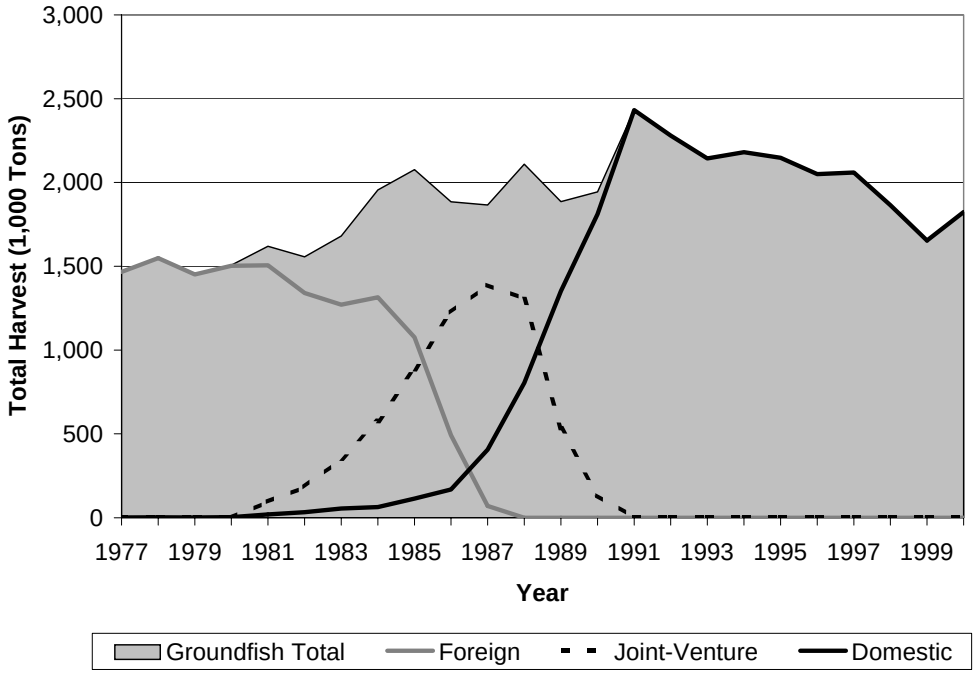
2.2.2.3 A Brief History of the HT-CP Sector

This section contains a brief history of the HT-CP sector and provides the reader with a better understanding of some of the historical factors that have contributed to the HT-CP sector's current status. The section begins in 1976 with the establishment of the EEZ and the Americanization of the fisheries off Alaska. It discusses the beginnings of the HT-CP sector and document the important regulatory actions over the last 25 years that shaped their current status.

Perhaps the most significant event for all U.S. fisheries was the establishment of the EEZ, and the Council management system in 1976. In Alaska, the North Pacific Fishery Management Council was

well established by 1978, and in that year approved an allocation system for groundfish that gave preferential allocation first to U.S. domestic processors (DAP), second to foreign processors utilizing U.S. fishing vessels (JVP) and lastly to fish harvested by foreign fishing vessels (TALFF) [NPFMC, 1996]. In 1980, the U.S. Congress passed the American Fisheries Promotion Act which included the "fish and chips policy" formalizing the "Americanization" of the fisheries in the U.S. EEZ. As part of the Americanization effort, loan program and other subsidies were established to encourage the development of U.S. flagged fishing and processing vessels. As seen in Figure 5, the Americanization of the Alaska fisheries went from almost total foreign participation, to a period of growth and dominance of JVP operations to a similar surge in DAP. The last foreign fishery in the EEZ off Alaska took place in 1989, and the last JVP fishery there took place in 1990.

Figure 5. Americanization of the Alaska Groundfish Fishery, 1977-1999



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

Because the DAP in the North Pacific was largely under-utilized in the early years, the fishery resource was taken on a first-come first-serve basis. Whoever wished to participate could fish until the quota was taken. This allocation system evolved into a race-for-fish allocation system (i.e., whoever had the biggest and fastest vessel got most of the fish). While the negative consequences of the race-for-fish have been substantially documented, it continues to be the principal means of allocation for vessels in the HT-CP sector.

Coinciding with policy of Americanization of U.S. fisheries, the Western Alaska king crab fisheries experienced huge growth in catch and the number of vessels. The crab fisheries peaked in 1980 and subsequently collapsed the following year. The number of vessels in the Bristol Bay red king crab fishery increased from 51 in 1970 to 102 in 1975 and to 236 in 1979 and 1980 [ADF&G 1999]. Many of these vessels were converted to fishing vessels from vessels used to transport pipe and oil well supplies to the booming north-slope oil fields. In 1981, the crab fisheries collapsed throughout Western Alaska, leaving these newly converted crab vessels with little to do. The growing groundfish fishery with its open access and race-for-fish allocation 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 catcher processors.

The first U.S.-flagged trawl catcher-processors were head and gut factory trawlers, and entered the fishery in 1980. [Paul MacGregor 2003, Mary Furuness 2003] 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 factory trawler was the introduction in 1983 and rapid acceptance of high-speed at-sea filleting machinery, such as the Baader 182 and other similar machinery by Toyo [Wulff 2003]. These machines made at-sea processing of pollock into fillets and subsequent precessing into surimi financially feasible (Wulff 2003). Vessels that were large-enough and met Coast Guard stability and loadline requirements to install this machinery, were able to tap into the huge pollock resource in the Bering Sea. Other trawl catcher-processors, typically smaller vessels without loadline certifications, were limited to head and gut processing.

The 1987 Anti-reflagging Act also contributed to the growth of the U.S. flagged trawl catcher-processor fleet [MacGregor 2003]. 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 [IAI 1994].

The coincidental timing of the introduction of the Baader and the conversions provisions in the Anti-reflagging act led to a dramatic increase in the number of trawl catcher-processors operating in the Alaskan EEZ. In 1986 NMFS reported 12 active trawl catcher-processors however that number doubled in 1987 [IAI, 1994] and by 1990 there were a total of 72 trawl catcher-processors [NPFMC 1995]. Although the exact number of head and gut trawl catcher-processors was not explicitly tracked at the time, estimates developed in 1995 for the groundfish and crab licence limitation program [NPFMC, 1995] indicated that there were a total of 23 HT-CPs 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 HT-CPs, 17 of which had reported only using trawl gear.

During the same period of maturation (in mid-late 1980's), 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 prohibited species catch policy for domestic fisheries and defined prohibited species to include crab, halibut, herring, and salmon [NPFMC 1996]. In 1986, the Council prohibited the directed fishing for sablefish in the GOA with trawl gear (GOA Amendment 14) [Kandianis 2003]. In 1987, (in BSAI Amendments 11-12) the Council established bycatch limitation zones for prohibited species, and established limits on the amounts of PSC that could be taken. The most far-reaching of these actions was the halibut PSC limit which, when met, closes fisheries from additional activity for the season. Other PSC limits were not as onerous, triggering area closures rather than closing entire fisheries.

By 1989, pollock roe stripping became a major issue, when trawl catcher-processors moved down from the BSAI to the GOA in the spring of 1989 and harvested nearly 53 percent of the domestic apportionment of GOA pollock in a matter of weeks [NPFMC 1991]. The pollock fishery in the GOA was closed much earlier then had been expected and shore-side processors and harvesters, based primarily in Kodiak, cried foul. Roe stripping is the practice of targeting roe bearing pollock before and during the spawning season and extracting the extremely valuable skeins of roe while discarding the remaining carcasses, non-roe bearing females, and all males. By this time, pollock roe production had become a key component of the entire HT-CP sector. For the HT-CP vessels, processing pollock roe was the only profitable way to utilize pollock—headed and gutted pollock without roe was virtually unmarketable. In 1990, the Council approved a ban on roe stripping, which had the effect of eliminating pollock as an economically viable target species for the HT-CP sector.

In 1990, the battle over roe stripping devolved into an allocation issue between inshore and offshore pollock processors. However, once the roe stripping regulations were approved, the HT-CP fleet was somewhat relegated to the background. Inshore-offshore allocations of pollock in the BSAI were approved by the Council in 1992. In the GOA, the Council added Pacific cod to the allocation and reserved 100 percent of the pollock and 80 percent of the Pacific cod to inshore operations. In doing so the Council defined inshore to include most small (<125 feet) catcher processors as part of the inshore sector 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 HT-CPs.

During the early and mid 1990's, the Council process was primarily focused on allocation and rationalization issues. While these issues indirectly affected HT-CPs, other sectors were affected in much more significant ways. However, a last minute add-on to the License Limitation Program in 1995 closed the Eastern Gulf (EG) to trawling. While trawl catches in the EG were not large compared to non-trawl catches in the EG or to trawl catches in other areas, the HT-CP fleet was the primary participant–trawling for high value rockfish species. The closure further limited the opportunities for the HT-CP sector.

In the early 1990's, there was a marked increase in public awareness and distaste with the problems of incidental catch, prohibited species catch, and discards of both target and incidental catch species. In response to the growing perception of unnecessary waste in the fisheries, the Council in 1994, initiated analyses of measures 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. A similar program was approved for the GOA in 1997. 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 CPS, which over time installed fish-meal plants and otherwise changed their fishing and processing methods to catch fewer unusable fish and to more fully utilize those fish harvested. For the HT-CPS, which are generally too small to be outfitted with fish-meal plants, the IR/IU regulations were more difficult to meet. However, one outcome of the measure has been the development of a more consistent market for headed and gutted pollock in Asia—these fish are partially thawed and further processed in Asian plants before entering global consumer markets.

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

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

This level of cooperation can be considered quite remarkable given that vessels in HT-CP sector operate in an intensely competitive environment in which the actions of one vessel or one company can have

significant negative effects on all of the other vessels and companies in the sector. Because of this highly competitive environment, operators are forced to fish as hard and fast as possible before another company's activities or the activities of the fleet as a whole force a fishery closure.

The primary factor contributing to this environment is the common property nature of the fishery resource itself. At the beginning of the year, NOAA Fisheries set the TACs for each groundfish species as well as limits for prohibited species (PSC limits). When the season begins on January 20 each vessel must race to catch as much fish as possible before the season ends when the TAC or a PSC limit is reached. If an individual vessel or company slows its activity to avoid catches of unwanted fish or areas of high concentrations of PSCs, they will very likely suffer a loss of revenue, particularly if other vessels or companies do not fish conservatively.

While the race-for-fish problem is endemic throughout the North Pacific, for the HT-CPS sector it is only one of many factors that contribute to aggressive fishing practices. Other contributing factors are listed below:

- The diversity of products produced by the HT-CP sector is relatively large and the number of wholesale buyers in the market is quite limited.
- The demand for many of these products is relatively small, and prices are very sensitive to fluctuations in quantity. [NPFMC, 2001]
- Most companies have semi-exclusive agreements with purchasers
- There are relatively few fishing vessels participating in the sector (22 in 2002, 23 expected in 2003) and even fewer companies—a total of 10 companies owning or operating the 23 vessels, 16 of which are concentrated in 4 companies.
- The larger companies all have the ability to influence markets and affect season closures.

Other sectors have also been plagued by the common property nature of the fisheries in the North Pacific. This was particularly true of the pollock industry. However the pollock fishery was rationalized with the approval of the American Fisheries Act in 1998 by Congress. The AFA created exclusive pollock allocations to AFA eligible vessels and allowed the formation of cooperatives in both offshore and inshore sectors. Non-AFA vessels that took pollock as incidental catch were prohibited from targeting pollock, and now operate year-round under MRAs for pollock—at no point during the fishing trip may retained pollock exceed 20 percent of other retained groundfish.

As a result of AFA, the pollock industry has seen marked improvements in profitability, as well as improvements in retention and reductions in incidental catches since 1999 [NPFMC, 2001]. Improvement in retention and reductions in incidental catches have occurred because with the elimination of the race-for-fish, participants are able to slow their operations, and are not averse to moving to new areas if fishing yields too many non-target fish or too many small or unuseable pollock. Also as a result of AFA, combined with IR/IU regulations, the HT-CPS find themselves in a continual struggle to comply with the conflicting pollock regulations—they must keep all pollock they catch because of IR/IU, unless at any point in time their pollock catch exceeds 20 percent of total retained non-pollock groundfish, at which point they must discard pollock, as long as they don't discard so much as to fall below the 20 percent standard.

Writers of the AFA anticipated that rationalizing the pollock industry could have spillover effects on other sectors, including the HT-CP sector. Therefore, the AFA mandated harvest sideboards limit catches on non-pollock groundfish by AFA vessels to historical levels. The AFA also called for measures to protect other processors from spillover effects, and suggested that processing limits (sideboards) on non-pollock species be applied to AFA processors. In 1999, the NPFMC initiated the analysis of processing sideboards. Of particular relevance was the concern of the HT-CP 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-CPS.

By 2002, the AFA processing sideboard issue evolved to an assessment of potential alternatives to IR/IU for flatfish—the HT-CP sector was reasonably satisfied that restrictions on harvest of AFA-CPS would keep them out of the head and gut fisheries, but they also realized that IR/IU could significantly harm their own sector. Based on the experience of the AFA-CPS, the HT-CP sector has also come to the general conclusion that their best hope of reducing discards and incidental catches is in the elimination of the race-for-fish. To that end the sector has tried to negotiate a cooperative within the existing fishery regulations, albeit unsuccessfully. For a cooperative to be successful under existing regulations every participant in the sector must be a part of the co-op. At the time of this writing, the HT-CP sector has been unable to gain 100 percent agreement.

Because they have been unable to form an un-regulated cooperative, the HT-CP sector has asked the Council to help, by approving measures that would make it possible for cooperatives to form with less than 100 percent of the sector. This is the type of program envisioned in Amendment 80, which is considered an action that may likely occur.

In summary, the HT-CPS were among the first U.S. flagged fishing vessels to enter the groundfish fisheries of the North Pacific. Because of their relatively small size, HT-CPS have been unable to upgrade their processing lines beyond heading and gutting, and in general are restricted from installing meal plants. Because of their limited processing abilities, early HT-CPS focused on high-value groundfish such as sablefish and rockfish in the GOA and Aleutian Islands. They also participated in the higher volume flatfish and Pacific cod fisheries in the BSAI but were unable to find a consistent market for headed and gutted pollock unless it was at the peak of the roe season. Beginning with Amendment 14 in the GOA in 1986, which prohibited directed fishing with trawls for sablefish, followed by the roe stripping ban in 1991, inshore-offshore in 1992, and the LLP in 1995, the HT-CP sector has been pushed out of some of their more profitable fisheries into the lower value flatfish fisheries, which because the targets are hard on the bottom of the ocean, are prone to high incidental catches of prohibited species such as halibut and crab. In addition, flatfish fisheries have quite limited markets—particularly with regards to size and quality of the product. These limited markets, combined with MRAs and the common-property induced race-for-fish, create the conditions that led to what many perceive as unacceptable levels of economic and regulatory discards.

2.2.3 Participants in the Directed Pollock Fishery

The proposed action could have an indirect effect on participants in the directed fishery for BSAI pollock. However, the indirect effect would occur only if the ICA for pollock were to increase as a result of the change in the enforcement interval.

With implementation of the AFA, the ability to participate in the pollock fishery of any BSAI licenced vessel was effectively eliminated. The vessels and processors allowed to participate in the fishery were fixed under AFA, and each was granted access to a percentage of the pollock TAC through a system of cooperatives. The AFA-eligible CPS, CVS, shore-based processors and motherships are described below.

Catcher Processors

Two classes of CPS are AFA-eligible including surimi trawl CPS (ST-CPS) and fillet trawl CPS (FT-CPS). ST-CPS focus almost exclusively on pollock, although some have produced surimi from yellowfin sole.[4] In 2001, pollock accounted for nearly all of the total tons of groundfish harvested and wholesale production value of these vessels. Similarly, pollock accounted for 95 percent of the total tons of groundfish harvested by FT-CP vessels in 2001. The number of ST-CP and FT-CP vessels, their reported tonnage and the wholesale value of their product in the pollock fishery and all groundfish fisheries are presented in Table 12.

Table 12. Participation of Surimi-Fillet Trawl Catcher Processors, 1995-2001

	1995	1996	1997	1998	1999	2000	2001
				Number of Vessels			
Pollock	33	32	29	28	16	14	15
All Groundfish Fisheries	33	32	29	28	16	15	15
				Metric Tons Reported (1,000)			
Pollock	748	659	612	607	416	491	612
All Groundfish Fisheries	856	761	719	670	445	507	619
				Wholesale Product Value ($Millions)			
Pollock	435.4	348.6	343.2	312.2	334.5	395.2	407.1
All Groundfish Fisheries	474.5	377.4	377.8	333.3	346.4	402.0	410.3

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

Catcher Vessels

The vessels the two trawl catcher vessel classes, Bering Sea pollock trawl CVS greater than or equal to 125 ft. in length (TCV BSP ≥ 125 ft.) and Bering Sea pollock trawl CVS 60 to 125 ft. in length (TCV BSP 60-124 ft.), are all eligible to harvest the directed fishing allowance under the AFA and focus almost exclusively on Bering Sea pollock.[5] The two classes differ in that the larger vessels can carry significantly more fish in their holds and are able to fish much farther from shore and port of delivery. Both classes of vessels focus their fishing effort in the BSAI pollock fishery, but some of the TCV BSP 60-124 ft. vessels also participate in the summer Pacific whiting fishery off the coasts of Oregon and Washington. A third class of trawl catcher vessels that are AFA-eligible, diversified AFA-eligible trawl catcher vessels (TCV Div. AFA), generate less total revenue in the BSAI pollock fisheries than they do in other trawl fisheries, such as those occurring in the GOA. This class generally consists of vessels between 60 and 124 feet in length overall (LOA), but in some years included one or two vessels longer than 124 feet. Vessels in the TCV Div. AFA class have significant participation in the GOA pollock fisheries and the Pacific cod fisheries in both the BSAI and GOA. Some vessels in the class also participate in the Pacific whiting fishery off the coasts of Oregon and Washington. In recent years, GOA fisheries were more important for this class than BSAI fisheries in terms of ex-vessel value of groundfish retained. The number of AFA-eligible catcher vessels, their retained harvest tonnage and the ex-vessel value of their catch in the pollock fishery and groundfish fisheries are presented in Table 13.

[4]Some ST-CPS and FT-CPS participate in the whiting fishery off coast of the Pacific Northwest. The tables and figures in this document report only Alaska groundfish.

[5]Some of these CVS also participate in the Pacific Northwest whiting fishing. The tables and figures shown in this document reflect only Alaska groundfish catches.

Table 13. Participation of AFA-Eligible Catcher Vessels, 1995-2001

	1995	1996	1997	1998	1999	2000	2001
				Number of Vessels			
Pollock	111	110	116	111	109	105	100
All Groundfish Fisheries	111	110	116	111	109	105	100
				Metric Tons Retained (1,000)			
Pollock	647	609	703	607	596	650	743
All Groundfish Fisheries	728	688	810	667	650	673	793
				Ex-Vessel Value ($Millions)			
Pollock	130.7	103.8	167.9	84.6	121.1	159.4	181.9
All Groundfish Fisheries	156.4	129.2	202.4	103.4	146.9	187.5	195.1

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

Shore-based Processors and Motherships

AFA-eligible shore-based plants include all six Bering Sea pollock shore plants (BSP-SPs) and two Alaska Peninsula and Aleutian Islands shore plants (APAI-SPs). The BSP-SP class includes the major onshore plants at Unalaska/Dutch Harbor and Akutan, and the two large floating pollock processors anchored near shore in Beaver Inlet of Unalaska Island or, more recently, in Akutan. These plants are the primary markets for groundfish catcher vessels operating in the BSAI, particularly those harvesting pollock. Pollock is the most important species processed at these plants in terms of both volume and value. Historically, BSP-SPs have worked closely with larger trawl catcher vessels, especially vessels in the two TCV BSP classes. On average, vessels in these two classes accounted for roughly 86 percent of the ex-vessel value of groundfish purchases made by BSP-SPs from 1992 through 2000.

The APAI-SPs in King Cove and Sand Point are AFA-eligible and process pollock. In addition to pollock in the BSAI, these plant process most of the groundfish harvested by CVS in the Western Gulf, including pollock, Pacific cod, sablefish, and rockfish. The APAI-SPs also process the vast majority of salmon harvested in State Management Area M.

Motherships do not catch fish, but act as mobile processors. Catcher vessels offload their catch to a mothership for processing, and the mothership, in turn, offloads finished product to trampers (cargo vessels) for transport to foreign or domestic markets. In 2001, there were three motherships participating in the groundfish fisheries . Motherships participating in the groundfish fisheries rely almost exclusively on vessels in the TCV BSP 60-124 ft. class for their supplies of fish.

The number of AFA-eligible shore-based processing facilities and motherships, their reported tonnage and the wholesale value of their product in the pollock fishery and groundfish fisheries are presented in Table 14.

Table 14. Participation of AFA-Eligible Shore-Based Processors and Motherships, 1995-2001

	1995	1996	1997	1998	1999	2000	2001
				Number of Facilities/Vessels			
Pollock	12	11	11	11	11	11	11
All Groundfish Fisheries	10	9	9	9	9	9	9
				Metric Tons Reported (1,000)			
Pollock	526	517	496	496	531	609	738
All Groundfish Fisheries	615	602	591	546	5,789	660	765
				Wholesale Product Value ($Millions)			
Pollock	351.6	294.6	293.1	257.3	321.4	414.5	
All Groundfish Fisheries	414.9	353.0	355.5	297.9	373.1	471.8	492.0

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

2.2.4 Participant's Communities of Residence

The registered owners of HT-CP vessels all list addresses in the Washington Inland Waters Region (WAIW). Similarly, all ST-CP and FT-CP vessels are owned by WAIW entities, although Western Alaska CDQ companies own significant portions of several ST-CP and FT-CP companies.

From 1992 to 2000, residents of WAIW owned more than 88 percent of the vessels in the TCV BSP ≥ 125 class. In 2001, Washington residents owned all vessels in this class except one. The one exception was owned by a resident of the Other Regions category. In 2001, vessel owners from WAIW accounted for about two-thirds of the vessels in the TCV BSP 60-124 class, and Oregon residents owned about 22 percent of the fleet. In recent years, a few vessels have been owned by residents of Kodiak. A fairly stable ownership pattern by Alaska residents is evident for vessels in this class. In 2001, vessel owners from Washington accounted for 45 percent of the vessels in the TCV Div. AFA class, while residents of Oregon accounted for 20 percent of the vessels. The percentage of vessels owned by Kodiak residents has declined over the years, but residents of this region still accounted for one-fifth of the fleet in 2001.

The registered addresses of the owners of all six BSP-SP facilities are in WAIW. A review of the ownership of these facilities was conducted in a previous analysis that examined processing limits for AFA-eligible entities (Northern Economics, Inc. 2000). The study indicated that Japanese companies have ownership shares of at least 50 percent in three of the BSP-SPs. The study also indicated that two of the other facilities are owned by a single U.S. corporation.

The two APAI-SPs that could potentially be affected are located in Sand Point and King Cove. Both plants have AFA cooperatives for BSAI pollock. Registered addresses of the owners of these two plants are in the WAIW, although one of the facilities is owned by a Japanese firm.

All motherships participating in the BSAI groundfish fisheries are owned by companies registered in Washington, but both companies have Japanese ownership.

2.2.5 Ports of Landing

At-sea processors such as HT-CPS, ST-CPS, and FT-CPS offload most of their product onto freight ships that transport the processed fish directly to markets. The majority of these offloads take place in inland waters. The State of Alaska taxes these landings and shares 50 percent of the revenue with the communities and boroughs in which the offloads take place. The City of Unalaska receives the majority of these shared taxes.

Nearly all of the groundfish harvested by the TCV BSP ≥ 125 class was delivered to Bering Sea pollock shore plants. During the 1992–2001 period, there were six BSP-SPs—three at Dutch Harbor, one at Akutan, and two floating inshore processors near Unalaska Island or in Akutan Bay. In 2000, about 56 percent of the ex-vessel value of the TCV BSP 60-124 class was generated from deliveries to BSP-SPs, while motherships accounted for 40 percent of the class' groundfish revenues. In 2000, roughly 46 percent of the ex-vessel value of the TCV Div. AFA class was generated from deliveries to Kodiak shore plants, while 36 percent of the ex-vessel value was from Bering Sea processing facilities.

3.0 Environmental Impacts of the Alternatives

3.1 Natural and Physical Environment

3.1.1 Effects on Groundfish Stocks in the BSAI

The preferred alternative is not expected to adversely affect groundfish stocks relative to the status quo. The alternatives would not change the species TACs or the gear type and general location of the fisheries in which groundfish are caught. The alternative would change the enforcement interval of the pollock MRA to a offload-to-offload basis, thus allowing non-AFA vessels that have otherwise been forced to discard pollock, the option to retain additional pollock as long as they are under the MRA for pollock at the end of the trip. The resulting effect of the alternative would be a decrease in the amount of pollock discards by non-AFA vessels, and thus, not impact groundfish stocks in the BSAI.

3.1.2 Effects on Prohibited Species

The preferred alternative is not expected to affect the health of stocks of prohibited species relative to the status quo. The alternative would not change the species TAC, incidental catch allowance, or the gear type and general location of the fisheries in which groundfish are caught. The alternative would change the enforcement of the pollock MRA to a offload-to-offload interval, thus allowing non-AFA vessels that have otherwise been forced to discard pollock, the option to retain additional pollock as long as they are under the MRA for pollock at the end of the trip. The resulting effect of the alternative would be a decrease in the amount of pollock discards by non-AFA vessels, and as a result, would not impact prohibited species.

3.1.3 Effects on Forage Fish Species

The preferred alternative is not expected to have any adverse effects on forage fish species relative to status quo. The alternative would not change the species TAC, incidental catch allowance, or the gear type and general location of the fisheries in which groundfish are caught. The alternative would change the enforcement interval of the pollock MRA to a offload-to-offload basis, thus allowing non-AFA vessels that have otherwise been forced to discard pollock, the option to retain additional pollock as long as they are under the MRA for pollock at the end of the trip. The resulting effect would be a decrease in the amount of pollock discards by non-AFA vessels and would not impact forage fish species.

3.1.4 Effects on Marine Benthic Habitat and Essential Fish Habitat

The alternatives are not expected to adversely affect marine benthic habitat or EFH in any manner or to any extent not already addressed in previous NEPA analyses. The alternatives would not change the species TACs or the gear type and general location of the fisheries in which groundfish are caught. The alternative would change the enforcement of the pollock MRA to a offload-to-offload interval, thus allowing non-AFA vessels that have otherwise been forced to discard pollock, the option to retain additional pollock as long as they are under the MRA for pollock at the end of the trip. The resulting effect of the alternative would be a decrease in the amount of pollock discards by non-AFA vessels and would not impact the marine benthic habitat and essential fish habitat.

3.1.5 Ecosystem Considerations

The preferred alternative is not expected to have a significant effect relative to status quo. High rates of discards can have potential ecosystem effects. The discards could affect scavenger and predator populations by increasing the available food supply. In addition, discards will contribute to the total energy flow and, though they may be small when compared to the total flow, their effect is cumulative with other forms of energy flow such as offal production from processing and naturally occurring detritus. However, the level of groundfish discards relative to natural sources of detritus and the absence of evidence that would relate changes in scavenger populations to discard trends suggest that groundfish discards have insignificant ecosystem impacts through energy removal and redirection.

3.1.6 Effects on Marine Mammals

The preferred alternative is not expected to adversely affect marine mammals relative to status quo. The alternatives would not change the species TACs or the gear type and general location of the fisheries in which groundfish are caught. The alternative would change the enforcement interval of the pollock MRA to a offload-to-offload basis, thus allowing non-AFA vessels that have otherwise been forced to discard pollock, the option to retain additional pollock as long as they are under the MRA for pollock at the end of the trip. The resulting effect of the alternative would be a decrease in the amount of pollock discards by non-AFA vessels and would not impact marine mammals.

3.1.7 Effects on Endangered or Threatened Species

The preferred alternative is not expected to adversely affect endangered or threatened species in any manner or to any extent not already addressed in previous consultations conducted under Section 7 of the ESA. The alternatives considered would not change the TACs for groundfish, the gear types used in fisheries in which groundfish are discarded or the spatial or temporal distribution of these fisheries. The alternative would change the enforcement of the pollock MRA to a offload-to-offload interval, thus allowing non-AFA vessels that have otherwise been forced to discard pollock, the option to retain additional pollock as long as they are under the MRA for pollock by the time they offload. The resulting effect of the alternative would be a decrease in the amount of pollock discards by non-AFA vessels and would not impact endangered or threatened species.

3.1.8 Effects on Seabirds

The preferred alternatives is not expected to adversely affect seabirds in any manner or to any extent not already addressed in previous consultations conducted under Section 7 of the ESA. The alternatives considered would not change the TACs for groundfish, the gear types used in fisheries in which groundfish are discarded or the spatial or temporal distribution of these fisheries. The alternative would change the enforcement of the pollock MRA to a offload-to-offload basis, thus allowing non-AFA vessels that have otherwise been forced to discard pollock, the option to retain additional pollock as long as they are under the MRA for pollock by the end of their trip. The resulting effect of the alternative would be a decrease in the amount of pollock discards by non-AFA vessels and would not impact seabirds.

3.2 Economic and Social Impacts

This section compares the no action/status quo alternative and the proposed action in terms of the groundfish retention rate, revenues and operating costs of firms in the fisheries, and monitoring and enforcement issues.

3.2.1 Groundfish Retention Rate

The HT-CP fleet's catch of BSAI pollock is currently restricted by two regulatory factors: the annual ICA established by NOAA Fisheries and the MRA restricting pollock retention to 20 percent of total retained groundfish. Although the MRA may be limiting the HT-CP fleet's pollock retention on a haul-by-haul basis, on a seasonal or yearly basis the sector could retain more of the pollock they currently catch without exceeding either the MRA or ICA.[6] If this increase in pollock retention were to occur, it would have a substantial impact on the sector's overall groundfish retention rate, decreasing the discard rate by 13 to 16 percent of the current rate.

This analysis calculated the amount of pollock caught as a percent of total sector catch using data from 1999-2002 and determined how much pollock the entire sector caught and discarded. Table 15 summarizes non-pollock groundfish and pollock catches of the HT-CP sector in the BSAI from 1999-2002. Overall pollock accounts for just over 10 percent of the total groundfish catch during the period. Roughly half of the pollock has been discarded over the 4-year period–pollock accounts for about 18 percent of all discards in the sector.

Table 15. Summary of Non-Pollock Groundfish and Pollock Catch of the HT-CPS, 1999-2002

	Non-Pollock Groundfish			Incidental Pollock			All Groundfish Species		
	Discard	Retained	Total	Discard	Retained	Total	Discard	Retained	Total
YEAR	Thousands of Metric Tons								
1999	74.1	165.1	239.3	15.0	14.0	29.0	89.1	179.2	268.3
2000	75.8	186.4	262.2	14.6	16.9	31.5	90.4	203.3	293.7
2001	55.7	182.8	238.4	14.4	17.2	31.6	70.1	200.0	270.1
2002	70.7	180.6	251.3	15.9	17.7	33.5	95.9	222.3	318.2
YEAR	Percent of Total Groundfish Catch								
1999	27.6	61.6	89.2	5.6	5.2	10.8	33.2	66.8	100.0
2000	25.8	63.5	89.3	5.0	5.8	10.7	30.8	69.2	100.0
2001	20.6	67.7	88.3	5.3	6.4	11.7	26.0	74.0	100.0
2002	24.8	63.4	88.2	5.6	6.2	11.8	30.4	69.6	100.0

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

In each of the last four years, the amount of pollock caught in the non-AFA pollock fishery has been less than the ICA (Table 16). During this time, the indirect fishery used up to 92 percent of the ICA, leaving an average buffer of 3,200 mt. Pollock caught by the HT-CP sector accounted for an average of 77 percent of the catch applied towards the ICA between 1999 and 2002.

Table 16. Pollock ICA, Catches Attributed to the ICA, 1999-2002

	Pollock ICA	HT-CP Pollock Catch	Total Non-AFA Pollock Catch	Slack in the ICA
Year	Thousands of Metric Tons			
1999	44.6	29.0	40.1	4.4
2000	45.3	31.5	42.0	3.3
2001	41.1	31.6	38.4	2.7
2002	45.2	33.5	42.6	2.5

Source: Furuness, Mary, NOAA Fisheries-Sustainable Fisheries Division, Personal Communication. August 2003.

[6] This analysis assumes that all pollock discards are caused by the MRA regulation. Thus, the numbers presented represent the upper limit of the potential effect of retaining more pollock on groundfish discard rates.

While Table 16 demonstrated a considerable difference between the pollock ICA and actual incidental pollock catches of all sectors, Table 17 shows that there is also a considerable difference between pollock catches by the HT-CP sector and the amount that could be taken under the 20 percent MRA limit. Currently the HT-CP sector catches only about 74 percent of the amount allowed by the MRA.

Table 17. BSAI Pollock Catch and MRA Margins for the HT-CP Sector

Year	Retained Non-Pollock	Total Pollock Catch	Pollock as Percent of Retained Non-Groundfish	Theoretical Maximum MRA Percentage	Theoretical Maximum MRA Tonnage	Slack under Theoretical Maximum
1999	165.1	29.0	17.6	20.0	33.0	4.0
2000	186.4	31.5	16.9	20.0	37.3	5.8
2001	182.8	31.6	17.3	20.0	36.6	4.9
2002	180.6	33.5	18.6	20.0	36.1	2.6

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

In spite of the considerable difference in both the ICA and MRA, pollock discards by the HT-CP fleet are still substantial. Since 1999, pollock has accounted for 5 to 6 percent of total groundfish catch and 18 percent of all discards by the HT-CP sector. Table 18 shows groundfish catch and discards by the HT-CP sector between 1999 and 2002, and what the discard rates would have been if all pollock had been retained. Note that discards referenced in Table 17 are legal discards based on the current enforcement interval for MRA. In 1999, for example, the sector caught 299,000 tons of groundfish. The sector was required to discard 15,000 tons of pollock. In addition, the sector discarded 83,000 tons of other groundfish, for a cumulative 33 percent discard rate. If the sector had kept all of its pollock discards, the overall groundfish discard rate would have declined to 28 percent, a roughly 16 percent drop. It is estimated that in 2002, retention of all pollock would have raised the sector retention rate by over 5 percentage points.

Table 18. Groundfish Retention Rates for the HT-CP Sector

Year	Groundfish Catch (1,000 mt)	Groundfish Discards (1,000 mt)	Pollock Discards (1,000 mt)	Groundfish Discards incl. Pollock (Percent)	Discards if all Pollock were Retained (Percent)
1999	299.0	98.0	15.2	32.8	27.3
2000	331.0	104.0	14.8	31.4	27.0
2001	300.0	80.0	14.5	26.7	21.8
2002	319.0	96.6	16.0	30.4	25.3

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

Because the MRA is currently enforced instantaneously, vessels have to discard pollock at any point in time in which the MRA is exceeded. As result, large catches of pollock—especially if those catches come early in a trip—can lead to higher discard levels.

Using 2001 data, it was estimated that shifting from the current instantaneous enforcement to an alternative MRA enforcement interval could result in a substantial increase in the retention rate of the HT-CP sector. Under the preferred alternative—changing the enforcement interval for the pollock MRA to an offload by offload basis—overall groundfish retention rates are expected to increase by 1.9 percent. It is important to note that this analysis assumes that vessels keep any additional pollock they are allowed to retain under the alternative. In other words, this estimate represents a upper limit on the amount the preferred alternative could increase the groundfish retention rate. The validity of the assumption that vessels would keep any additional pollock they are allowed to retain under this alternative is uncertain—it depends on the price of pollock relative to that of species open for directed fishing and the strategic behavior of individual vessels. These factors are discussed in more detail in the section below.

3.2.2 Changes in Revenues and Operating Costs of Firms in the Fisheries

The overall economic impact of changing the enforcement interval for the pollock MRA on vessels in the HT-CP sector is uncertain, but is expected to be minimal overall. The main factors that could affect the economic impact on the HT-CP sector is the value of pollock relative to the value of groundfish normally caught by the sector , the cost and logistics of retaining and delivering a marketable pollock product and the strategic behavior of individual vessels.

If pollock has a lower value than the targeted species, a change in the enforcement interval could have a negative economic effect. Assuming vessel catch is constrained by hold space, the amount of product from higher-valued species that would be displaced by the increased retention of pollock may be substantial. For example, under an offload-to-offload enforcement interval (the preferred alternative), it is estimated that an additional 5,000 mt of pollock, or about two percent of the total catch of the HT-CP sector, could be retained. Operating costs may also increase for several reasons. First, there may be greater labor costs associated with sorting, handling, and storing pollock, when caught in a mixed species haul. Vessels designed and equipped to process, say flatfish, may not be optimally configured to convert pollock bycatch into marketable products, so additional costs may be incurred in the processing operation, both as reflected in more intensive use of labor and in displaced processing of target catch. If catch must be held for any period before processing, pollock (and other soft fish) must be separated from flatfishes, or their quality (and marketability) declines quickly, due to abrasions, puncture wounds, etc. For small operations in which space is at a premium, separate holding capacity may impose additional operational costs and adverse impacts. Finally, if vessels are required to take more trips to harvest the same amount of targeted flatfish. These increased trips can mean higher fuel and maintenance costs as well as greater stress and workloads on crew.

However, if the additional pollock retained has a higher relative value, as it does during the pollock roe season, the impact on the sector could be positive. One advantage of a change in the enforcement interval is that it provides vessels participating in non-pollock target fisheries the option of harvesting pollock when pollock prices are favorable provided that enough species open for directed fishing are caught during the rest of the enforcement interval to comply with the MRA. At some level this could be contrary to one of the principals objective of the proposed action, namely, "avoiding creation of economic inducements or incentives for covert targeting of pollock by non-AFA qualified operations, resulting in pressure to increase the ICA."

If all of HT-CP vessels process pollock up to the pollock MRA under the revised enforcement interval and pollock is a break-even product, there is unlikely to be any differences in the amount of profit or its distribution to the various vessels relative to the status quo. If processing additional pollock generates positive net revenues for all vessels, the net revenues of the fleet are likely to be higher than under the status quo. Similarly, if processing pollock costs more then the revenue it generates and all vessels process up to the maximum allowed, overall net revenues for the fleet are likely to be lower. However, available operating cost and earnings data for this fleet do not permit an assessment of which of these outcomes is more likely. Furthermore, there will almost certainly be variations within the sector (i.e., some operations may fair better or worse than average).

The strategic behavior of individual vessels could also determine how the proposed action affects economic performance. As noted above, under the proposed action, a vessel that catches an amount of pollock large enough to exceed the MRA percent at the beginning of a trip has the option of keeping that pollock and catching more of a species open for directed fishing during the rest of the enforcement interval to comply with the MRA. The same vessel that catches a large amount of pollock early in a trip also would have the choice of discarding the pollock that exceeds the MRA percent. If pollock has a high value relative to species open for directed fishing, it is in the best interest of all vessels to minimize pollock discards.

A change in the enforcement interval for the pollock MRA is expected to have a minimal effect on participants in the directed fishery for BSAI pollock. Participants in the directed fishery would be

affected only if a change in the enforcement interval resulted in a larger amount of pollock being caught and an increase in the non-AFA vessels' ICA for pollock. It has been suggested by some industry representatives that non-AFA vessels "top off" their catches with pollock at the end of a trip in order to catch more pollock up to the MRA amount. However, owners of non-AFA vessels maintain that they generally prefer not to catch pollock because it has a per unit value lower than their target species. Analysis of NOAA Fisheries blend data does not indicate a pattern of topping off by HT-CP vessels. In general, it is more likely that a change in the enforcement interval for the pollock MRA would lower the total amount of pollock caught because overall waste is reduced.

The reason for the expected reduction in waste can be best explained by comparing the outcomes of various hypothetical scenarios. The first two scenarios are shown in Tables 19 and 20. They demonstrate the vessel behavior that would be expected if pollock is a desired species or undesired species, respectively, under the current management regime. If pollock is a desired species, a vessel is likely to engage in topping off as shown in Scenario 1. In this scenario a vessel is assumed to catch excessive amounts of pollock early in its trip, discards that pollock to remain under the MRA, and then tops off towards the end of the trip. This behavior leads to a high level of discards, and higher total catch because obtaining the desirable pollock provides an economic incentive for "end of trip targeting". Under the terms of this hypothetical case, in effect, the pollock must be "caught twice." This, of course, increases the "cost" of each unit of pollock to the operator, thus reducing its net value. Given that "incidental bycatch" is, by definition, **incidental** (i.e., not wholly controllable), the cost of catching, sorting, and discarding, only to incur these same costs (although with a lower certainty of "catching" the desired amount) later in the trip is economically "risky".

In Scenario 2, a vessel again catches pollock early in its trip and discards the pollock to remain under the MRA. However, the vessel avoids catching pollock, perhaps at considerable cost, for the remainder of the trip. Consequently, that vessel may have lower discards than the vessel under Scenario 1, depending on the relative success of avoidance strategies employed by the captain. However, the vessel operator in scenario 2 also has paid a price to obtain this result, in the form of lower revenues and higher operating expenses. Whether this combination of adverse economic and operations impacts can be sustained over time is largely an empirical question, the answer to which is not amendable to analysis, given presently available cost, operating, and earnings information.

Table 19. Scenario 1: Current MRA Rules and Pollock is a Desired Species

Tow Number	Retained Flatfish (mt)	Pollock Catch (mt)	Pollock Retained (mt)	Pollock Discards (mt)	Cumulative Pollock Retained (Percent)
Tow 1	50	20	10	10	20.0
Tow 2	40	18	8	10	20.0
Tow 3	45	15	9	6	20.0
Tow 4	55	7	7	0	17.9
Tow 5	35	6	6	0	17.8
Tow 6	55	7	7	0	16.8
Tow 7	50	8	8	0	16.7
Tow 8	25	10	10	0	18.3
Tow 9	40	6	6	0	18.0
Tow 10	45	5	5	0	17.3
Last Tow	20	25	16	9	20.0
Totals at Offload	460	127	92	35	20.0

Table 20. Scenario 2: Current MRA Rules and Pollock is Not a Desired Species[1]

Tow Number	Retained Flatfish (mt)	Pollock Catch (mt)	Pollock Retained (mt)	Pollock Discards (mt)	Cumulative Pollock Retained (Percent)
Tow 1	50	20	10	10	20.0
Tow 2	40	18	8	10	20.0
Tow 3	45	15	9	6	20.0
Tow 4	55	7	7	0	17.9
Tow 5	35	6	6	0	17.8
Tow 6	55	7	7	0	16.8
Tow 7	50	8	8	0	16.7
Tow 8	25	10	10	0	18.3
Tow 9	40	6	6	0	18.0
Tow 10	45	5	5	0	17.3
Last Tow	30	6	6	0	17.4
Totals at Offload	470	108	82	26	17.4

[1]It is assumed in this scenario that the vessel attempts to minimize overall pollock catch.

Tables 21 and 22 demonstrate the vessel behavior that might be hypothesized if pollock is a desired species or undesired species, respectively, under an offload-to-offload MRA enforcement interval (preferred alternative). As shown, discards are lower in hypothetical Scenarios 3 and 4 than in Scenario 1 and 2. The difference in the level of discards is greatest between Scenario 1 and 3, in which pollock is a desired species. The reason for the reduction is that a vessel that desires pollock is assumed to have to catch the pollock "twice" under the current management regime. In the example, it must catch 127 tons of pollock in order to retain 92 tons. Under the revised MRA enforcement interval, this vessel has the option to retain the pollock caught early in a trip. Thus, the need to "top off" later in the trip is reduced. Retaining the same 92 tons involves catching only 106 tons of pollock. To the extent that non-AFA boats are currently engaged in topping off, the proposed action might be expected to reduce this behavior and lower total pollock catch.

Table 21. Scenario 3: Offload MRA Enforcement Interval and Pollock is a Desired Species

Tow Number	Retained Flatfish (mt)	Pollock Catch (mt)	Pollock Retained (mt)	Pollock Discards (mt)	Cumulative Pollock Retained (Percent))
Tow 1	50	20	20	0	40.0
Tow 2	40	18	18	0	42.2
Tow 3	45	15	15	0	39.3
Tow 4	55	7	7	0	31.6
Tow 5	35	6	6	0	29.3
Tow 6	55	7	6	1	25.7
Tow 7	50	8	6	2	23.6
Tow 8	25	10	5	5	23.4
Tow 9	40	6	5	1	22.3
Tow 10	45	5	0	5	20.0
Last Tow	20	4	4	0	20.0
Totals at Offload	460	106	92	14	20.0

Table 22. Scenario 4: Offload MRA Enforcement Interval and Pollock is Undesired[1]

Tow Number	Retained Flatfish (mt)	Pollock Catch (mt)	Pollock Retained (mt)	Pollock Discards (mt)	Cumulative Pollock Retained (Percent)
Tow 1	50	20	12	8	24.0
Tow 2	40	18	10	8	24.4
Tow 3	45	15	11	4	24.4
Tow 4	55	7	7	0	21.1
Tow 5	35	6	6	0	20.4
Tow 6	55	7	7	0	18.9
Tow 7	50	8	8	0	18.5
Tow 8	25	10	10	0	20.0
Tow 9	40	6	6	0	19.5
Tow 10	45	5	5	0	18.6
Last Tow	33	7	7	0	18.8
Totals at Offload	473	109	89	20	18.8

[1]It is assumed in this scenario that the vessel attempts to minimize overall pollock catch.

Another reason to believe that the proposed change in the enforcement interval will not have a negative effect on the directed fishery is that the amount of pollock utilized by the non-directed fishery is relative small. The total amount of pollock taken by the non-directed fishery is roughly two percent of that taken by the directed fishery, and the amount of pollock affected by the regulation change (i.e., the discarded amount) is less than one percent of the directed fishery. Hence, the overall indirect effect on the directed fishing sector is expected to be negligible.

3.2.3 Monitoring and Enforcement Issues

Under current regulations, it is only at offload that NMFS Enforcement is able to actually audit the reported amounts of product to insure that a vessel is complying with the MRA requirement. Due to the difficulty of auditing the reported amounts of product during a random at-sea boarding, a violation of the MRA occurring at the time of such an inspection will typically result in a prosecutable case only if the MRA is egregiously exceeded.

Changing the enforcement interval for the pollock MRA is expected to increase management and enforcement costs as a result of required changes in fisheries data collection and analysis. However, those costs are not expected to be significant. For example, data that is now currently provided on paper may have to be converted to electronic form. In addition, these data will have to be processed and reviewed at the end of the trip to determine if a boat is in compliance with the MRA. Each of these steps will add to the costs of current management and enforcement programs.

3.3 Cumulative Effects Analysis

Analysis of the potential cumulative effects of a proposed action and its alternatives is a requirement of NEPA. Cumulative effects are those combined effects on the quality of the human environment that result from the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what Federal or non-Federal agency or person undertakes other such 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 a period of time. The concept behind cumulative effects analysis is to capture the total effects of many actions over time that would be missed by evaluating each action individually. At the same time, the CEQ guidelines recognize that it is not practical to analyze the cumulative effects of an action on the universe but to focus on those effects that are truly meaningful.

To avoid the piecemeal assessment of environmental impacts, cumulative effects were included in the 1978 CEQ regulations, which led to the development of the CEQs cumulative effects handbook [CEQ 1997] and Federal agency guidelines based on that handbook (e.g., EPA 1999).

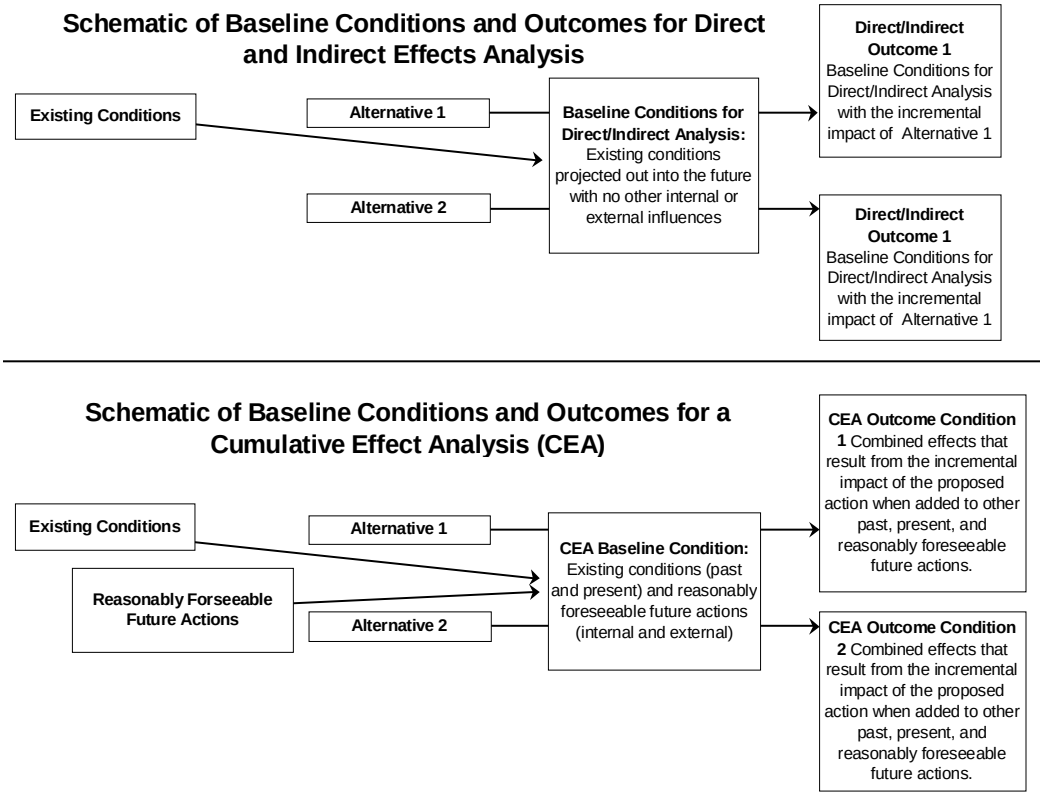
The DPSEIS [NMFS 2003a] assesses the potential direct and indirect effects of groundfish FMP policy alternatives in combination with other factors that affect physical, biological and socioeconomic resource components of the BSAI and GOA environment.

Beyond the cumulative impacts analysis documented in the DPSEIS, no additional past, present, or reasonably foreseeable cumulative impacts on the natural and physical environment have been identified that would accrue from the proposed action. Cumulatively significant impacts on the natural and physical environment are not anticipated with the proposed action because no such impacts have been identified. The alternatives considered would not change the TACs for groundfish, the gear types used in the fisheries in which groundfish are discarded or the spatial or temporal distribution of these fisheries.

While there are no expected cumulative impacts on the natural and physical environment, there may be an economic effect as a result of the proposed action in combination with other actions. The HT-CP fleet has experienced several regulatory changes in the past several years. Moreover, a number of reasonably foreseeable future actions are expected to directly affect the socioeconomic condition of the HT-CP sector.

Figure 6 provides a comparison of the direct/indirect analysis that immediately precedes this section and the cumulative effects analysis contained in this section.

Figure 6. Comparison of Direct/Indirect Analysis and Cumulative Effects Analysis



3.3.1 Past and Present (On-Going) Actions

This section describes the effects of the original BSAI FMP and its amendments and other pertinent external factors that could contribute to potential cumulative impacts on the HT-CP sector. Past actions are evaluated to determine whether there are lingering effects that may result in synergistic or incremental impacts when combined with the proposed action.

The availability and consistency of data limits the ability to analyze the effects of past actions on the economic condition of selected sectors of the Alaska groundfish fisheries. This analysis is also limited by the difficulty of delineating any potential cause-and-effect relationships between multiple factors and the resultant economic environment. Many factors substantially affect the economic status of the Alaska groundfish fisheries. Changes in markets, biological conditions and fishery management regulations can all 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 key actions that have contributed to the current economic status of the HT-CP fleet.

The HT-CPS were among the first U.S.-flagged fishing vessels to enter the groundfish fisheries of the North Pacific as these fisheries became "Americanized" after the passage of the Fishery Conservation and Management Act of 1976. The relatively small size of HT-CPS limited their processing lines to heading and gutting. Consequently, HT-CPS initially focused on high-value groundfish such as sablefish and rockfish in the GOA and Aleutian Islands. The fleet also participated in the relatively high-volume flatfish and Pacific cod fisheries in the BSAI. Pollock were generally not targeted except at the peak of the roe season because of their comparatively low value as headed and gutted product. During the 1980's and 1990's, a number of fishery regulations precluded the HT-CP fleet from participating in some of the more profitable fisheries. These regulatory measures included a prohibition on the use of trawls in the directed sablefish fishery in 1986, a ban on roe stripping in 1991, inshore-offshore sector allocations in 1992, and the groundfish license limitation program in 1995. As a result of these restrictions, flatfish became the primary target species for the HT-CP 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, flatfish fisheries have limited markets—particularly with regard to size and product quality. These characteristics of the fisheries, in combination with MRAs and the race-for-fish, have led to relatively high level of economic and regulatory discards in the HT-CP sector.

In 1998, the waste reduction initiatives of the Council resulted in implementation of IR/IU measures for pollock and Pacific cod in both the GOA and BSAI. The inability of HT-CP 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 catcher processors. There were no HT-CP vessels with fish meal plants, and a number of practical obstacles, as well as Coast Guard and NOAA Fisheries regulations on vessel upgrades, effectively prevented these vessels from acquiring the capacity to make fish meal. However, a positive outcome of the IR/IU 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 markets. The increase in price of Pacific cod products due primarily to reduced Atlantic cod harvests from the Barents Sea and an improving Asian economy has also resulted in higher gross product values for the HT-CP sector. While headed and gutted fish harvested by Japanese and Korean vessels from Russian waters has increased competition in the marketplace, the expansion of buyers of head and gutted product in China, Europe and the U.S. has given the HT-CP fleet the ability to switch markets as prices across markets change.

3.3.2 Reasonably Foreseeable Future Actions

The determination or estimation of future impacts to the resources of concern is essential to a cumulative impact analysis. However, the focus must be on reasonably foreseeable actions, those that are likely to occur or probable, rather than those that are merely possible.

In October 2002, the NPFMC voted to delay implementation of IR/IU regulations for flatfish in the BSAI, originally scheduled for January 2003 implementation, 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. As part of that action, the NPFMC also initiated four trailing amendments with the expectation that these amendments could augment or replace IR/IU regulations for flatfish prior to the end of the delay period. Amendment 80 (as modified at the April 2003 Council meeting) establishes sector allocations in the BSAI and facilitates the formation of a fishery cooperative for non-AFA trawl catcher processors. Amendment B creates flatfish bycatch (discard) limits for the flatfish fisheries. Amendment 79 establishes a minimum groundfish retention standard. Amendment 78 exempts fisheries with less than a 5 percent IR/IU flatfish bycatch rate from IR/IU flatfish regulations.

Amendment 75 was only partially approved by the Secretary. The approved part was the delay of imposing IR/IU requirements on catches of IR/IU flatfish in the BSAI. The part of Amendment 75 not approved was the date of June 1, 2004, on which this delay would have ended. The practical effect of the partial approval 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 IR/IU flatfish program.

With the indefinite delay of the BSAI IR/IU flatfish program, Amendment 78 no longer had any practical application in the BSAI. Amendment B was rejected by the Council as infeasible following discussions between industry representatives and fishery managers. However, the NPFMC continued to pursue possible implementation of Amendments 79 and 80. At the June 2003 meeting the Council took final action on Amendment 79, approving a phased-in GRS for the non-AFA catcher processor sector in the BSAI, to begin in 2005. Further refinement of Amendment 80 is expected to occur at the October 2003 Council meeting, with a target implementation of 2006. Descriptions of the amendments and their anticipated effects are provided below.

3.3.2.1 Amendment 79—Establishment of a Groundfish Retention Standard

This action would add a minimum GRS for all groundfish fisheries (excluding pollock target fisheries) to the Goals and Objective section of the BSAI FMP. In addition, a regulation establishing a GRS would be promulgated and enforced on non-AFA trawl catcher processors. The GRS would not supercede the 100 percent retention standard already set for pollock and Pacific cod under existing IR/IU regulations. In addition to establishing a GRS, the regulation would require that processors create product that yield at least 15 percent from each harvested fish retained.

As described in NPFMC [2003], the GRS percentage for vessels ≥ 125 ft (LOA) would be phased in as follows:

Year	GRS Percentage
2005	65 percent
2006	75 percent
2007	80 percent
2008	85 percent

For vessels less than 125 ft., the Council's IR/IU Technical Committee is tasked with developing an implementation plan which may allow for this fleet's future inclusion in this program. The Committee will report their initial discussions to the Council in October 2003.

The GRS would apply to each vessel. To determine compliance with the GRS, a vessel's groundfish retention rate would be calculated at the end of the year. In order to accurately determine total catch all regulated vessels would be required to use NOAA Fisheries-approved scales and every haul made by these vessels would have to be observed. In addition, each vessel would be required to have a NOAA Fisheries-certified observer sampling station, including a motion-compensated platform scale to verify the accuracy of the total catch weight flow scale. Retained catch would be calculated using NOAA Fisheries standard product recovery rates (PRRs). For each product/species combination, retained tonnage will be equal to product tonnage divided by the PRR.

Anticipated Effects

In 2002, the overall groundfish retention rate of HT-CP vessels ≥125 ft. was 71 percent. Provided this retention rate is maintained, the 2005 GRS would represent only a minimally binding constraint for this fleet. As shown in Table 23, however, three vessels would need to improve their retention rate. Nearly all of the regulated vessels would need to improve their retention rate to meet the 2008 GRS of 85 percent. Table 23 also shows the additional tons that would have to be retained to meet the phased-in standards. Converting what had been discards to retained product could result in lower net revenues if the additional fish retained displaces fish of higher-value. To reflect this potential cost, the last row of the table shows the percent of existing product of the affected vessels that would have to be displaced by what is presumed to be lower value product.[7]

Table 23. Vessel Based Impacts of GRS Percentages in the GRS Preferred Alternative

GRS Percentage	65	75	80	85
Number of Vessels Below GRS in 2002	3	5	8	13
Additional Retained Tons Needed to Meet GRS in 2002 (1,000 mt)	0.9	6.0	10.5	19.5
Percent Displacement of Existing Product Tons (percent)	0.1	1.5	2.9	4.8

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

In 2002, there were 22 active HT-CP vessels—a 23rd vessel is scheduled to be reactivated in 2004. Of these, 16 vessels are greater than or equal to 125 ft. in length. Under the GRS, each of these 16 processor vessels would be required to provide an approved scale system that is capable of weighing catch before it is processed or discarded. As shown in Table 24, nine of these vessels currently have flow scales, although the scales on two of these vessels are not approved by NOAA Fisheries. Seven of the affected vessels do not have scales. In addition to scales, each of the affected vessels would be required to have a certified observer sampling station. The observer station must be large enough to allow the observer room to operate a certified platform scale. Furthermore, the observer station must be situated in a factory at a point after the fish have been weighed on the flow scale. Of the affected active vessels in 2002, five have certified observer sampling stations, four have observer stations but they are not currently certified, and seven do not have observer stations.

[7]The displaced product percentage calculation assumes that newly created products will have the same average recovery rate as the existing product mix of the fleet as a whole—63 percent.

Table 24. Active HT-CPS with Vessel Length, Flow Scale and Observer Sampling Station Status

VESSEL NAME	Length	Flow Scale	Observer Station
GOLDEN FLEECE	104	No	No
ALLIANCE	107	No	No
ALASKAN ROSE	124	No	No
OCEAN ALASKA (Beagle) *	107	No	Not Certified
ENTERPRISE	120	No	Not Certified
DEFENDER	123	Not Approved	Not Certified
VAERDAL	124	Not Approved	Not Certified
REBECCA IRENE	140	No	No
CAPE HORN	158	No	No
ALASKA RANGER	203	No	No
ALASKA WARRIOR	215	No	No
ALASKA SPIRIT	221	No	No
ALASKA VICTORY	227	No	No
ALASKA JURIS	238	No	No
LEGACY	132	Not Approved	Not Certified
CONSTELLATION	150	Not Approved	Not Certified
UNIMAK	185	Yes	Not Certified
ARICA	186	Yes	Not Certified
AMERICAN NO I	160	Yes	Yes
U.S. INTREPID	185	Yes	Yes
OCEAN PEACE	219	Yes	Yes
SEAFISHER	230	Yes	Yes
SEAFREEZE ALASKA	295	Yes	Yes
Vessels not affected by GRS---Less than 125' LOA			6
Vessels affected by GRS---Over 125' LOA			16
Affected vessels with approved flow scale and certified observer station			5
Affected vessels with approved flow scale but uncertified observer station			2
Affected vessels with unapproved flow scale and uncertified observer station			2
Affected vessels with no flow scale and no observer station			7

* The *Ocean Alaska* formerly the *Beagle* was not active in 2002, but is scheduled to be active in 2004. Three other HT-CPS longer than 125' LOA are currently permitted to operate in the BSAI, but none of these have been active since 1999.

As indicated above, NOAA Fisheries estimates that seven of the vessels > 125' LOA would have to install approved marine flow scales and observer stations. Approved marine flow scales are estimated to cost approximately $50,000. Equipment to outfit an observer station, including a motion-compensated platform scale to verify the accuracy of the total catch weight flow scale, would cost between $6,000 and $12,000. Installation costs are much more difficult to estimate. Due to space constraints on many processor vessels, the need to relocate sorting space and processing equipment, the possibility that more than one scale would be required on some vessels, and the wide range of configurations on individual vessels, the installation cost range for the scales and observer stations could be between $20,000 and $250,000 per vessel. Therefore, the total cost of purchasing and installing flow scales to weigh groundfish catch on processor vessels may range between $76,000 and to over $300,000 per vessel.

The requirement that every haul be observed would most likely necessitate the deployment of two observers aboard each vessel.[8] Current regulations require vessels 125 ft. or longer to carry one NOAA Fisheries-certified observer 100 percent of the time while fishing for groundfish. However, an observer can cover no more than 12 hours of fishing activity in a day, so either observer coverage would have to be doubled or fishing would have to be limited to the available observer work hours.

It is estimated that the cost of an additional NOAA Fisheries-certified observer is about $355 per deployment day (not including food costs) for each vessel. Over the last 4 years the affected vessels averaged over 33 weeks fishing time per year. Therefore a conservative estimates of the cost of an additional observer would be approximately $82,000 per vessel. In addition to costs borne by the vessels, the increase in the number of observers and it's associated increase in the amount of data collected is expected to raise overall annual costs of the North Pacific Groundfish Observer Program. This budgetary increase can be attributed to additional staffing and augmented spending for observer sampling equipment and data entry contracts. These additional costs to the observer program have not been estimated. There are indirect costs of housing an additional observer, as well. As noted (but not estimated) the vessel is responsible for feeding and otherwise sustaining the observer(s). All of the vessels have limited crew's quarters (and associated living spaces), so the addition of one more observer likely means the displacement of one productive crew member and the elimination of the revenues that person would have contributed to the operation. No meaningful estimate of this "cost" can be provided, given available data and the probable variability among operations that will exist. But these represent real costs to the sector attributable to this aspect of the proposed action .

A variety of other costs are associated with a requirement for vessels to install marine scales, including the cost of reduced efficiency as a result of changes in procedures for harvesting, sorting, discarding, or processing groundfish. For example, sorting space may be reduced and processing equipment may have to be moved to accommodate the scale, possibly reducing the efficiency of the factory. These costs also will vary among the vessels, depending on factory configuration. Additional crew time may be required to monitor and record information from the scale and to test, maintain, and repair the scale. NOAA Fisheries estimates that the annual cost of maintenance for the scales currently installed on catcher processors has been approximately $1,500 to $2,000. Costs could increase if vessels increase their total fishing activity days because with the extra retention seasons could last longer. Finally, vessel operators may choose to purchase spare parts or a back-up scale depending on the amount of fishing time that could be lost if the scales break down.

Monitoring requirements for each vessel managed under the GRS would include flow scales, observer stations, and observation of every haul. While these additional requirements are intended to provide a fully enforceable retention program, NOAA Fisheries would obtain additional data with which to manage fisheries in the BSAI. It is anticipated that having flow scales on the H&G trawl C/P fleet should provide managers with additional haul specific estimates (or verifiable measures) of total weight, therefore, NOAA Fisheries would no longer have to rely on secondary sources, such as the skipper's estimates or the total weekly production figures, as the basis for calculating catch weight.

Presently, many vessels in the BSAI H&G trawl C/P fleet are required to employ only 1 observer on a vessel. Generally, this results in less than 100% of the hauls being sampled. Under the GRS requirement for 2 observers, all hauls would be observed and sampled, thereby decreasing the number of unsampled hauls for which estimates of target and incidental catch are extrapolated from sampled hauls. This decreases the number of hauls to which NOAA fisheries would need to extrapolate broader (less precise) averages, in the absence of haul specific data.

[8]A vessel could choose not to carry two observers, but it would have to file a fishing plan with NOAA Fisheries that shows it will fish in a way that will allow the single observer to sample 100 percent of the hauls. Typically such a plan requires that the vessel fish only 12 hour per day.

For example, if a vessel operates on the fishing grounds for several weeks, and has less than 100% of its hauls observed, some of the bycatch estimates for that vessel are based on "rates" derived from other observed hauls, then applied to the estimated total catch. If NOAA Fisheries has haul specific information from observer sampling, that additional information on actual bycatch amounts would supplant the use of data based on an estimated rate from other observed hauls. The extension of coverage to 2 observers per vessel would allow for the sampling of every haul and could result in reducing risk associated with the timing of openings and closings for some groundfish fisheries (i.e., decrease the probability that stocks will be overfished or under-harvested).

While requirements for flow scales and increases in observer coverage under this measure have been developed to address compliance monitoring needs and some improvements in overall quality of data provided for inseason management and stock assessment would accrue, observer data collected for this program may be useful to analysts investigating factors which influence error in estimates derived from observer data. It should be noted, however, that neither the inseason management, nor the stock assessment process, explicitly recognize uncertainty associated with estimates of removals or the potential for biased determinations of catch quantity and/or composition associated with observer sampling.

Error is comprised of two components, bias, which is associated with accuracy, and precision, which is associated with uncertainty. Consistently inaccurate measurements result in bias. For example, an electronic scale that consistently weighs 3% high, will produce biased catch weight estimates. These could only be corrected if the measurement inaccuracy was known. Precision is associated with uncertainty. A very precise estimate is one with little uncertainty. In the scale example above, a 100.0 kg test weight may not always register 103 kg; if the scale is very precise, random error may result in measurements between 102.5 and 103.5 kg and this may provide an acceptable level of precision, but an unacceptable bias. If the scale is less precise, random error may result in measurements between 99.5 and 106.5; some of the measurements may be exactly 100.0 kg, but the data provided by the scale will result in biased estimates with lower precision than in the preceding example.

Use of the flow scale may result in less biased catch weight estimates than those obtained by alternative methods, but it will be very difficult to determine if this is, in fact, the case. Improvements in the precision of catch weight estimates can be expected but, again, the magnitude of these improvements will be difficult and expensive to determine.

The presence of two observers on these vessels would result in collection of data that could be used to elucidate some of the factors that may influence bias and precision. A number of questions come to mind, such as:

1) Does one observer consistently underestimate the proportion of a specific species in the catch compared with the other?

2) Is the uncertainty associated with total discard estimates based on data collected by one observer greater than with the data collected by another observer?

3) How much overall improvement in the precision of estimates of catch quantity, catch composition, and discard is achieved by adding a second observer?

These, and similar questions are important in the context of better understanding the effects of sampling and observer performance on the overall quality of estimates of catch quantity and composition, and discards. However, these questions can only be fully investigated by means of properly designed experiments which could not be carried out during normal fishing operations. Therefore, information obtained under normal fishing operations would, at best, provide a basis for better understanding of sampling concerns and would provide information useful for designing future field experiments.

Even though uncertainty in estimates of catch quantity and composition are not explicitly taken into account during inseason management or stock assessment, improved precision does reduce the risk associated with management decision-making. Increases in observer coverage would result in improvements in the precision of these estimates, but it is presently not possible to determine the magnitude of the improvements or whether the substantial additional cost is justified by the benefits (i.e. reductions in risk) that would accrue.

3.3.2.2 Amendment 80—Sector Allocations and Formation of a HT-CP Cooperative

Amendment 80 would authorize NOAA Fisheries to allocate groundfish and/or PSC limits to individual cooperatives organized within the non-AFA trawl catcher processor (HT-CP) sector based on the catch history of cooperative members. Because this amendment has not yet been approved by the Council, it can not be accurately and thoroughly described. However, the proposed action is expected to involve a two-step allocation. During the first step, an allocation of the TACs for specified groundfish and PSC limits would be made to each harvesting sector in the BSAI groundfish fisheries. During the second step, allocations made to the non-AFA trawl catcher processor sector would be divided between the vessels that join a cooperative and vessels that choose to stay out of the cooperative system and fish in an "open access" fishery.

Anticipated Effects

The projected effects of this action remain highly uncertain. However, this action is expected to mitigate the costs incurred by non-AFA trawl catcher processors as a result of PSC limits and a GRS, while ensuring that discards of groundfish continue to decline to levels as specified in the GRS. Current and proposed regulations to reduce bycatch can have significant adverse economic impact on the fishing industry. For example, a number of fisheries currently close seasonally because they exceed seasonal PSC limits. The result is substantial foregone harvests and revenues. Furthermore, should a GRS be implemented (see the discussion of Amendment 79 above), vessels may incur the costs of installing scales and deploying additional observers as well as the costs of holding/processing, transporting, and transferring fish that currently are "unmarketable."

The costs resulting from PSC limits and a GRS can be reduced or avoided altogether if vessels undertake action to be more selective in what they catch. However, the brief, hurried season that occurs under the race for fish hinders fishermen's efforts to reduce the catch of prohibited species or unwanted groundfish. Because vessels are competing with each other for shares of the TAC, an individual vessel may be penalized for undertaking actions to reduce bycatch, such as searching for cleaner fishing grounds, by capturing a smaller share of the TAC.

The experience of cooperatives in the BSAI pollock fishery [NMFS 2002b; Wilen and Richardson 2003], North Pacific scallop fishery [Brawn and Scheirer 2003] and Pacific whiting fishery off the coasts of Oregon and Washington [Sylvia and Munro 2003] suggests that the formation of a cooperative among eligible non-AFA trawl catcher processors would create the following incentives to reduce discards in the groundfish fisheries:

- When the race for fish is eliminated by the formation of a cooperative, fishermen are able to fish more cleanly (i.e., minimize their bycatch), as they can fish in a less hurried fashion and avoid or discontinue fishing in areas where the catch of unwanted species is high without losing any competitive advantage. Elimination of the race for fish may also motivate fishers to reduce bycatch by altering characteristics of the harvest gear, towing depth and speed.
- A cooperative may also facilitate collective efforts by industry to reduce bycatch. For example, a cooperative may restrict the harvest of target species in areas of high bycatch to member companies with low bycatch rates as an incentive to promote cleaner fishing practices. In

addition, the infrastructure of a cooperatives facilitates the exchange of fishing information (e.g., the location on bycatch "hotspots") among fishermen, which can lead to reductions in bycatch.

- A cooperative may lead to the allocation of "individual bycatch quotas" (IBQs), which set discard limits for individual boats. By "internalizing" all the benefits of bycatch reduction. IBQs give each captain the maximum incentive to "fish clean" [National Research Council 1999]. IBQs could be created for members of a cooperative by using contracts and relying on civil law to enforce contract terms, including penalties for excessive bycatch rates.

Additional benefits of establishing a cooperative include allowing fishing effort to be matched to processing capacity. The race for fish encourages maximizing harvesting capacity and, at times, processing operations cannot keep pace. A cooperative allows for increased yields in processing operations, not only by allowing for more labor intensive activities that increase yields for primary products, but by also providing time to produce secondary products, such as fish meal, from inedible portions of the fish. Furthermore, with smaller haul sizes, more careful processing and the ability to search out fish of optimal size, fishermen may be able to improve product quality and optimize product mix to reflect market conditions.

3.3.2.3 Summary of Cumulative Effects

This section provides a both quantitative and qualitative assessment of cumulative effects of the alternative actions considered. The quantitative assessment projects the impacts of Amendment 79 (Establishment of a Groundfish Retention Standard) on groundfish retention rates in the HT-CP sector with and without the implementation of a MRA enforcement interval change. The more qualitative assessment presents an overview of cumulative effects, including a discussion of the potential impacts on the HT-CP sector of a MRA enforcement interval change in combination with the implementation of Amendment 79 and Amendment 80 (Sector Allocations and Formation of a HT-CP Cooperative).

Quantitative Assessment of Cumulative Effects on Groundfish Retention Rates

Table 25 projects the combined effects of the GRS and change in the MRA enforcement interval on the groundfish retention rate in the HT-CP sector. The analysis is based on the HT-CP fisheries as they occurred in 2002 and assumes there is no change in TAC or catch amounts by any of the affected vessels through 2008. Additional assumptions are as follows:

- The MRA enforcement interval is changed as in the preferred alternative and implemented beginning January 2004.
- Amendment 79 as approved by the Council is implemented in 2005, with the GRS of 65 percent established in the first year increasing to 85 percent by 2008.
- Affected vessels adapt to maximize their retention of pollock with the MRA change and also comply with GRS requirements.

The table projects amounts of retained pollock, retained groundfish, total discards (including pollock), fleet-wide retention percentages and the number of vessel > 125 directly affected by the GRS. For comparison of cumulative effects, two additional tables are provided:

Table 26 shows the same scenario with the exception that the MRA enforcement interval remains unchanged from the status quo.

Table 27 shows the differences between Table 26 and Table 25 and summarizes the net gain in retention that are projected if the preferred alternative for the MRA is adopted.

Table 25. Projection of Combined Effects of the GRS and MRA Enforcement Interval Change

Year	2002	2003	2004	2005	2006	2007	2008
	Groundfish Retention Standard Percentages						
	N/A	N/A	N/A	65	75	80	85
HT-CP Length	Retained Pollock (1,000 mt)						

< 125'	2.7	2.7	4.4	4.4	4.4	4.4	4.4
> 125'	14.9	14.9	18.7	18.7	18.7	18.7	18.7
All	17.7	17.7	23.0	23.0	23.0	23.0	23.0
			Retained Groundfish Including Pollock (1,000 mt)				
< 125'	30.8	30.8	32.5	32.5	32.5	32.5	32.5
> 125'	191.5	191.5	195.2	196.0	203.8	212.3	224.6
All	222.3	222.3	227.7	228.5	236.3	244.8	257.1
			Discarded Groundfish Including Pollock (1,000 mt)				
< 125'	21.7	21.7	20.1	20.1	20.1	20.1	20.1
> 125'	71.2	71.2	70.4	69.5	61.8	53.3	41.0
All	95.9	95.9	90.6	89.6	81.9	73.4	61.1
			Fleet-wide Retention Percent				
< 125'	58.6	58.6	61.7	61.7	61.7	61.7	61.7
> 125'	72.1	72.1	73.5	73.8	76.7	79.9	84.6
All	69.9	69.9	71.5	71.8	74.3	76.9	80.8
			Boats Directly Affected by GRS (Number)				
> 125'	N/A	N/A	N/A	2	12	14	16

Table 26. Projection of Effects of the GRS without the MRA Enforcement Change

Year	2002	2003	2004	2005	2006	2007	2008
			Groundfish Retention Standard Percentages				
	N/A	N/A	N/A	65	75	80	85
HT-CP Length			Retained Pollock (1,000 mt)				
< 125'	2.7	2.7	2.7	2.7	2.7	2.7	2.7
> 125'	14.9	14.4	14.4	14.4	14.4	14.4	14.4
All	17.7	17.7	17.7	17.7	17.7	17.7	17.7
			Retained Groundfish Including Pollock (1,000 mt)				
< 125'	30.8	30.8	30.8	30.8	30.8	30.8	30.8
> 125'	191.5	191.5	191.5	192.9	202.6	211.9	224.3
All	222.3	222.3	222.3	223.7	233.4	242.7	255.1
			Discarded Groundfish Including Pollock (1,000 mt)				
< 125'	21.7	21.7	21.7	21.7	21.7	21.7	21.7
> 125'	74.2	74.2	74.2	74.7	63.0	53.6	41.4
All	95.9	95.9	95.9	96.4	84.8	75.4	63.1
			Fleet-wide Retention Percent				
< 125'	58.6	58.6	58.6	58.6	58.6	58.6	58.6
> 125'	72.1	72.1	72.1	72.6	76.3	79.8	84.4
All	69.9	69.9	69.9	70.3	73.4	76.3	80.2
			Boats Directly Affected by GRS (Number)				
> 125'	N/A	N/A	N/A	2	12	14	16

Table 27. Projection of Net Cumulative Effects With and Without the Preferred Alternative

Year	2002	2003	2004	2005	2006	2007	2008
	Groundfish Retention Standard Percent						
	N/A	N/A	N/A	65	75	80	85
HT-CP Length	Difference in Retained Pollock (1,000 mt) With and Without the Preferred Alternative						
< 125'	0.0	0.0	1.7	1.7	1.7	1.7	1.7
> 125'	0.0	0.0	4.3	4.3	4.3	4.3	4.3
All	0.0	0.0	5.3	5.3	5.3	5.3	5.3
	Difference in Retained Groundfish Incl. Pollock (1,000 mt) With and Without the Preferred Alternative						
< 125'	0.0	0.0	1.7	1.7	1.7	1.7	1.7
> 125'	0.0	0.0	3.7	3.1	1.2	0.4	0.3
All	0.0	0.0	5.4	4.8	2.9	2.1	2.0
	Discarded Groundfish Including Pollock (1,000 mt) With and Without the Preferred Alternative						
< 125'	0.0	0.0	-1.6	-1.6	-1.6	-1.6	-1.6
> 125'	0.0	0.0	-3.8	-5.2	-1.2	-0.4	-0.3
All	0.0	0.0	-5.3	-4.8	-2.9	-2.0	-2.0
	Fleet-wide Retention Percent With and Without the Preferred Alternative						
< 125'	0.0	0.0	3.1	3.1	3.1	3.1	3.1
> 125'	0.0	0.0	1.4	1.2	0.4	0.1	0.1
All	0.0	0.0	1.6	1.5	0.9	0.6	0.6
	Boats Directly Affected by GRS (Number) With and Without the Preferred Alternative						
> 125'		N/A	N/A	0	0	0	0

The three tables show that small vessels, while unaffected by the GRS regardless of the change in the MRA enforcement interval, improve their retention with the MRA change by 3.1 percentage points. For larger boats, the change in the MRA enforcement interval is expected to result in a slightly higher overall retention than would have occurred under the GRS alone. Of particular significance are the projected outcomes in 2005, the first year in which the GRS is implemented. In that year, analysts project that the GRS would have a negligible impact on the retention rate if the MRA change is approved and vessels choose to maximize pollock retention without increase total pollock catch. Increases in retention resulting from the implementation of the GRS are only noticeable in the second year when the standard increases to 75 percent.

Qualitative Assessment of Cumulative Effects

To further aid evaluation and comparison of the potential for and significance of cumulative effects of the proposed action and alternatives considered, a narrative description of effects on various resources was prepared in a tabular form (Table 28). The direct and indirect effects of past, present and reasonably foreseeable future actions are integrated to determine whether there is a cumulative effect and its significance. The far right hand column summarizes the cumulative effects.

Table 28. Cumulative Effects Summary

	Environment	Alternative 1 - No Action/Status Quo	Alternative 2 - Change the MRA Enforcement Interval for Pollock
Past Actions	Natural or physical environment	No significant effects from discards	
	Socioeconomic conditions	Since the mid-1980s, adjustments in the regulatory regime have changed the economic conditions of the groundfish fisheries in which HT-CP vessels participate. An increasingly restrictive regulatory environment and escalating compliance costs resulted in economical stress for some HT-CP vessel owners. HT-CPS were precluded by regulatory actions from participating in the pollock fishery, and pollock roe stripping was banned. Area closures and PSC limits constrained activities in bottom trawl fisheries. The threat of IR/IU led to improved markets for headed and gutted product.	
Present Actions	Natural or physical environment	No significant effects from discards	
	Socioeconomic conditions	Discards in the HT-CP sector have decreased, but the race for groundfish and PSC limits have limited profitability in the sector.	
Actions Considered	Natural or physical environment	No significant effects from discards	
	Socioeconomic conditions	The retention rate in the HT-CP sector is not likely to improve significantly. The race for groundfish and PSC limits will continue to limit profitability in the sector.	Under the proposed action to change the enforcement interval of the pollock MRA, the groundfish retention of the HT-CP sector could potentially increase by 1.9 percentage point over the status quo. The overall economic impact of changing the enforcement interval is uncertain. The main factors affecting the economic impacts on the HT-CP sector are the value of pollock relative to the value of groundfish they target and the strategic behavior of individual vessels.
Future Actions	Natural or physical environment	No significant effects from discards	
	Socioeconomic conditions	Overall groundfish retention rate of the HT-CP sector is projected to be 79.8 percent in 2008 as a result of the implementation of a GRS under Amendment 79. Seven affected HT-CP vessels would incur the cost of acquiring, installing, maintaining, and operating approved scales. In addition, 16 vessels would have to double their observer coverage or reduce their fishing time. The formation of a cooperative under Amendment 80 is expected to mitigate the costs incurred by HT-CPS as a result of PSC limits and a GRS.	
Cumulative Effects	Natural or physical environment	No significant effects from discards	
	Socioeconomic conditions	If Amendments 79 and 80 are both approved and implemented at the same time, the added costs of scales and observers may be at least partially offset by the benefits of participating in a cooperative.	If Amendments 79 and 80 are both approved and implemented at the same time, the added costs of scales and observers may be at least partially offset by the benefits of participating in a cooperative. Changing the MRA enforcement interval has the potential to increase retention rates, thereby reducing the economic impacts of Amendment 79.

The proposed action is not expected to have significant impacts on the natural or physical environment. Further, there are no persistent past effects or reasonably foreseeable future effects on the natural or physical environment over and above impacts evaluated in recent environmental reviews prepared for the groundfish fisheries. Therefore, no cumulative effects on the natural or physical environment are expected.

With respect to impacts on socioeconomic conditions, the analysis of past actions affecting the HT-CP sector showed that, since the mid-1980s, adjustments in the regulatory regime have changed the economic conditions of the groundfish fisheries in which these vessels participate. An increasingly restrictive regulatory environment and escalating compliance costs have resulted in economic stress for some HT-CP owners. The increased restrictions were also a primary reason that flatfish became the primary target species for the HT-CP 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, flatfish fisheries have limited markets—particularly with regard to size and product quality. These characteristics of the flatfish fisheries, in combination with MRAs and the "race for fish" regime under which HT-CPs operate, have led to a relatively high level of economic and regulatory discards in the HT-CP sector.

In recent years, the HT-CP fleet has faced increasing pressure to reduce its discard rate. Changing the MRA enforcement interval has the potential to increase retention rates, thereby reducing the impacts of Amendment 79. The proposed pollock MRA change would make it easier for vessels to achieve the GRS standards in proposed Amendment 79, and in that regard is expected to reduce some of the costs associated with Amendment 79, particularly in the years with phased-in, higher retention standards. The costs that the MRA would reduce are those associated with holding/processing, transporting, and transferring fish that are of relatively low value or "unmarketable." However, the costs associated with the requirement of Amendment 79 to use scales and increase observer coverage are unlikely to be completely mitigated by the MRA change.

Similar to the effects of the MRA change, Amendment 80 will make it easier for vessels to achieve the GRS and thereby further reduce the costs associated with holding/processing, transporting, and transferring fish that are of relatively low value or "unmarketable." When the race for fish is eliminated by the formation of a cooperative, fishermen are better able to fish more cleanly (i.e., minimize their bycatch), as they can fish in a less hurried fashion and avoid or discontinue fishing in areas where the catch of unwanted species is high, without losing any competitive advantage. Another benefit is allowing fishing effort to be matched to processing capacity. A cooperative allows for increased yields in processing operations, not only by allowing for more labor intensive activities that increase yields for primary products, but by also providing time to produce secondary products, such as fish meal, from inedible portions of the fish. The additional revenues associated with these benefits of a cooperative could substantially offset the costs associated with the GRS requirements, including those costs associated with scale and observer requirements. The Council's June 2003 action included an anticipated schedule for Amendment 80 implementation, and included both the MRA adjustment and a phased-in GRS requirement, the latter intended to coincide with 2006 implementation of fishery cooperatives, thereby leaving one year in which the fleet would have to comply with the GRS without the benefit of cooperatives. While there is no guarantee that either Amendment 79 or 80 will be approved and implemented, the intent of the Council's collective action recognized the benefits of cooperatives in offsetting costs associated with GRS requirements, and the intent to develop such cooperatives.

3.4 Conclusions

The direct, indirect, and cumulative impacts of the proposed action are assessed in Sections 3.1-3.3 of this EA. The significance of these impacts were determined through consideration of the *context* and the *intensity* of the action as required by NEPA and 50 CFR Section 1508.27.

Context: The setting of the proposed action is the groundfish fisheries of the BSAI. Any effects of the proposed action are limited to this area. The effects on society within this area is on individuals directly and indirectly participating in the groundfish fisheries. In this context the HT-CP sector and the NPFMC are under considerable pressure to reduce discards.

Intensity: Listings of considerations to determine intensity of the impacts are in 50CFR§1508.27(b) and in the NOAA Administrative Order 216-6, Section 6. Each consideration is addressed below in the order it appears in the regulations.

1. Impacts may be both beneficial and adverse -- a significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial.

No significant impacts are expected on groundfish, stocks, prohibited species, forage fish species, marine benthic habitat and essential fish habitat, ecosystems, marine mammals, endangered or threatened species, or seabirds, as discussed throughout Section 3.0.

The analysis showed that the overall economic impact of changing the enforcement interval for the pollock MRA on vessels in the HT-CP sector is uncertain. The main factors that could affect the economic impact on the HT-CP sector is the value of pollock relative to the value of groundfish normally caught by the sector and the strategic behavior of individual vessels.

If all of HT-CP vessels process pollock up to the maximum allowed (i.e., the pollock MRA) under the revised enforcement interval and pollock is a break-even product, there is unlikely to be any differences in the amount of profit or its distribution to the various vessels relative to the status quo. If processing additional pollock generates positive net revenues for all vessels, the net revenues of the fleet are likely to be higher than under the status quo. Similarly, if processing pollock costs more then the revenue it generates and all vessels process up to the maximum allowed, overall net revenues for the fleet are likely to be lower. However, available operating cost and earnings data for this fleet do not permit an assessment of which of these outcomes is more likely. Furthermore, there will almost certainly be variations within the sector (i.e., some operations may fair better or worse than average).

The strategic behavior of individual vessels could also determine how the proposed action affects economic performance. As noted above, under the proposed action, a vessel that catches an amount of pollock high enough to exceed the MRA percent at the beginning of a trip has the option of keeping that pollock and catching more species open for directed fishing during the rest of the enforcement interval to comply with the MRA. The same vessel that catches a large amount of pollock early in a trip also has the choice of discarding the pollock that exceeds the MRA percent. If pollock has a high value relative to species open for directed fishing, it is in the best interest of all vessels to minimize pollock discards. However, if pollock is worth less than the other species, the vessel captain that chooses not to discard pollock because he or she believes that avoiding waste in fisheries “is the right thing to do” may be placed at an economic competitive disadvantage if other captains do not follow suit. The “free-riders” that do not minimize pollock discards would likely be able to increase their relative share of higher-value species and fleet-wide profits. If the free-rider problem results in a noticeable redistribution of profits across the HT-CP fleet, there would be a tendency for all vessels to retain only the minimum amount of pollock required by the IR/IU regulations regardless of which enforcement interval is implemented.

2. Degree to which public health or safety is affected.

Public health and safety will not be affected in any way not evaluated under previous actions.

3. Unique characteristics of the geographic area.

The proposed action takes place in the geographic areas of the Bering Sea and Aleutian Islands, generally from 3 nm to 200 nm offshore. The land adjacent to these areas contain cultural resources and ecologically critical areas. The marine waters where the fisheries occur contain ecologically critical area. This action will have no effects on the unique characteristics of these areas.

4. Degree to which effects on the human environment are likely to be highly controversial.

The effect of this action on the human environment are not controversial in that it will not adversely affect the natural and physical environment. Nor are the socioeconomic effects of the action likely to be highly controversial. However, this action deals with bycatch in the groundfish fisheries, an issue surrounded by considerable controversy. Differences of opinion exist among various industry, environmental, management, and scientific groups on the effects of bycatch in the groundfish fisheries and on what measures should be taken to reduce this bycatch.

5. Degree to which effects are highly uncertain or involve unique or unknown risks.

Given the analysis cannot measure the economic profitability, operational response, strategic behavior, or market response caused by the change in enforcement interval for the MRA with any absolute certainty, it is difficult to provide an assessment on the degree of uncertainty or unique or unknown risks. However, based on the information noted in this analysis, the proposed change in the enforcement interval appears to have no known risks to the human environment associated with the action considered.

6. Degree to which the action establishes a precedent for future actions with significant effects or represents a decision in principle about a future consideration.

This action does not in itself establish a precedent for future actions or represent a decision in principle about a future consideration. The trend in the groundfish fisheries off Alaska has been toward reducing bycatch, and this action is in direct relation to this purpose.

7. Individually insignificant but cumulatively significant impacts.

The cumulative effects analysis is summarized in Table 25. Cumulatively significant impacts on the natural and physical environment are not anticipated with the proposed action because no impacts on the natural and physical environment have been identified. The alternatives considered would not change the TACs for groundfish, the gear types used in the fisheries in which groundfish are discarded, or the spatial or temporal distribution of these fisheries.

The proposed action and alternatives considered are expected to have no significant impacts on the natural or physical environment. Further, there are no persistent past effects or reasonably foreseeable future effects on the natural or physical environment over and above impacts evaluated in recent environmental reviews prepared for the groundfish fisheries. Therefore, no cumulative effects on the natural or physical environment are expected.

With respect to impacts on socioeconomic conditions, the analysis of past actions affecting the HT-CP sector showed that, since the mid-1980s, adjustments in the regulatory regime have changed the economic conditions of the groundfish fisheries in which these vessels participate. An increasingly restrictive regulatory environment and escalating compliance costs have resulted in economic stress for some HT-CP owners. The increased restrictions were also a primary reason that flatfish became the primary target species for the HT-CP 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, flatfish fisheries have limited markets—particularly with regard to size and product quality. These characteristics of the flatfish fisheries, in combination with MRAs and the "race for fish" regime under which HT-CPS operate, have led to a relatively high level of economic and regulatory discards in the HT-CP sector.

In recent years, the HT-CP fleet has faced increasing pressure to reduce its discard rate. Changing the MRA enforcement timing has the potential to increase retention rates, thereby reducing the impacts of Amendment 79. The proposed pollock MRA change would make it easier for vessels to achieve the GRS

standards in proposed Amendment 79, and in that regard is expected to reduce some of the costs associated with Amendment 79, particularly in the years with phased-in, higher retention standards. The costs that the MRA would reduce are those associated with holding/processing, transporting, and transferring fish that are of relatively low value or "unmarketable." However, the costs associated with the requirement of Amendment 79 to use scales and increase observer coverage are unlikely to be completely mitigated by the MRA change.

Similar to the effects of the MRA change, Amendment 80 would make it easier for vessels to achieve the GRS and thereby further reduce the costs associated with holding/processing, transporting, and transferring fish that are of relatively low value or "unmarketable." When the race for fish is eliminated by the formation of a cooperative, fishermen are able to fish more cleanly (i.e., minimize their bycatch), as they can fish in a less hurried fashion and avoid or discontinue fishing in areas where the catch of unwanted species is high without losing any competitive advantage. Another benefit is allowing fishing effort to be matched to processing capacity. A cooperative allows for increased yields in processing operations, not only by allowing for more labor intensive activities that increase yields for primary products, but by also providing time to produce secondary products, such as fish meal, from inedible portions of the fish. The additional revenues associated with these benefits of a cooperative could substantially offset the costs associated with the GRS requirements, including those costs associated with scale and observer requirements. The Council's June 2003 action included an anticipated schedule for Amendment 80 implementation, and included both the MRA adjustment and a phased-in GRS requirement, the latter intended to coincide with 2006 implementation of fishery cooperatives, thereby leaving one year in which the fleet would have to comply with the GRS without the benefit of cooperatives. While there is no guarantee that either Amendment 79 or 80 will be approved and implemented, the intent of the Council's collective action recognized the benefits of cooperatives in offsetting costs associated with GRS requirements, and the intent to develop such cooperatives.

8. Degree to which the action adversely affects entities listed in or eligible for listing in the National Register of Historic Places, or may cause loss or destruction of significant scientific, cultural, or historic resources.

This action will have no effect on districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places, nor cause loss or destruction of significant scientific, cultural, or historical resources. This consideration is not applicable to this action.

9. Degree to which endangered or threatened species, or their critical habitat as defined under the Endangered Species Act of 1973, are adversely affected.

There are no known interactions between implementation of the action under consideration and any ESA-listed species.

10. Whether a violation of Federal, state, or local law for environmental protection is threatened.

This action poses no known violation of Federal, State, or local laws or requirements for the protection of the environment.

4.0 Regulatory Impact Review

This 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 from the order:

> *In deciding whether and how to regulate, agencies should assess all costs and benefits of available regulatory alternatives, including the alternative of not regulating. Costs and benefits shall be understood to include both quantifiable measures (to the fullest extent that these can be usefully estimated) and qualitative measures of costs and benefits that are difficult to quantify, but 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 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.

4.1 Purpose and Need for Action

This section describes the problem facing the Council, NOAA Fisheries and the groundfish industry, describes the need for action, and reviews the regulatory background of the discard and retention in the groundfish fishery of the BSAI.

4.1.1 The Problem Statement

In recent years vessels in the HT-CP sector have discarded between 45 and 50 percent of the roughly 30,000 mt of pollock they have caught. These discards are assumed to be primarily regulatory discards resulting from the fact that all vessels in the HT-CP sector but one are prohibited from participating in pollock fisheries by the regulations implementing the AFA—pollock are reserved primarily for the exclusive use of AFA-eligible vessels. **The problem facing the NPFMC and NOAA Fisheries is to develop a regulation that allows greater retention of pollock without increasing the catch of pollock by non-AFA vessels.**

Current regulations prohibit the retention of a species closed to directed fishing in amounts that exceed the MRA percentage, and excess catch must be discarded. For most species, including pollock, a general default of 20 percent is established to serve as a general management tool to slow the harvest rate of a species, yet avoid significant discard amounts of these species to the extent they are taken as incidental catch in other open groundfish fisheries. Under current regulations, it is unlawful for a vessel to exceed the MRA **at any time** during a fishing trip.

The current MRA regulations appear to be a most difficult to work under at the beginning of a fishing trip when vessels are searching for schools of their target species and they do not have significant amounts of groundfish catch aboard. This may be particularly true for pollock which are ubiquitous and are often found intermingled with Pacific cod and flatfish, which are major targets of the HT-CP sector. If a non-AFA vessel catches a lot of pollock early in a trip, it is likely that much of it will be discarded, because there may not be enough non-pollock onboard to meet the "instantaneous" MRA standard. Later in the trip—after sufficient amounts of non-pollock groundfish have been caught and processed, it is easier for a vessel to accommodate a tow that includes larger amounts of pollock without being forced to discard it.

Under the proposed preferred alternative, compliance with the MRA for pollock harvested in the BSAI would be determined on an offload to offload basis. By calculating the MRA percentage for pollock only at the end of the trip (i.e. at offload), the regulations will encourage pollock caught at the beginning to be retained rather the forcing pollock to be discarded.

4.1.2 Regulatory Background

In December 1994, while addressing their comprehensive rationalization program (CRP), the NPFMC debated issues of bycatch and economic loss from discards in target fisheries, then unanimously adopted a motion to develop a set of regulatory options for implementing an improved retention/improved utilization (IR/IU) program for BSAI groundfish fisheries. The NPFMC identified the BSAI rock sole and mid-water pollock fisheries as two subject fisheries for initial evaluation and proposed that commercial groundfish trawl fisheries be required to reduce discards by retaining species which have historically been considered bycatch.

At its December 1995 meeting, the NPFMC adopted a draft IR/IU problem statement for public review. That statement reads as follows:

In managing the fisheries under its jurisdiction, the North Pacific Fishery Management Council is committed to: (1) assuring the long-term health and productivity of fish stocks and other living marine resources of the North Pacific and Bering Sea ecosystem; and (2) reducing bycatch, minimizing waste, and improving utilization of fish resources in order to provide the maximum benefit to present generations of fishermen, associated fishing industry sectors, communities, consumers, and the nation as a whole.

These commitments are also reflected in the Council's CRP problem statement:

The Council's overriding concern is to maintain the health of the marine ecosystem to ensure the long-term conservation and abundance of the groundfish and crab resources. As a response to this concern, a program to promote improved utilization and effective control/reduction of bycatch and discards in the fisheries off Alaska should address the following problems:

> *Bycatch and discard loss of groundfish, crab, herring, salmon, and other non-target species.*
>
> *Economic loss and waste associated with the discard mortality of target species harvested but not retained for economic reasons.*
>
> *Inability to provide for a long-term, stable fisheries-based economy due to loss of fishery resources through wasteful fishing practices.*
>
> *The need to promote improved retention and utilization of fish resources by reducing waste of target groundfish species to achieve long-term sustainable economic benefits to the nation.*

In May 1997, NOAA Fisheries completed an EA/RIR/IRFA of the improved retention and utilization options identified by the NPFMC as Amendment 49 to the BSAI Groundfish FMP. At its September 1997 meeting the NPFMC adopted Amendment 49. NOAA Fisheries prepared an implementation

rulemaking and, after considering public comments, issued a final rule to implement Amendment 49 to the BSAI Groundfish FMP, effective January 3, 1998 [62 FR 63880]. The final rule requires 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. In addition, the final rule establishes a 15 percent minimum processing standard with no limit on product form beginning January 3, 1998, for pollock and Pacific cod and establishes a 15 percent minimum processing standard with no limit on product form, beginning January 1, 2003, for rock sole and yellowfin sole.

The potential negative impacts of IR/IU rules for flatfish on some sectors of the groundfish fisheries of the BSAI and GOA created the possibility that some entities currently participating in these fisheries might be compelled to discontinue their participation due to the economic burden the rules could place on their operations. The likelihood that the head and gut trawl catcher processor (HT-CPS) sector would not be able to fully meet IR/IU flatfish rules became increasingly clear in 2000, during Council and industry deliberation on AFA processing sideboards, which would have protected non-AFA processors from AFA processors increasing their share of non-pollock fisheries. It was argued that, rather than limit AFA processors, it would be more practicable to provide relief from flatfish IR/IU to the HT-CPS.

At its June 2002 meeting the NPFMC developed a problem statement specifically to address the pending implementation of IR/IU regulations for the flatfish fisheries. This statement read as follows:

> *100 percent retention of rock sole and yellowfin sole (as currently scheduled) results in severe economic losses to certain participants in the fishery, while less than 100 percent retention of only these species is not enforceable.*

In October 2002, the NPFMC approved Amendment 75 to the BSAI Groundfish FMP, delaying implementation of IR/IU flatfish regulations for the BSAI until June 1, 2004. The NPFMC also initiated four trailing amendments with the expectation that these amendments could augment or replace IR/IU regulations for flatfish prior to the end of the delay period. Amendment A (as modified at the April 2003 Council meeting) establishes sector allocations in the BSAI and facilitates the formation of a fishery cooperative for non-AFA trawl catcher processors. Amendment B creates flatfish bycatch (discard) limits for the flatfish fisheries. Amendment C establishes a minimum groundfish retention standard (GRS). Amendment D exempts fisheries with less than a 5 percent IR/IU flatfish bycatch rate from IR/IU flatfish regulations.

Amendment 75 was only partially approved by the Secretary. The delay of imposing IR/IU requirements on catches of IR/IU flatfish in the BSAI was approved, while the date of June 1, 2004, on which this delay would have ended, was disapproved and eliminated. The practical effect of partially approving Amendment 75 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.

With the indefinite delay of the BSAI IR/IU flatfish program, Amendment D (now Amendment 76) no longer had any practical application in the BSAI, but still applied to the GOA (Amendment 72). Amendment B was rejected by the Council as infeasible following discussions between industry representatives and fishery managers. However, the NPFMC continued to pursue possible implementation of Amendments A (now Amendment 80) and Amendment C (now Amendment 79). At the June 2003 meeting the Council took final action on Amendment 79, approving a phased-in GRS for the non-AFA catcher processor sector in the BSAI, to begin in 2005. Further refinement of Amendment 80 will occur at the October 2003 Council meeting, with a target implementation of 2006.

At its June 2003 meeting, as part of its action on Amendment 79, the NPFMC also approved a revision of the MRA for pollock. The Council recognized that the MRA change was simpler to implement than the full GRS action and requested NOAA Fisheries to expedite the proposed pollock MRA action. The objective of the MRA change is to reduce regulatory discards of pollock in the directed fisheries for non-pollock groundfish species without increasing the overall amount of pollock that has historically been caught as incidental catch in these fisheries.

Regulations at 50 CFR 679.20(e) establish MRA percentages for groundfish species or species groups that are closed to directed fishing. The MRA is calculated as a percentage of the species closed to directed fishing relative to the retained amount of other species for which directed fishing is open. Amounts of a species closed to directed fishing onboard a vessel that are below or equal to the specified MRA percentage for that species may be retained. In the case of pollock and Pacific cod, IR/IU requires vessels a retention rate of a 100 percent for these species up to the MRA. Amounts that are in excess of the MRA percentage must be discarded. Such discards that are required by the regulations are defined as regulatory discards.

MRA percentages serve as a management tool to slow the harvest rates of species closed to directed fishing by limiting the amount that can be retained on board a vessel [NMFS 1996]. By not placing these species on "prohibited" status, thereby prohibiting all retention, MRAs also serve to reduce regulatory discards of species when they are taken incidental to other directed fisheries. MRA percentages reflect a balance between the need to reduce the harvest rate of these species and the desire to minimize regulatory discards. Although MRA percentages limit the incentive to target on a species that is closed to directed fishing, fishermen can "top off'" their retained catch with these species up to the MRA amount by deliberately targeting the species [NMFS 1996].[9]

Under regulations resulting from the AFA only certain vessels are eligible to participate in directed fisheries for pollock in the BSAI—all other vessels must operate under the pollock MRA, which limits their retention of pollock. At the same time non-AFA vessels must also meet IR/IU regulations that require retention of all pollock (with minor exceptions), up to the MRA. Thus non-AFA vessels must discard pollock when they have high incidental catches so that they retain no more and no less than 20 percent relative to the other retained groundfish they have on board. Precisely monitoring and tracking these conflicting limits, on a continuous, real-time basis poses a costly technical challenge.

4.1.3 Other Contextual Issues Surrounding the Proposed Regulation

The NPFMC has experienced increasing pressure to reduce groundfish discards in the fisheries under its jurisdiction. To that the end, they developed and approved in 1996 and 1997, the original IR/IU amendments for pollock and Pacific cod, as well as IR/IU actions for flatfish. Recognizing the fact the immediate implementation of flatfish IR/IU regulations was impractical, the NPMFC delayed implementation until 2003—the delay would give the industry a chance to further develop markets for fish that were being discarded and to develop gears and other methods to avoid catch of unwanted fish.

While the pressure on the NPFMC to reduce discards of groundfish has not abated, in 2002 they recognized that a further delay of IR/IU for flatfish would be necessary in order to keep the HT-CP sector from demise. In October 2002 they approved a further delay by 18 months to implementation, with the admonition to the industry that unless they developed other measures to reduce discards, IR/IU would be implemented in June 2004.

NMFS partially approved the Council's action delaying the implementation of flatfish IR/IU indefinitely, rather than until June 2004. In light of NMFS' action, the NPFMC voted in June 2003, to approve Amendment 79 for the BSAI, which would implement a Groundfish Retention Standard. The GRS

[9]Topping off is most likely with highly valuable species such as sablefish and rockfish. Because these species are more valuable than the primary target species, there is no opportunity cost of catching them in terms of using limited freezer hold space—typically the constraining factor for trip lengths in the HT-CP sector. Topping off is less likely to occur if the value of the incidental catch species has the same or less value than the target species. Ironically, if a species has enough value to be considered for "topping off", existing MRA regulations may lead to higher total catch of the "closed" species, particularly if unintended incidental catch of the "closed" species in fisheries for "open" species is high. In this case, vessels may have to discard the "closed" species early in the trip until sufficient amounts of the open species are retained. Then if the vessels wishes to "top off" with the "closed" species it will have to catch amounts of fish that it earlier discarded.

program would establish an overall minimum groundfish retention standard for non-AFA trawl catcher/processors greater than 125'. The groundfish retention standard program would be phased in over a four-year period starting in 2005, with the initial minimum retention standard set at 65 percent of total groundfish catch. In 2006, the minimum retention rate will increase to 75 percent, followed by five percent increases in both 2007 (80 percent) and 2008 (85 percent).

Included in that action by the NPFMC was a change in the enforcement interval for the pollock MRA. From NPFMC's perspective, the MRA change is a part of the GRS amendment—the two are inextricably linked. It is only to expedite implementation of the MRA that a separate regulatory amendment for the MRA change is being considered. The NPFMC made it clear that the combination of the GRS program along with the necessary changes to the MRA were together extremely important in meeting the goals of minimizing bycatch to the extent practicable, while at the same time reducing the cost of the flatfish reduction program to the extent practicable.

4.2 Description of the Fishery

The HT-CP fleet consists of a relatively wide variety of vessels that range from 103 feet to 295 feet in length. Approximately one-third of the 23 to 24 vessels in the fleet that have fished in the BSAI in recent years are less than 125 feet. Most of the vessels in the HT-CP class are limited to producing headed and gutted products. The majority of vessels operate exclusively in the BSAI, but some of the smaller boats operate in the GOA. Flatfish species—yellowfin sole and rock sole, in particular—are the primary targets of the HT-CP fleet. Atka mackerel and various rockfish species have also been very important to the class. Historically, these vessels have generally not targeted pollock because the price of headed and gutted pollock almost never covers the cost of producing this product, with the possible exception of the peak of the pollock roe season. Furthermore, all but one of the HT-CPS have been excluded from participating in directed fishing for pollock since implementation of the AFA in 1999. Moreover, the opportunity cost is high when scarce hold capacity is devoted to lower-valued products. The number of HT-CP vessels, their reported harvest and the wholesale value of their product are presented in Table 29.

Table 29. Participation of HT-CPS in Non-Pollock Target Fisheries, 1995-2002

	1995	1996	1997	1998	1999	2000	2001
Number of Vessels	32	28	28	23	24	24	23
Metric Tons Reported (1,000)	303	327	354	271	268	294	265
Wholesale Product Values ($Millions)	174.8	197.6	161.3	121.7	138.5	151.5	196.6

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

Groundfish retention rates among HT-CP vessels have shown improvement in recent years. In the yellowfin sole fishery, the retention rate increased from 53 percent in 1995 to 73 percent in 2001. Other fisheries like the rock sole, flathead sole, Pacific cod, and other flatfish fisheries had retention rates below 50 percent in 1995. With the exception of the other flatfish fishery, retention rates had climbed to above 65 percent by 2001. Retention rates in the Atka mackerel and rockfish fisheries also improved between 1995 and 2001. Retention in the Atka mackerel fishery drifted upward to a high of 86 percent in 2000, while the retention rate in the rockfish fishery increased from 80 percent in 1996 to 95 percent in 2000.

As shown in Table 30, pollock was the largest single component of total (economic and regulatory) discards by the HT-CP fleet in 2001. Under the IR/IU regulations for pollock, pollock (up to 20 percent of other retained groundfish species open for directed fishing) must be retained during a fishing trip. However, pollock catch amounts in excess of the 20 percent ceiling must be discarded according to the MRA. Therefore, all discarded pollock are presumed to be regulatory discards. Only one HT-CP vessel is allowed to participate in directed fishing for pollock under the AFA. HT-CPS must also discard

incidental catches of various other groundfish species when directed fishing for those species is prohibited—for example when a seasonal apportionment or TAC has been reached or if a PSC closure is in effect. During such closed periods, vessels may continue to operate in fisheries that remain open, but they can retain no more than the MRA's for closed species. In 2002, the HT-CP fleet discarded over 15,800 mt of pollock, 20,000 mt of rock sole, yellowfin sole, flathead sole, and other flatfish combined and over 800 mt of sablefish and Greenland turbot during periods for which directed fishing for those species was closed. In total, approximately 36,000 mt of the 81,000 mt (44 percent) of groundfish discarded by the HT-CP fleet in 2002 could be considered regulatory discards.

Table 30. Total Discards in BSAI Fisheries by the HT-CP Sector, 1999-2002

	1999	2000	2001	2002
	Discards (Thousands of Tons) by Species			
Atka Mackerel	4.70	2.60	4.30	7.4
Arrowtooth Flounder	6.80	5.50	6.60	5.5
Flathead Sole	2.70	3.30	2.10	2.6
Other Flatfish	12.50	12.77	8.80	14.2
Other Groundfish	7.30	8.80	8.50	9.7
Pacific Cod	1.30	0.70	0.79	1.1
Pollock	14.95	14.60	14.46	15.9
Rockfish	6.80	5.50	7.59	5.1
Rock Sole	20.00	23.56	8.60	15.3
Yellowfin Sole	11.22	12.72	7.65	10.2
Turbot/Sablefish	0.40	0.28	0.49	0.3

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

Groundfish retention rates among HT-CP vessels have shown improvement. In the yellowfin sole fishery, the retention rate increased from 53 percent in 1995 to 73 percent in 2001. Other fisheries like the rock sole, flathead sole, Pacific cod and other flatfish fisheries had retention rates below 50 percent in 1995. With the exception of the other flatfish fishery, retention rates had climbed to above 65 percent by 2001. Retention rates in the Atka mackerel and rockfish fisheries also improved between 1995 and 2001. Retention in the Atka mackerel fishery drifted upward to a high of 86 percent in 2000, while the retention rate in the rockfish fishery increased from 80 percent in 1996 to 95 percent in 2000.

4.2.1.1.1 Pollock Catches by the HT-CP Sector

As discussed in the previous section, pollock has been the highest single component of discards of the HT-CP fleet. Since 1999, and the implementation of AFA, the HT-CP fleet has generally been precluded from targeting pollock—the exception is the Ocean Peace which is AFA-qualified. Regulations to prevent vessels that are not AFA-qualified from targeting pollock require that pollock may not be retained in excess of 20 percent of all other retained catch. This section examines pollock catches in the HT-CP sector from 1998, the first year of IR/IU, through 2002. The section will show pollock catches and discards by quarter to examine whether there are periods of time when pollock catches are higher. The section will also look at the distribution of pollock catches among the HT-CP sector to examine the question of whether some vessels have higher catches of pollock than others, and it will also look at haul by haul observer data to determine whether there are tendencies among the fleet for "topping off". The following conclusions regarding pollock catches were found:

- Overall, it appears that pollock discards by the HT-CP sector increased significantly in 1999, the first year of AFA
- In some years pollock catches by the HT-CPS are highest in the first quarter and in other years are highest in the third quarter
- Discards of pollock have generally been highest in the first quarter
- Over half of the pollock is caught by 25 percent of the vessels in the HT-CP sector

- In 2000 and 2001 observer data, less than 5 percent of the observed hauls had over 50 percent pollock
- In 2000 and 2001 observer data, over 80 percent of the observed hauls had less than 20 percent pollock
- A regression of 2000 and 2001 observer data did not indicate statistically significant "topping off" behavior

Table 31 shows pollock catches of the HT-CP fleet from 1998-2002, by quarter. Overall pollock catches have increased since 1998, but there has also been an overall increase in pollock abundance during that time period. There was speculation, *a priori*, that pollock catches would be higher in the first quarter because of high valued pollock roe. In 1999, and again in 2002, pollock catches were highest in the first quarter, but in the other 3 years pollock catches were highest in the third quarter.

Table 32 shows the percentage of pollock that was discarded by the HT-CP sector from 1998-2002. Although only one year of data are available, discards under IR/IU before AFA were lower that discards have been after AFA—in 1998, just over 30 percent of the pollock was discarded, while every year since 1999, has seen discards of pollock greater than 45 percent. Discards are generally highest in the first quarter, but the difference within the first three quarters does not appear to large.

Table 31. Total Pollock Catch of HT-CP Vessels by Quarter and Year, 1998-2002

Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Sector Total
			Pollock Catch (mt)		
1998	7,395	2,680	11,025	3,007	24,107
1999	12,288	7,456	7,733	1,528	29,005
2000	9,244	6,579	11,214	4,478	31,515
2001	9,403	3,752	11,671	6,807	31,633
2002	14,383	6,630	8,781	3,736	33,529
			Percent of Total Pollock Catch		
1998	30.7	11.1	45.7	12.5	100.0
1999	42.4	25.7	26.7	5.3	100.0
2000	29.3	20.9	35.6	14.2	100.0
2001	29.7	11.9	36.9	21.5	100.0
2002	42.9	19.8	26.2	11.1	100.0

Source: Blend data supplied by NOAA Fisheries-AFSC

Table 32. Percent of Pollock Discarded by of HT-CP Vessels by Quarter and Year, 1998-2002

Year	First Quarter	Second Quarter	Third Quarter	Fourth	Sector Total
	Percent of Pollock Discarded				
1998	42.7	18.0	29.2	17.4	30.6
1999	62.7	50.1	39.5	29.9	51.6
2000	43.6	42.1	59.9	24.2	46.3
2001	51.8	34.7	51.0	34.1	45.7
2002	58.8	51.9	26.0	45.3	47.3

Source: Blend data supplied by NOAA Fisheries-AFSC

Table 33 shows the distribution of pollock catches within the HT-CP sector by quartile—each quartile consists of 25 percent of the fleet with Quartile 1 containing vessels with the lowest pollock catch and Quartile 4 containing the vessels with the highest pollock catch. In most years the 25 percent of the fleet with the lowest catch of pollock (Quartile 1) accounts for less than 10 percent of the pollock, while Quartile 4 accounts for nearly 50 percent of the pollock. Table 34 shows pollock discards as a percent of pollock catches by quartile. Quartile 4 has discarded over 50 percent of their pollock since 1999, while Quartile 1 has averaged less than 40 percent.

Table 33. Pollock Catch by Year and Quartile of HT-CP Vessels, 1998-2002

Year	Quartile of HT-CP Vessels with Pollock Catch *				Sector Total
	Quartile 1	Quartile 2	Quartile 3	Quartile 4	
	Pollock Catch (mt)				
1998	752	2,826	7,208	13,322	24,107
1999	858	3,725	7,331	17,091	29,005
2000	1,721	4,543	8,939	16,312	31,515
2001	2,544	5,717	8,743	14,629	31,633
2002	3,116	5,674	9,405	15,333	33,529

Source: Blend data supplied by NOAA Fisheries-AFSC.

Table 34. Percent of Pollock Discarded by Year and Quartile of HT-CP Vessels, 1998-2002

Year	Quartile of HT-CP Vessels with Pollock Catch *				Sector Total
	Quartile 1	Quartile 2	Quartile 3	Quartile 4	
	Percent of Quartile's Pollock Catch Discarded				
1998	14.1	29.2	26.2	36.6	30.6
1999	29.6	39.8	54.7	53.9	51.6
2000	27.6	43.3	43.7	50.6	46.3
2001	39.3	45.9	39.5	50.4	45.7
2002	40.3	42.3	45.5	51.8	47.3

Note: Vessels are placed into quartiles according to amount of pollock catch in each year.
Source: Blend data supplied by NOAA Fisheries-AFSC

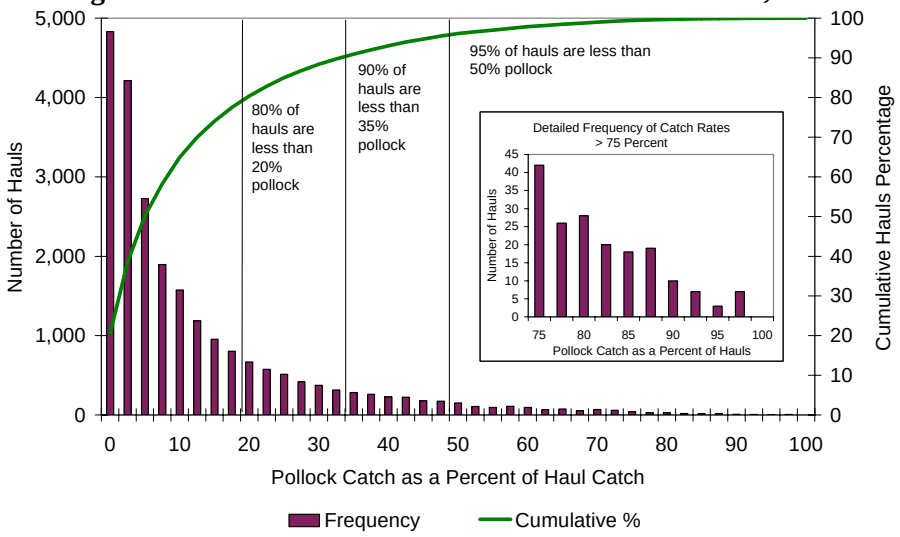
4.2.1.1.2 Tow by Tow Data from Observers of the HT-CP Sector

This section examines tow by tow data from observers in an attempt to discover patterns of high and low catches of pollock within the fleet of HT-CPS and within trips by individual vessels.

Observer data were used to examine haul by haul catches of pollock by the HT-CP sector from 2000-2001—a total of 11,834 haul were examined. Figure 4 shows the distribution of hauls in terms of pollock catch as a percentage of total catch. In the figure the bars represent the number of hauls (left vertical axis) with a corresponding pollock percentage (horizontal axis). The line shows the cumulative percent of hauls and uses the right vertical axis. In over 80 percent of the hauls, pollock accounted for less than

20 percent of total catch, while less than 5 percent of the hauls had pollock catches greater than 50 percent of the total catch weight.

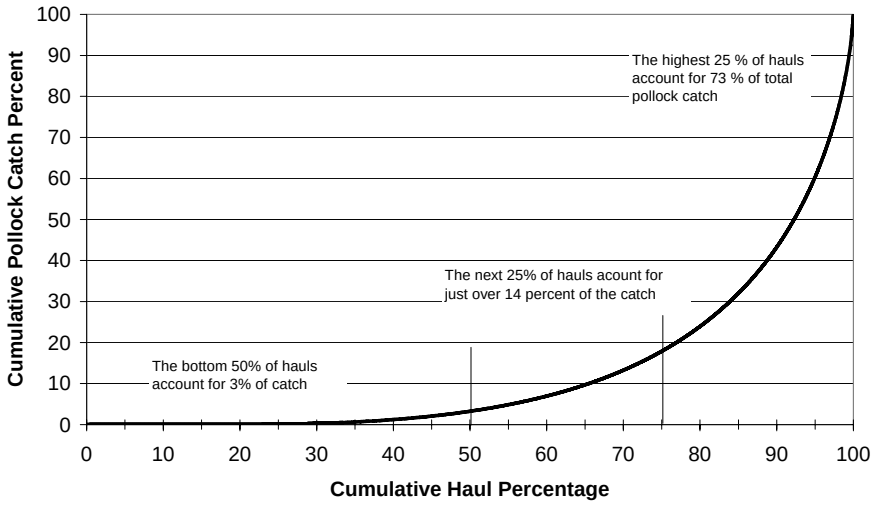
Figure 4. Distribution of Pollock Incidental Catch Rates, 2002



Source: NMFS Observer Data 2000-2001, provided by NMFS-AFSC.

Figure 5 shows cumulative pollock catches from observer data (sorted from lowest pollock catch to highest). As seen in the figure, 50 percent of the haul with the lowest amount of pollock accounted for approximately 3 percent of all of the pollock observed, while 25 percent of the hauls accounted for 73 percent of observed pollock.

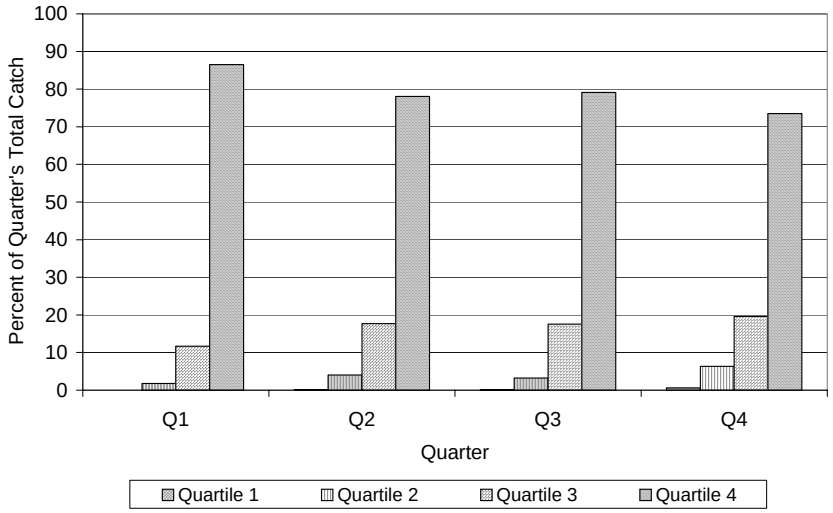
Figure 5. Pollock Catch by Cumulative Number of Hauls, 2002



Source: NMFS Observer Data 2000-2001, provided by NMFS-AFSC.

Figure 6 shows the distribution of pollock catches by quartile and quarter. Quartiles were created by placing each observed haul into one of four bins based on the hauls ranking in terms of pollock as a percent of total catch. The lowest 25 percent of hauls go into Quartile 1, the 25 percent of hauls with the highest percentages of pollock are in Quartile 4. The figure shows that the vast majority of pollock are caught in 25 percent of the hauls. During the course of the year the highest quartile's catch of pollock drops from over 85 percent in the first quarter to less than 75 percent in the fourth quarter.

Figure 6. Pollock Distribution Across Haul Quartile by Calendar Quarter, 2000-2001



Source: NMFS Observer Data 2000-2001, provided by NMFS-AFSC.

The data in Figures 4-6 suggest the possibility of"topping off" behavior, but do not confirm that topping off actually occurred. Topping off is indicated if hauls at the end of a trip contain higher percentages of pollock than hauls during the remainder of the trip. To test for topping off, hauls were marked if they were the last observed hauls during a trip and a regression analysis was run. Last haul was not a significant predictor of pollock percentages. In fact, the regression analysis indicated that the later the haul was in the trip the lower the percentage of pollock in the catch. The only significant predictor of pollock percentages was found when hauls were divided into bins indicating the part of the trip in which they occurred—with 10 bins per trips. In this case the first parts of the trip had a significantly higher catch of pollock than the later parts of the trip.[10]

4.2.1.1.3 Additional Information on Retention and Discard of Pollock by HT-CPs

The HT-CP fleet's catch of BSAI pollock is currently restricted by two regulatory factors: the annual ICA established by NOAA Fisheries and the MRA restricting pollock retention to 20 percent of total retained groundfish. Although the MRA may be limiting the HT-CP fleet's pollock retention on a haul-by-haul basis, on a seasonal or yearly basis the sector could retain more of the pollock they currently catch without exceeding either the MRA or ICA.[11] If this increase in pollock retention were to occur, it would have a substantial impact on the sector's overall groundfish retention rate, decreasing the discard rate by 13 to 16 percent of the current rate.

This analysis calculated the amount of pollock caught as a percent of total sector catch using data from 1999-2002, and determined how much pollock the entire sector caught and discarded. Table 35 summarizes non-pollock groundfish and pollock catches of the HT-CP sector in the BSAI from 1999-2002. Overall, pollock accounts for just over 10 percent of the total groundfish catch during the period. Roughly half of the pollock has been discarded over the 4-year period–pollock accounts for about 18 percent of all discards in the sector.

[10]In statistical terms, the model regressing the "decile" variable and an intercept against pollock percentage did was not have much predictive power—the regression model's R^2 statistic was only 0.0015. However, in this model, "decile" had a coefficient of -4.30 with an alpha less than 0.001.

[11] This analysis assumes that all pollock discards are caused by the MRA regulation. Thus, the numbers presented represent the upper limit of the potential effect of retaining more pollock on groundfish discard rates.

Table 35. Summary of Non-Pollock Groundfish and Pollock Catch of the HT-CPs, 1999-2002

	Non-Pollock Groundfish			Incidental Pollock			All Groundfish Species		
	Discard	Retained	Total	Discard	Retained	Total	Discard	Retained	Total
YEAR	Thousands of Metric Tons								
1999	74.1	165.1	239.3	15.0	14.0	29.0	89.1	179.2	268.3
2000	75.8	186.4	262.2	14.6	16.9	31.5	90.4	203.3	293.7
2001	55.7	182.8	238.4	14.4	17.2	31.6	70.1	200.0	270.1
2002	70.7	180.6	251.3	15.9	17.7	33.5	95.9	222.3	318.2
YEAR	Percent of Total Groundfish Catch								
1999	27.6	61.6	89.2	5.6	5.2	10.8	33.2	66.8	100.0
2000	25.8	63.5	89.3	5.0	5.8	10.7	30.8	69.2	100.0
2001	20.6	67.7	88.3	5.3	6.4	11.7	26.0	74.0	100.0
2002	24.8	63.4	88.2	5.6	6.2	11.8	30.4	69.6	100.0

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

In each of the last four years, the amount of pollock caught in the non-AFA pollock fishery has been less than the ICA (Table 36). During this time, the non-target fishery used up to 92 percent of the ICA, leaving an average buffer of 3,200 mt. Pollock caught by the HT-CP sector accounted for an average of 77 percent of the catch applied towards the ICA between 1999 and 2002.

Table 36. Pollock ICA, Catches Attributed to the ICA, 1999-2002

	Pollock ICA	HT-CP Pollock Catch	Total Non-AFA Pollock Catch	Slack in the ICA
Year	Thousands of Metric Tons			
1999	44.6	29.0	40.1	4.4
2000	45.3	31.5	42.0	3.3
2001	41.1	31.6	38.4	2.7
2002	45.2	33.5	42.6	2.5

Source: Furuness, Mary, NOAA Fisheries-Sustainable Fisheries Division, Personal Communication. August 2003.

While Table 36 demonstrated a considerable difference between the pollock ICA and actual incidental pollock catches of all sectors, Table 37 shows that there is also a considerable difference between pollock catches by the HT-CP sector and the amount that could be taken under the 20 percent MRA limit. Currently the HT-CP sector catches only about 74 percent of the amount allowed by the MRA.

Table 37. BSAI Pollock Catch and MRA Margins for the HT-CP Sector

Year	Retained Non-Pollock	Total Pollock Catch	Pollock as Percent of Retained Non-Groundfish	Theoretical Maximum MRA Percentage	Theoretical Maximum MRA Tonnage	Slack under Theoretical Maximum
1999	165.1	29.0	17.6	20.0	33.0	4.0
2000	186.4	31.5	16.9	20.0	37.3	5.8
2001	182.8	31.6	17.3	20.0	36.6	4.9
2002	180.6	33.5	18.6	20.0	36.1	2.6

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

In spite of the considerable difference in both the ICA and MRA, pollock discards by the HT-CP fleet are still substantial. Since 1999, pollock has accounted for 5 to 6 percent of total groundfish catch and 18 percent of all discards by the HT-CP sector. Table 38 shows groundfish catch and discards by the HT-CP sector between 1999 and 2002, and what the discard rates would have been if all pollock had been retained. Note that discards referenced in Table 17 are legal discards based on current the enforcement interval for MRA. In 1999, for example, the sector caught 299,000 tons of groundfish. The sector was required to discard 15,000 tons of pollock. In addition, the sector discarded 83,000 tons of other groundfish, for a cumulative 33 percent discard rate. If the sector had kept all of its pollock catch, the overall groundfish discard rate would have declined to 28 percent, a roughly 16 percent drop. It is estimated that in 2002, retention of all pollock would have raised the sector retention rate by over 5 percentage points.

Table 38. Groundfish Retention Rates for the HT-CP Sector

Year	Groundfish Catch (1,000 mt)	Groundfish Discards (1,000 mt)	Pollock Discards (1,000 mt)	Groundfish Discards incl. Pollock (Percent)	Discards if all Pollock were Retained (Percent)
1999	299.0	98.0	15.2	32.8	27.3
2000	331.0	104.0	14.8	31.4	27.0
2001	300.0	80.0	14.5	26.7	21.8
2002	319.0	96.6	16.0	30.4	25.3

Source: Sector Profile Database Developed by Northern Economics from Blend Data supplied by NOAA Fisheries-AFSC.

Because the MRA is currently enforced instantaneously, vessels have to discard pollock at any point in time in which the MRA is exceeded. As a result, large catches of pollock—especially if those catches come early in a trip—can lead to higher discard levels.

4.2.1.2 Current Ownership and Management Patterns

In recent years, 22-26 vessels have been considered part of the HT-CP sector. According to the industry associations, Groundfish Forum and At-Sea Processors Association, ownership or management of the fleet is concentrated in 11 companies, as shown in Table 39. Owners of AFA vessels and processors–which could be indirectly affected if the overall catch of pollock increases-- are based primarily based in Washington, although there are some CV owners from Oregon. Additionally, many CDQ organizations in Alaska have purchased minority ownership in AFA CPs.

Table 39. Ownership/Management of the HT-CP Sector, 2003

Owner/Manager	Vessel Name	Groundfish Forum Status
Arctic Sole Seafoods Seattle, WA	*F/T Alaskan Rose (Tremont)*	Member
Cascade Fishing, Inc. Seattle, WA	*F/T Seafisher*	Member
Fishing Company of Alaska Seattle, WA	*F/V Alaska Juris*	non-Member
	F/V Alaska Voyager (not active since 1998)	non-Member
	F/V Alaska Victory	non-Member
	F/V Alaska Warrior	non-Member
	F/V Alaska Ranger	non-Member
	F/V Alaska Spirit	non-Member
Fishermen's Finest Seattle, WA	*F/V American #1*	non-Member
	F/V US Intrepid	non-Member
F.J. O'Hara & Sons Seattle, WA	*F/T Defender*	Member
	F/T Enterprise	Member
Golden Fleece, Inc. South Bend, WA	*F/V Golden Fleece*	Member
Iquique U.S., L.L.C. Seattle, WA	*F/T Arica*	Member
	F/T Cape Horn	Member
	F/T Rebecca Irene	Member
	F/T Unimak Enterprise	Member
Jubilee Fisheries Seattle, WA	*F/T Vaerdahl*	Member
Kodiak Fish Company Bellingham, WA	*F/T Alliance*	Member
	F/T Legacy	Member
Trident Seafoods Seattle, WA	*F/T Bering Enterprise* (not active since 1997)	non-Member
	F/T Harvester Enterprise (not active since 1997)	non-Member
U.S. Seafoods Seattle, WA	*F/T Ocean Peace*	Member
	F/T Seafreeze Alaska	Member
	F/T Ocean Alaska (Beagle) (not active since 2000	Member

Source: Groundfish Forum and At-Sea Processors Association, 2003

4.3 Description of the Alternatives

The following two alternatives are assessed in this RIR.

Alternative 1- No Action/Status Quo

Under this alternative, the MRA for pollock continues to be enforced on an instantaneous basis, i.e., it is unlawful for a vessel to retain pollock in an amount that exceeds the 20 percent MRA at any time during a fishing trip.

Alternative 2- Change the Enforcement Interval of the Pollock MRA to an Offload to Offload Basis

Modifying enforcement to the offload to offload interval would allow vessels that would have otherwise been forced to discard incidentally caught pollock, to retain that pollock, as long as they were under the MRA for the trip.

4.3.1 Consistency with the Problem Statement

The proposed action, as reflected by the alternative to the status quo, is consistent with the pollock MRA problem statement. The proposed action may result in an increase in the groundfish retention rate of the HT-CP sector, while limiting the ability of non-AFA vessels to covertly participate in the pollock fishery. The proposed action is also consistent with the Council's objective as developed in the broader IR/IU problem statements to reduce overall discards in the groundfish fisheries.

4.4 Costs and Benefits of the Preferred Alternative

While changing the enforcement interval for the pollock MRA is likely to result in reduced discards of pollock, the overall economic impact of the change on vessels in the HT-CP sector is uncertain. The main factors that could determine the size and distribution of economic impact on the HT-CP sector are (1) the value of pollock relative to the value of groundfish normally caught by the sector, (2) the amount of pressure vessels operators are experiencing to reduce discards [e.g., from the Council in the form of a GRS, or from other concerned groups], and 3) strategic behavior of individual vessels.

If pollock has a ***lower*** relative value than the targeted species, and vessels operate without regard to pressure to reduce discards, the change in the enforcement interval is unlikely to have any significant economic effect—vessels will continue to discard pollock at current levels, while remaining within the retention requirements of IR/IU regulations. If , on the other hand, vessels choose to reduce discards of pollock to alleviate increasing pressure from the Council and the public at large[12], they could experience negative economic consequences. Assuming vessel catch is constrained by hold space, the amount of product from higher-valued species that would be displaced by the increased retention of pollock, under this scenario, may be substantial.

If pollock has a ***higher*** relative value than other species in the catch, as it does during the pollock roe season, the impact on the HT-CP sector from changing the enforcement accounting interval could be positive. Currently, pollock catches appear to be higher during the first part of the trip compared to latter parts of the trip (see the discussion following Figure 6 on page 64). Under the current regulations, vessels are likely to be forced to discard valuable pollock during the early part of the trip until they have harvested and retained sufficient amounts of non-pollock target species to build up a “ballast” of retained product against they can count retained pollock. Then later in the trip they can “top-off” if they wish. Thus under the current regulations vessels may be forced to “catch pollock” twice if they wish to retain the maximum amount of pollock allowed. With the change in the regulation, again assuming pollock is a desired species, vessels will have the option to keep pollock caught in the early part of the trip, even if they have not yet caught and retained sufficient non-pollock species to comply with the MRA.

[12]This, of course, may not be what a profit maximizing firm would voluntarily do, unless the pressure to reduce discards was so great that it was perceived to threatened the firm’s ability to continue to operate. In this case, the social and political cost of continuing to discard pollock at historical rates may exceed the operational and economic benefits of doing so, and the profit maximizing firm would voluntarily undertake measures to reduce bycatch and increase retention of incidental catches of pollock.

Because they are able to keep all pollock as it come on board, there is unlikely to be a need to "top-off" later in the trip. Thus the proposed action may reduce overall pollock catches by the HT-CPs.

A change in the enforcement interval for the pollock MRA is expected to have a minimal effect on participants in the directed fishery for BSAI pollock. Participants in the directed fishery would be affected only if a change in the enforcement interval resulted in a larger additional amount of pollock caught and retained by the HT-CP fleet and an increase in the non-AFA vessels' ICA for pollock. It has been suggested by some industry representatives that non-AFA vessels "top off" their catches with pollock at the end of a trip in order to catch more pollock up to the MRA amount. However, owners of non-AFA vessels maintain that they generally prefer not to catch pollock because it has a per unit value lower than their target species. Analysis of NOAA Fisheries blend data does not indicate a pattern of topping off by HT-CP vessels. In general, it is more likely that a change in the enforcement interval for the pollock MRA would lower the total amount of pollock caught because overall waste is reduced.

Using 2001 data, it was estimated that shifting from the current instantaneous enforcement to an alternative MRA enforcement interval could result in a substantial increase in the retention rate of the HT-CP sector. Under the preferred alternative—changing the enforcement interval for the pollock MRA to an offload by offload basis—overall groundfish retention rates are expected to increase by 1.9 percent. It is important to note that this analysis assumes that vessels keep any additional pollock they are allowed to retain. In other words, this estimate represents a theoretical upper limit on the amount the groundfish retention rate could increase. The validity of the assumption that vessels would keep any additional pollock they are allowed to retain is uncertain and depends on price and strategic behavior.

4.4.1 Hypothetical Scenarios of HT-CP Behavior

The expected reduction in waste can be best explained by comparing the outcomes of various hypothetical scenarios. The first two scenarios, shown in Tables 40 and 41, demonstrate behavior that would be expected if pollock is a desired species or undesired species, respectively, under the current management regime. If pollock is a desired species, a vessel may engage in topping off as shown in Scenario 1. In this scenario a vessel is assumed to catch excessive amounts of pollock early in its trip, discards that pollock to remain under the MRA, and then tops off towards the end of the trip. This behavior leads to a higher level of discards and pollock catch because obtaining the desirable pollock provides an economic incentive for "end of trip targeting". Under the terms of this hypothetical case, in effect, the pollock must be "caught twice." Given that "incidental bycatch" is, by definition, **incidental** (i.e., not wholly controllable), the cost of catching, sorting, and discarding, only to incur these same costs later in the trip is economically "risky".

In Scenario 2, a vessel again catches pollock early in its trip and discards the pollock to remain under the MRA. However, the vessel avoids catching pollock, perhaps at considerable cost, for the remainder of the trip. Consequently, that vessel may have lower discards than the vessel under Scenario 1, depending on the relative success of avoidance strategies employed by the captain. However, the vessel operator in scenario 2 also has paid a price to obtain this result, in the form of lower revenues and higher operating expenses. Whether this combination of adverse economic and operations impacts can be sustained over time is largely an empirical question, the answer to which is not amendable to analysis, given presently available cost, operating, and earnings information.

Table 41. Scenario 1: Current MRA Rules and Pollock is a Desired Species

Tow Number	Retained Flatfish (mt)	Pollock Catch (mt)	Pollock Retained (mt)	Pollock Discards (mt)	Cumulative Pollock Retained (Percent)
Tow 1	50	20	10	10	20.0
Tow 2	40	18	8	10	20.0
Tow 3	45	15	9	6	20.0
Tow 4	55	7	7	0	17.9
Tow 5	35	6	6	0	17.8
Tow 6	55	7	7	0	16.8
Tow 7	50	8	8	0	16.7
Tow 8	25	10	10	0	18.3
Tow 9	40	6	6	0	18.0
Tow 10	45	5	5	0	17.3
Last Tow	20	25	16	9	20.0
Totals at Offload	460	127	92	35	20.0

Table 42. Scenario 2: Current MRA Rules and Pollock is Not a Desired Species[1]

Tow Number	Retained Flatfish (mt)	Pollock Catch (mt)	Pollock Retained (mt)	Pollock Discards (mt)	Cumulative Pollock Retained (Percent)
Tow 1	50	20	10	10	20.0
Tow 2	40	18	8	10	20.0
Tow 3	45	15	9	6	20.0
Tow 4	55	7	7	0	17.9
Tow 5	35	6	6	0	17.8
Tow 6	55	7	7	0	16.8
Tow 7	50	8	8	0	16.7
Tow 8	25	10	10	0	18.3
Tow 9	40	6	6	0	18.0
Tow 10	45	5	5	0	17.3
Last Tow	30	6	6	0	17.4
Totals at Offload	470	108	82	26	17.4

[1]It is assumed in this scenario that the vessel attempts to minimize overall pollock catch.

Tables 43 and 44 demonstrate the vessel behavior that might be hypothesized if pollock is a desired species or undesired species, respectively, under an offload-to-offload MRA enforcement interval (preferred alternative). As shown, discards are lower in hypothetical Scenarios 3 and 4 than in Scenario 1 and 2. The difference in the level of discards is greatest between Scenario 1 and 3, in which pollock is a desired species. The reason for the reduction is that a vessel that desires pollock is assumed to have to catch the pollock "twice" under the current management regime. In the example, it must catch 127 tons of pollock in order to retain 92 tons. Under the revised MRA enforcement interval, this vessel has the option retain the pollock caught early in a trip. Thus, the need to "top off" later in the trip is reduced. Retaining the same 92 tons involves catching only 106 tons of pollock. To the extent that non-AFA boats are currently engaged in topping off, the proposed action might be expected to reduce this behavior and lower total pollock catch.

Table 43. Scenario 3: Offload MRA Enforcement Interval and Pollock is a Desired Species

Tow Number	Retained Flatfish (mt)	Pollock Catch (mt)	Pollock Retained (mt)	Pollock Discards (mt)	Cumulative Pollock Retained (Percent))
Tow 1	50	20	20	0	40.0
Tow 2	40	18	18	0	42.2
Tow 3	45	15	15	0	39.3
Tow 4	55	7	7	0	31.6
Tow 5	35	6	6	0	29.3
Tow 6	55	7	6	1	25.7
Tow 7	50	8	6	2	23.6
Tow 8	25	10	5	5	23.4
Tow 9	40	6	5	1	22.3
Tow 10	45	5	0	5	20.0
Last Tow	20	4	4	0	20.0
Totals at Offload	460	106	92	14	20.0

Table 44. Scenario 4: Offload MRA Enforcement Interval and Pollock is Undesired[1]

Tow Number	Retained Flatfish (mt)	Pollock Catch (mt)	Pollock Retained (mt)	Pollock Discards (mt)	Cumulative Pollock Retained (Percent)
Tow 1	50	20	12	8	24.0
Tow 2	40	18	10	8	24.4
Tow 3	45	15	11	4	24.4
Tow 4	55	7	7	0	21.1
Tow 5	35	6	6	0	20.4
Tow 6	55	7	7	0	18.9
Tow 7	50	8	8	0	18.5
Tow 8	25	10	10	0	20.0
Tow 9	40	6	6	0	19.5
Tow 10	45	5	5	0	18.6
Last Tow	33	7	7	0	18.8
Totals at Offload	473	109	89	20	18.8

[1]It is assumed in this scenario that the vessel attempts to minimize overall pollock catch.

Another reason to believe that the proposed change in the enforcement interval will not have a negative effect on the directed fishery is that the amount of pollock utilized by the non-directed fishery is relative small. The total amount of pollock taken by the non-directed fishery is roughly two percent of that taken by the directed fishery, and the amount of pollock affected by the regulation change (i.e., the discarded amount) is less than one percent of the directed fishery. Hence, the overall indirect effect on the directed fishing sector is expected to be negligible. It follows that impacts on product mix, quantity and quality of pollock products supplied to various markets (domestic and foreign), and market prices would not be expected to be impacted in any detectable way by this proposed action.

4.4.2 Distributional and Community Effects

It does not appear that the proposed action will affect the distribution of catches of pollock among sectors, although there may be some redistribution *within* the HT-CP sector.

As seen in Table 39, all of the directly affected vessel companies operate out of the Washington Inland Waters region. At-sea processors, such as HT-CPS, offload most of their product onto cargo ships that transport the processed fish directly to world markets. The majority of these offloads take place in inland waters. The State of Alaska taxes these landings and shares 50 percent of the revenue with the communities and boroughs in which the offloads take place. The City of Unalaska receives the majority of these shared taxes.

Because only one sector is directly affected by the action, all of the vessels are operated out the same region, and all of the vessels offload and transport their product out of the same port, it is unlikely that the action will have any distribution effects among communities and ports.

4.4.3 Monitoring and Enforcement Issues

Under current regulations, it is only at offload that NMFS Enforcement is able to actually audit the reported amounts of product to insure that a vessel is complying with the MRA requirement. Due to the difficulty of auditing the reported amounts of product during a random at-sea boarding, a violation of the MRA occurring at the time of such an inspection will typically result in a prosecutable case only if the MRA is egregiously exceeded.

Changing the enforcement interval for the pollock MRA is expected to increase management and enforcement costs as a result of required changes in fisheries data collection and analysis. However, those costs are not expected to be significant. For example, data that is now currently provided on paper may have to be converted to electronic form. In addition, this data will have to be processed and reviewed at the end of the enforcement interval to the end of each offload to determine if a boat is in compliance with the MRA. Each of these steps will add to the costs of current management and enforcement programs.

4.5 E.O.12866 Conclusion

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 scientific data and empirical information, as reflected in the foregoing analysis, is does not appear likely that the proposed action under consideration has the potential to approach the "significance" threshold levels specified in this Executive Order.

4.5.1 Net Benefits to the Nation

Overall, net benefits to the Nation have the potential to be positively affected by adoption and implementation of the preferred alternative, as efficiencies in productive resource use are realized, and improvements in natural resource utilization (e.g., groundfish retention) emerge, although our ability to quantify these effects is limited. The affects of the proposed action on the revenues and costs of various sectors of the groundfish fisheries are discussed in Section 4.0. While some slight distributional impacts across fishing industry sectors may be implied by the action, overall net benefits to the Nation would not be expected to change to an identifiable degree.

5.0 Consistency with Other Applicable Laws

5.1 Consistency with National Standards

Below are the ten National Standards contained in the Magnuson-Stevens Fishery Conservation and Management Act (Act) and a brief discussion of the consistency of the proposed action with those National Standards, where applicable.

National Standard 1 - Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry.

Under the alternative considered, the Alaska groundfish fisheries will continued to be managed to achieve TACs, without overfishing. Stocks of groundfish in target fisheries in the BSAI are not currently in danger of being overfished and are considered stable. Overall yield in terms of groundfish catch will not be affected by the action considered.

In terms of achieving "optimum yield" from the fishery, the Act defines "optimum" as the amount of fish which: a) will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems; b) is prescribed as such on the basis of the maximum sustainable yield from the fishery, as reduced by any relevant economic, social, or ecological factor; and c) in the case of an overfished fishery, provides for rebuilding to a level consistent with producing the maximum sustainable yield in such fishery.

Overall benefits to the Nation may be affected by these trade-offs, though our ability to quantify those effects is limited. The effects of the proposed action on the revenues and costs of various sectors of the groundfish fisheries are discussed in Section 4.0. While slight distributional impacts across fishing industry sectors may be implied by the action, overall net benefits to the Nation would not be expected to change to an identifiable degree.

National Standard 2 - Conservation and management measures shall be based upon the best scientific information available.

Information in this analysis represents the most current and comprehensive set of information available. Some data that would have been useful in the analysis (such as operational costs) are unavailable.

National Standard 3 - To the extent practicable, an individual stock of fish shall be managed as a unit throughout its range, and interrelated stocks of fish shall be managed as a unit or in close coordination.

The proposed action has no effect on this National Standard.

National Standard 4 - Conservation and management measures shall not discriminate between residents of different states. If it becomes necessary to allocate or assign fishing privileges among various United States fishermen, such allocation shall be a) fair and equitable to all such fishermen; b) reasonably calculated to promote conservation; and c) carried out in such manner that no particular individual, corporation, or other entity acquires an excessive share of such privileges.

The action considered would not allocate or assign fishing privileges to individual or groups of fishermen, nor would it discriminate among fishermen based on residency or any other equivalent criteria.

National Standard 5 - Conservation and management measures shall, where practicable, consider efficiency in the utilization of fishery resources; except that no such measure shall have economic allocation as its sole purpose.

The analysis of the effects of the action presents information relative to the perspective of economic allocation, but it does not point to a preferred alternative in terms of this standard.

National Standard 6 - Conservation and management measures shall take into account and allow for variations among, and contingencies in, fisheries, fishery resources, and catches.

The action considered is unlikely to reduce the flexibility of fishery managers or fishermen to respond to variations among groundfish stocks.

National Standard 7 - Conservation and management measures shall, where practicable, minimize costs and avoid unnecessary duplication.

Under current IR/IU regulations, operators of non-AFA vessels are required to retain 100 percent of all pollock caught. However, current MRA regulations require vessel operators to discard pollock that exceeds the MRA percentage at any point in time. Vessel operators are faced with the difficult task of maintaining the MRA for pollock. Under the proposed action, vessels fishing in the BSAI may exceed the MRA as long as they are at the MRA for pollock at the time of offload. The proposed action would decrease the regulatory burden associated with current IR/IU and MRA regulations. To the extent that this occurs, the action under consideration would reduce costs and is consistent with this standard.

National Standard 8 - Conservation and management measures shall, consistent with the conservation requirements of this Act (including the prevention of overfishing and rebuilding of overfished stocks) take into account the importance of fishery resources to fishing communities in order to a) provide for the sustained participation of such communities, and b) to the extent practicable, minimize adverse economic impacts on such communities.

Many of the coastal communities in Alaska and the Pacific Northwest participate in the Alaska groundfish fisheries in one way or another, whether as sites for shore-side processors or support businesses or as the harbor/home port of fishermen and at-sea processing workers. Major ports in Alaska that process groundfish catch from the BSAI include Dutch Harbor, Akutan, Sand Point, King Cove, and Kodiak. Additionally, the Seattle area in Washington is home port to many catcher and catcher processor vessels operating in BSAI fisheries. Summary information on these coastal communities is provided in the 2003 DPSEIS [NMFS 2003a].

In terms of potential impacts resulting from the action considered, the analysis reviewed data on 1) harvest levels of affected vessels; 2) revenues resulting from that harvest; 3) where those harvests are delivered for processing; and 4) the home port of affected vessels. Most of this information is presented in Sections 2.0 and 3.0. The action considered is not expected to have a significant individual or cumulative effect on the sustained participation of any fishing community in the groundfish fisheries. The groundfish fisheries would continue to benefit fishing communities as described in the DPSEIS [NMFS 2003a].

National Standard 9 - Conservation and management measures shall, to the extent practicable, a) minimize bycatch; and b) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch.

This proposed action is one of several adopted by the Council to decrease regulatory and economic discards and increase catch utilization in the BSAI groundfish fisheries. Amendment 49 to the FMP was published as a final rule January 3, 1998 (62 FR 63880), and established retention and utilization standards for pollock and Pacific cod. In June 2003, the Council adopted Amendment 79 to the FMP,

which would establish a minimum groundfish retention standard (GRS) for specified vessels in the BSAI. Along with Amendment 79, the Council also adopted a revision to the MRA enforcement period for pollock harvested by non-American Fisheries Act (AFA) vessels in the BSAI. Prior to the June Council actions, the proposed GRS program and pollock MRA revision were considered as components of one action to reduce discard amounts in the BSAI. However, the Council recognized that the MRA change was simpler to implement than the GRS action and requested NMFS to expedite the proposed pollock MRA revision. In addition to these actions, the Council is considering sector allocations of BSAI groundfish and prohibited species, as well as the development of a fishery cooperative for non-AFA trawl catcher processors. The Council expects that the formation of a cooperative for non-AFA trawl catcher processors would eliminate the race for fish and provide vessel operators with the opportunity to change their behavior to avoid incidental catch and/or reduce discard amounts

The proposed action is intended to address the problem of discards of pollock in non-pollock target fisheries in the BSAI. The analysis for this action demonstrates that over the last four years (1999-2002), pollock discards constitute the largest components of discards by non-AFA trawl catcher-processors operating in the BSAI. Current levels of pollock caught incidentally by non-AFA trawl catcher-processors also significantly exceed the MRA. The analysis also demonstrates that other non-AFA trawl catcher-processors are seldom affected by the MRA for pollock on a haul-by-haul basis. Because of the current regulatory structure which requires all non-AFA vessels to retain all incidental catch of pollock up to the MRA and to discard pollock at any point in time in which the MRA is exceeded, it is presumed that all of these pollock discards are regulatory.

This proposed action is intended to increase the retention of pollock by non-AFA vessels in the BSAI, while not increasing the overall amount of pollock harvested by adjusting the MRA enforcement period so that the MRA for pollock caught in the BSAI by non-AFA vessels would be enforced at the time of offload rather than at any time during a fishing trip. This analysis demonstrates how adjusting to enforcement period of the MRA for pollock harvested in the BSAI by non-AFA vessels will allow vessel operators to retain additional pollock over the course of a trip as long as that amount is at the MRA level. To this extent that this proposed action minimizes bycatch, it is consistent with this standard.

National Standard 10 - Conservation and management measures shall, to the extent practicable, promote the safety of human life at sea.

The alternative would not change safety requirements for fishing vessels.

5.2 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, specify 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 take into account potential impacts on the participants in the fisheries, as well as participants in adjacent fisheries.

The alternative action considered in this analysis is described in Section 1.2 of this document. The impacts of this action on participants and on fishing communities is the topic of Section 3.2 and of Section 4.4.

The analysis showed that the overall economic impact of changing the enforcement interval for the pollock MRA on vessels in the HT-CP sector is uncertain. The main factors that could affect the economic impact on the HT-CP sector are the value of pollock relative to the value of groundfish normally caught by the sector, and the strategic behavior of individual vessels.

If all HT-CPs process pollock up to the maximum allowed (i.e., the pollock MRA) under the revised enforcement interval and pollock is a break-even product, there is unlikely to be any differences in the amount of profit or its distribution to the various vessels relative to the status quo. If processing additional pollock generates positive net revenues for all vessels, the net revenues of the fleet, by definition will be higher than under the status quo. Similarly, if processing pollock costs more than the revenue it generates and all vessels process up to the maximum allowed, overall net revenues for the fleet may be lower. This outcome would not normally occur with profit maximizing firms, however the HT-CP sector is facing great pressure to reduce discards, and retention of additional pollock may be the least costly option.

A change in the enforcement interval for the pollock MRA is expected to have a minimal effect on participants in the directed fishery for BSAI pollock.

The analysis also reviewed data on 1) harvest levels of affected vessels; 2) revenues resulting from that harvest; 3) where those harvests are delivered for processing; and 4) the home port of affected vessels. The Seattle area in Washington is the homeport to the majority of catcher processors affected by the proposed action. The proposed action would not affect the sustained participation of the communities in this region in the Alaska groundfish fisheries. The groundfish fisheries would continue to benefit fishing communities as described in the DPSEIS [NMFS 2003a].

The proposed action considered would not significantly affect participants in the fisheries conducted in adjacent areas under the authority of another Council.

5.3 Initial Regulatory Flexibility Analysis (IRFA)

5.3.1 Analysis Requirements

The Regulatory Flexibility Act (RFA), first enacted in 1980 and codified at 5 U.S.C. 600-611, was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a Federal regulation. Major goals of the RFA are 1) to increase agency awareness and understanding of the impact of their regulations on small business; 2) to require that agencies communicate and explain their findings to the public; and 3) to encourage agencies to use flexibility and to provide regulatory relief to small entities.

The RFA emphasizes predicting significant adverse impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts while still achieving the stated objective of the action. Except when it is possible to provide a "factual basis" and certification that an action is not likely to have a significant economic impact on a substantial number of small entities, when an agency publishes a proposed rule, it must prepare and make available for public review an IRFA. An IRFA must describe the impact of the proposed rule on small entities. When an agency publishes a final rule, it must prepare a Final Regulatory Flexibility Analysis (FRFA). Analysis requirements for the IRFA and FRFA are described below in more detail.

The IRFA must contain:

1. A description of the reasons why action by the agency is being considered;
2. A succinct statement of the objectives of, and the legal basis for, the proposed rule;
3. A description of, and where feasible, an estimate of the number of small entities to which the proposed rule will apply (including a profile of the industry divided into industry segments, if appropriate);

4. A description of the projected reporting, 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;

5. An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap or conflict with the proposed rule;

6. A description of any significant alternatives to the proposed rule that accomplish the stated objectives of the Magnuson-Stevens Act and any other applicable statutes and that would minimize any significant economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives, such as:

    a. The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;

    b. The clarification, consolidation or simplification of compliance and reporting requirements under the rule for such small entities;

    c. The use of performance rather than design standards;

    d. An exemption from coverage of the rule, or any part thereof, for such small entities.

The "universe" of the entities to be considered in an IRFA generally includes only those entities, both large and small, 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.

In preparing an IRFA, an agency may provide either a quantifiable or numerical description of the effects of a proposed rule and alternatives to the proposed rule or more general, descriptive statements if quantification is not practicable or reliable. Currently, insufficient quantitative economic information exists on the fishery under review to quantitatively determine the economic significance of this action. In the absence of such quantitative social and economic data, a qualitative-based Initial Regulatory Flexibility Analysis is conducted below to comply with the RFA.

5.3.2 Definition of a Small Entity

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

Small businesses: Section 601(3) of the RFA defines a “small business” as having the same meaning as a “small business concern,” which is defined under Section 3 of the Small Business Act. A “small business” or “small business concern” includes any firm that is independently owned and operated and not dominate in its field of operation. The U.S. Small Business Administration (SBA) has further defined a “small business concern” as one “organized for profit, with a place of business located in the United States, and which operates primarily within the United States or which makes a significant contribution to the U.S. economy through payment of taxes or use of American products, materials or labor... A small business concern may be in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that where the form is a joint venture there can be no more than 49 percent participation by foreign business entities in the joint venture.”

The SBA has established size criteria for all major industry sectors in the U.S. including fish harvesting and fish processing businesses. A business involved in fish harvesting is a small business if it is

independently owned and operated and not dominant in its field of operation (including its affiliates) and if it has combined annual receipts not in excess of $3.5 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation 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 subsequent processing of seafood products is a small business if it meets the $3.5 million annual receipts criterion for fish harvesting operations. Finally, a wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, or other basis, at all its affiliated operations.

The SBA has established "principles of affiliation" to determine whether a business concern is "independently owned and operated." In general, business concerns are affiliates of each other when one concern controls or has the power to control the other, or a third party controls or has the power to control both. The SBA considers factors such as ownership, management, previous relationships with or ties to another concern, and contractual relationships, in determining whether affiliation exists. Individuals or firms that have identical or substantially identical business or economic interests, such as family members, persons with common investments, or firms that are economically dependent through contractual or other relationships, are treated as one party, with such interests aggregated when measuring the size of the concern in question. The SBA counts the receipts or employees of the concern whose size is at issue and those of all its domestic and foreign affiliates, regardless of whether the affiliates are organized for profit, in determining the concern's size. However, business concerns owned and controlled by Indian Tribes, Alaska Regional or Village Corporations organized pursuant to the Alaska Native Claims Settlement Act [43 U.S.C. 1601], Native Hawaiian Organizations, or Community Development Corporations authorized by 42 U.S.C. 9805 are not considered affiliates of such entities, or with other concerns owned by these entities solely because of their common ownership.

Affiliation may be based on stock ownership when (1) A person is an affiliate of a concern if the person owns or controls, or has the power to control 50% or more of its voting stock, or a block of stock which affords control because it is large compared to other outstanding blocks of stock, or (2) If two or more persons each owns, controls or has the power to control less than 50% of the voting stock of a concern, with minority holdings that are equal or approximately equal in size, but the aggregate of these minority holdings is large as compared with any other stock holding, each such person is presumed to be an affiliate of the concern.

Affiliation may be based on common management or joint venture arrangements. Affiliation arises where one or more officers, directors or general partners control the board of directors and/or the management of another concern. Parties to a joint venture also may be affiliates. A contractor and subcontractor are treated as joint venturers if the ostensible subcontractor will perform primary and vital requirements of a contract or if the prime contractor is unusually reliant upon the ostensible subcontractor. All requirements of the contract are considered in reviewing such relationship, including contract management, technical responsibilities, and the percentage of subcontracted work.

Small organizations: The RFA defines "small organizations" as any nonprofit enterprise that is independently owned and operated and is not dominant in its field.

Small governmental jurisdictions: The RFA defines small governmental jurisdictions as cities, counties, towns, townships, villages, school districts, or special districts with populations below 50,000.

5.3.3 Reason for Considering the Proposed Action

The proposed action may result in an increase in the groundfish retention rate of HT-CPs. This potential increase is consistent with the Council's objective to reduce discards in the groundfish fisheries.

5.3.4 Objectives of, and Legal basis for, the Proposed Rule

The domestic groundfish fisheries in the EEZ of the BSAI are managed by NOAA Fisheries in accordance with the Fishery Management Plan for the Groundfish Fishery of the Bering Sea and Aleutian Islands. The FMP was prepared by the North Pacific Fishery Management Council under the Magnuson-Stevens Fishery Conservation and Management Act.

The FMP is implemented by regulations that appear at 50 CFR part 679: Fisheries of the Exclusive Economic Zone Off Alaska. These fishery regulations generally distinguish between fish taken in directed fishing efforts and fish of other species that are taken incidentally. Regulations at 50 CFR 679.20(e) establish MRA percentages for groundfish species or species groups that are closed to directed fishing.[13]

5.3.5 Number and Description of Affected Small Entities

A detailed description of the entities that can reasonably be expected to be directly regulated by the proposed action is provided in Sections 2.2 and 4.2 of this document and is summarized here.

The change in the enforcement interval for the pollock MRA would apply to all vessels that catch BSAI pollock as an incidental species (i.e., non-AFA vessels), regardless of vessel size, gear type or target fishery. However, only HT-CP vessels catch significant amounts of pollock incidentally in other groundfish fisheries. Other non-AFA vessels are seldom affected by the MRA for pollock on a haul-by-haul basis. In recent years, 23 to 24 vessels in the HT-CP fleet have fished in the BSAI. Ownership of the active vessels is concentrated in 10 companies listed in Tables 11 and 39 on pages 23 and 67. One of the listed firms, Iquique, is an independent company that acts as the manager of four vessels, each of which are independently owned corporations with different ownership structures. However, because these vessels are all managed by a single management firm, they will be treated in this IRFA as 1 firm.

Analysis of the three year average of estimated annual receipts of the HT-CP sector indicated that 1 of the 13 companies (as defined in this section) operating in the sector in 2002, would have been defined as a small entity with receipts of less than $3.5 million. This company operates a single vessel that is less than 125 feet. Although there is only one company that appears to qualify as a small business, data limitation pertaining to contractual relationships, joint management, or partnerships are inadequate to permit a definitive conclusion concerning adverse impacts to small businesses. Given that the proposed action is not expected have a significant negative economic effect on any individual vessel's gross receipts, there is no reason to expect any RFA-relevant impacts to accrue to any small entity as a result of adopting the proposed action.

5.3.6 Recordkeeping and Reporting Requirements

The proposed action would not change the overall reporting structure and recordkeeping requirements of the vessels in the groundfish fisheries.

5.3.7 Relevant Federal Rules that may Duplicate, Overlap, or Conflict with the Proposed Action

The MSA mandates that bycatch (discards) should be reduced wherever practicable, and IR/IU regulations require that vessels and processors keep 100 percent of the undamaged pollock harvested.

[13] The final rule with specific retainable percentages for deriving the maximum amount of a species or species group closed to directed fishing, that may be retained as incidental catch, was published in 60 FR 40304, August 8, 1995.

The proposed regulation requires that non-AFA vessels discard pollock if the amount of pollock retained during the trip exceeds 20 percent of the retained catch of other groundfish species. It should be pointed out that the proposed regulation eases the existing regulatory conflict significantly. The existing MRA regulations require that pollock be discarded if, at any point during the trip, the amount of pollock onboard the vessel exceeds 20 percent. The increased flexibility in the proposed regulation should make it easier for vessels to comply with the regulations and should, it is hoped, reduce the amount of pollock discarded.

5.3.8 Description of Significant Alternatives

A description of the proposed action and alternatives considered is provided in Section 1.2, and the reason for considering the action is in Section 1.1. Alternative 1 is the no action/status quo alternative. Under this alternative, the MRA for pollock continues to be enforced on an instantaneous basis, i.e., it is unlawful for a vessel to retain pollock in an amount that exceeds the MRA at any time during a fishing trip. Alternative 2 would change the enforcement interval of the MRA to an offload-to-offload basis. Comprehensive economic analysis of the alternatives under consideration is provided in Section 3.2 and in Section 4.4. The preferred alternative provides regulatory relief to any directly regulated small entity to which the rule applies by increasing operational flexibility, improving resource utilization, and reducing the risk of inadvertent violation of either of the (now potentially) conflicting IR/IU and MRA standards. That is, this action mitigates, at least in part, negative impacts of previously existing regulatory conflicts, and in itself is not expected to create any adverse impacts for directly regulated entities, small or large.

5.4 Marine Mammal Protection Act (MMPA)

The MMPA of 1992 [16 U.S.C. 1361 et seq.], as amended through 1996, establishes a federal responsibility to conserve marine mammals with management responsibility for cetaceans (whales) and pinnipeds (seals) other than walrus vested with NOAA Fisheries. The U.S. Fish and Wildlife Service is responsible for all other marine mammals in Alaska including sea otters, walrus, and polar bear. Congress found that certain species and population stocks of marine mammals are or may be in danger of depletion due to human activities. Congress also declared that marine mammals are resources of great international significance and should be protected and encouraged to develop to the greatest extent feasible commensurate with sound policies of resource management.

Species listed under the Endangered Species Act present in the management area were listed in the Section 2. Marine mammals not listed under the ESA that may be present in the BSAI management area include cetaceans, [minke whale (*Balaenoptera acutorostrata*), killer whale (*Orcinus orca*), Dall's porpoise *(Phocoenoides dalli*), harbor porpoise (*Phocoena phocoena*), Pacific white-sided dolphin (*Lagenorhynchus obliquidens*), and the beaked whales (e.g., *Berardius bairdii* and *Mesoplodon* spp.)] as well as pinnipeds [Pacific harbor seal (*Phoca vitulina*), northern fur seal (*Callorhinus ursinus*), Pacific walrus (*Odobenus rosmarus*), spotted seal (*Phoca largha*), bearded seal (*Erignathus barbatus*), ringed sea (*Phoca hispida*) and ringed seal (*Phoca fasciata*)], and the sea otter (*Enhydra lutris*).

The primary management objective of the MMPA is to maintain the health and stability of the marine ecosystem, with a goal of obtaining an optimum sustainable population of marine mammals within the carrying capacity of the habitat. The MMPA is intended to work in concert with the provisions of the Endangered Species Act (Section 3.1.7). The Secretary is required to give full consideration to all factors regarding regulations applicable to the "take" of marine mammals, including the conservation, development, and utilization of fishery resources, and the economic and technological feasibility of implementing the regulations. If a fishery affects a marine mammal population, then the potential impacts of the fishery must be analyzed in the appropriate EA or EIS, and the Council or NOAA

Fisheries may be requested to consider regulations to mitigate adverse impacts. The proposed action is intended to reduce pollock discards and no adverse impacts on marine mammals are anticipated.

5.5 Coastal Zone Management Act

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

5.6 Executive Order 12898

Executive Order 12898 focuses on environmental justice in relation to minority populations and low-income populations. The EPA defines environmental justice as the "fair treatment for people of all races, cultures, and incomes, regarding the development of environmental laws, regulations, and policies." This executive order was spurred by the growing need to address the impacts of environmental pollution on particular segments of society. The E.O. requires each Federal agency to achieve environmental justice by addressing "disproportionately high and adverse human health and environmental effects on minority and low-income populations." The EPA responded by developing an Environmental Justice Strategy that focuses the agency's efforts in addressing these concerns.

In order to determine whether environmental justice concerns exist, the demographics of the affected area should be examined to determine whether minority populations and low-income populations are present, and if so, a determination must be made as to whether implementation of the alternatives may cause disproportionately high and adverse human health or environmental effects on these populations. Environmental justice concerns typically embody pollution and other environmental health issues, but the EPA has stated that addressing environmental justice concerns is consistent with NEPA and thus all Federal agencies are required to identify and address these issues.

Many of the coastal communities in Alaska and the Pacific Northwest participate in the Alaska groundfish fisheries in one way or another, whether it be as sites for shore-side processors or support businesses or as the harbor/home port of fishermen and at-sea processing workers. Major ports in Alaska that process groundfish catch from the BSAI include, Dutch Harbor, Akutan, Sand Point, King Cove and Kodiak. Additionally, the Seattle area in Washington is home port to many catcher and catcher processor vessels operating in these fisheries. A discussion of the relative importance of fisheries to these regions and communities and profiles of their populations are included in the 2003 DPSEIS [NMFS 2003a]. Overall, the population structures of these regions vary considerably, but in the Aleutian and Kodiak regions there are predominant Alaska Native and other minority populations. Kodiak is about 13 percent Alaska Native. The predominant minority in the city and its surroundings is Asian and Pacific Islanders, followed by Alaska Natives and African-Americans. In King Cove and Sand Point, Alaska Natives make up about 48 percent and 44 percent of the populations, respectively, with Asian and Pacific Islanders the next largest minority population.

While Washington's and Oregon's relationship to the Alaska groundfish fisheries are more involved than some regions of Alaska (in terms of absolute numbers of jobs), it could be argued that the fisheries are less important, in the aggregate, than for the Alaskan communities considered. For example, the size of Seattle dilutes the overall impact of the Alaska groundfish fishery jobs, whereas in Alaskan communities such jobs represent a much greater proportion of the total employment in the community. Thus, while nearly all of the head and gut trawl catcher processors affected by the proposed action are home ported in Seattle, any impacts on this community's minority or low-income populations due to changes in the operations of these vessels will be minimal.

The action considered does not appear to have any significant individual or cumulative environmental or human health effects. Thus, no minority population or low-income population (or any other distinct population) would be disproportionately affected in this regard.

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