

**DRAFT FOR PUBLIC REVIEW
ENVIRONMENTAL ASSESSMENT/
REGULATORY IMPACT REVIEW/
INITIAL REGULATORY FLEXIBILITY ANALYSIS**

For Amendments

Fishery Management Plan (FMP) for Groundfish of the Bering Sea and Aleutian Islands Management Area (BSAI) (#88), BSAI Crab FMP(#23), Scallop FMP (#11) and the Salmon FMP(#9) and regulatory amendments to revise the Aleutian Islands Habitat Conservation Area

March 2007

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Abstract: This Environmental Assessment/Regulatory Impact Review/Initial Regulatory Flexibility Analysis (EA/RIR/IRFA) evaluates alternatives to amend the boundaries for the Aleutian Island Habitat Conservation Area (AIHCA). The proposed change to the AIHCA boundaries will more accurately reflect the concept of habitat protection for the closed areas analyzed in the Essential Fish Habitat (EFH) Identification and Conservation Environmental Impact Statement (EIS). The suggested modifications are minor changes to the boundaries of the closed area. The AIHCA was developed to reduce effects of fishing on corals, sponges, and hard bottom habitats by closing bottom trawling in vast areas of the Aleutian Islands. The action specifically protects habitats from potential future disturbance by creating a closure in areas that have either not been fished or minimally fished while allowing fishing to occur in historically fished areas. This EA/RIR/IRFA evaluates alternatives for modifying the boundaries within two locations of the AIHCA. One location would be removed from the closure area near Agattu Island, and one location would be added to the closure area near Buldir Island.

Table of Contents

Executive Summary	i
1.0 Purpose and need for action	1
1.1 Decisions to Be Made and Proposed Schedule.....	2
1.2 Organization of the EA.....	2
1.3 Public Process.....	2
1.4 Relevant NEPA Documents	2
2.0 Description of the alternatives.....	6
3.0 Status of the Affected Environment.....	9
4.0 Environmental consequences of the alternatives.....	9
4.1 Potential Effects and Significance Criteria.....	10
4.1.1 Habitat	10
4.1.2 Target Species	14
4.1.3 Economic and Socioeconomic Aspects of Federally Managed Fisheries:	15
4.1.4 Non-Target Resources:	16
4.1.5 Protected Species.....	18
4.1.5.1 Marine Mammals:.....	20
4.1.5.2 Seabirds:	22
4.1.6 Ecosystem.....	26
4.2 Cumulative Impacts:.....	28
4.3 Environmental analysis conclusions of the alternatives	30
5.0 Regulatory impact review.....	33
5.1 Introduction	33
5.2 What is a Regulatory Impact Review?	33
5.3 Statutory Authority	34
5.4 Purpose and Need for Action.....	34
5.4.1 Need for Action	35
5.4.1.1 Market Failure Rationale	35
5.4.2 Purpose of Action	35
5.5 Alternatives Considered	35
5.6 Description of the Fisheries	37
5.6.1 Description of BSAI Groundfish Fisheries by Species	37
5.6.1.1 BSAI Pollock Fishery	37
5.6.1.2 BSAI Pacific Cod Fishery.....	39
5.6.1.3 BSAI Atka Mackerel Fishery	40
5.6.1.4 BSAI Rockfish Fisheries	41
5.6.1.4.1 BSAI Pacific Ocean Perch Fishery	42
5.6.1.4.2 BSAI Shortraker/Rougheye Rockfish Fishery	43
5.6.1.4.3 BSAI Northern Rockfish Fishery.....	43
5.6.1.4.4 BSAI “Other Rockfish” Fishery	44
5.6.1.5 BSAI Squid and “Other Species” Fisheries	45
5.6.2 Confidentiality Restrictions	46
5.6.3 Methodology.....	46
5.6.3.1 Benefits	47
5.6.3.1.1 Use Value.....	47
5.6.3.1.2 Non-use Value	47
5.6.3.2 Costs	48
5.6.3.2.1 Revenue at Risk	48
5.6.3.2.2 Operating Costs.....	50
5.6.3.2.3 Costs to Consumers	50
5.6.3.2.4 Fishing Safety	50
5.6.3.2.5 Related Fisheries.....	50

5.6.3.2.6	Fishing Communities	51
5.6.3.2.7	Regulatory and Enforcement Programs	51
5.7	Summary of the Costs and Benefits of the Proposed Action.....	51
6.0	Initial Regulatory Flexibility Act Analysis.....	52
6.1	The Purpose of an IRFA	52
6.2	What is Required in an IRFA?	52
6.3	Reasons for Considering the Proposed Action	53
6.4	Objectives and Legal Basis of the Proposed Rule	53
6.4.1	Objectives of the Proposed Rule	53
6.4.2	Legal Basis of the Proposed Rule.....	53
6.5	Description and Number of Small Entities to which the Proposed Rule will Apply.....	54
6.5.1	Definition of a Small Entity.....	54
6.5.2	Estimated Number of Small Entities to which Proposed Rule Applies.....	55
6.6	Description of the Projected Reporting, Record Keeping and Other Compliance Requirements of the Proposed Rule	56
6.7	Identification of Relevant Federal Rules that may Duplicate, Overlap or Conflict with the Proposed Rule.....	56
6.8	Description of Significant Alternatives to the Proposed Rule.....	56
6.9	Impacts of the Alternatives.....	57
7.0	Contributors and the agencies and persons consulted.....	58
7.1	North Pacific Fishery Management Council	58
7.2	National Oceanic and Atmospheric Administration/National Marine Fisheries Services–Alaska Region	58
8.0	Literature Cited.....	59
Appendix 1.	62

List of Tables

Table ES-1.1-1	Name, location and area pf proposed AIHCA changes along within the Western Aleutian Islands (Alternative 2).....	ii
Table 1.4-1.	Name, location and area pf proposed AIHCA changes along within the Western Aleutian Islands (Alternative 2).....	7
Table 4.1-1-1	Criteria used to determine significance of effects on habitat.	12
Table 4.1-2.	Criteria used to estimate the significance of effects on the FMP managed target stocks.	14
Table 4.1-3	Catch by species group (metric tons), for Alternative 2. Amount shown is observed total harvest for 1995-2005.	15
Table 4.1-4	Criteria used to estimate the significance of effects on nontarget species.....	17
Table 4.1-5	Average Bycatch of PSC in the Atka mackerel, Pacific cod and Pacific Ocean Perch Fisheries from 2003-2005.....	18
Table 4.1-6.	ESA listed and candidate species that range into the BSAI and GOA groundfish management areas.	19
Table 4.1-7	Criteria for determining significance of impacts to marine mammals.....	21
Table 4.1-8	Criteria used to determine significance of impacts on seabirds.....	24
Table 4.1-9	Significance thresholds for fishery induced effects on ecosystem attributes.....	27
Table 4.2-1	Reasonable foreseeable future actions.	29
Table 5.5-1.	Name, location and area pf proposed AIHCA changes along within the Western Aleutian Islands (Alternative 2).....	36
Table 5.6-1.	Catch (mt) of Pollock in the BSAI by Gear, 1995-2003.....	37
Table 5.6-2.	Catch (mt) of Pacific Cod in the BSAI by Gear, 1995-2003	40
Table 5.6-3.	Catch (mt) of Atka Mackerel in the BSAI by Gear, 1995-2003	40
Table 5.6-4.	Catch (mt) of All Rockfish in the BSAI by Gear, 1995-2003	41
Table 5.6-5.	Catch (mt) of Pacific Ocean Perch in the BSAI by Gear, 1995-2003	42
Table 5.6-6.	Catch (mt) of Shortraker/Rougheye Rockfish in the BSAI by Gear, 1995-2003	43

Table 5.6-7. Catch (mt) of Northern Rockfish in the BSAI by Gear, 1995-2003	43
Table 5.6-8. Catch (mt) of “Other Rockfish” in the BSAI by Gear, 1995-2003.....	44
Table 5.6-9. Catch (mt) of Squid and “Other Species” in the BSAI by Gear, 1995-2003	45

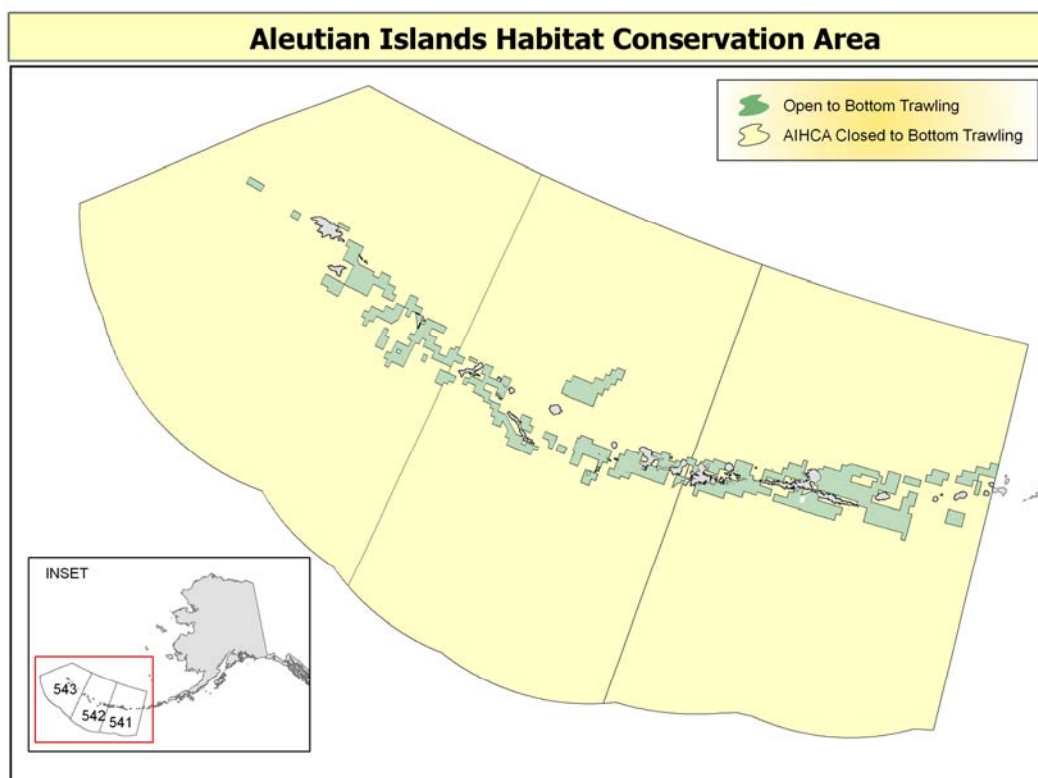
List of Figures

Figure 2-1. Locations of proposed changes in the AIHCA.....	7
Figure 4-1. Location of NMFS trawl survey tows in the Aleutian Islands during years 1994 and 1997 that had documented samples of all corals and sponges.	13
Figure 4-2. Locations of Stellar Sea Lion management areas in the Aleutian Islands, NMFS reporting area 543, with the areas for Alternative 2.	22
Figure 5-1. The Aleutian Island Habitat Conservation Area (AIHCA), yellow areas, are closed to bottom trawling beginning July, 2006, implemented as part of Essential Fish Habitat mitigation action.	36

Executive Summary

The Aleutian Island Habitat Conservation Area (AIHCA) was adopted as part of a suite of conservation measures for essential fish habitat (EFH) to minimize the adverse effects of fishing in the Aleutian Islands subarea (AI). The EFH rule became effective July 28, 2006 (71 FR 36694, June 28, 2006). The EFH action amended the Alaska fishery management plans (FMPs) to prohibit the use of certain bottom contact fishing gear in designated areas of the AI to reduce the effects of fishing on corals, sponges, and hard bottom habitats, protecting habitats from potential future disturbance without incurring significant short-term costs. The AIHCA closed most of the Aleutian Islands subarea to bottom trawling (279,114 square nautical miles). Most fishing areas that have been trawled repeatedly in the past remain open.

The designated open areas for bottom trawling were based on the analysis in the EFH EIS which summarized areas of high fishing effort from 1990 through 2003, with specific modifications based on data analysis of input from AI trawl fishermen and specific modifications to reduce those open areas to avoid coral habitat. These modifications were necessary because the observer data base has limitations on methods to document the actual path the fishers use and only records trawling start and end positions. Open and closed areas adopted under this action are shown in Figure ES-1. The closed areas are irregular in shape, and each latitude and longitude of the closure was designated in the FMP and regulations. After the proposed rule was published, careful review of the specific latitudes and longitudes of the AIHCA was conducted by participants of the fishery. Fishery participants determined that two changes to the areas described for the AIHCA were necessary to ensure the AIHCA met the intent to allow fishing in areas historically fished and to prevent bottom trawling in areas that have not been repeatedly fished. The Council recommended NMFS analyze the recommended changes and present the analysis at the February 2007 Council meeting for consideration.



ES- 1. The Aleutian Island Habitat Conservation Area (AIHCA), yellow areas, are closed to bottom trawling beginning July, 2006, implemented as part of Essential Fish Habitat mitigation action.

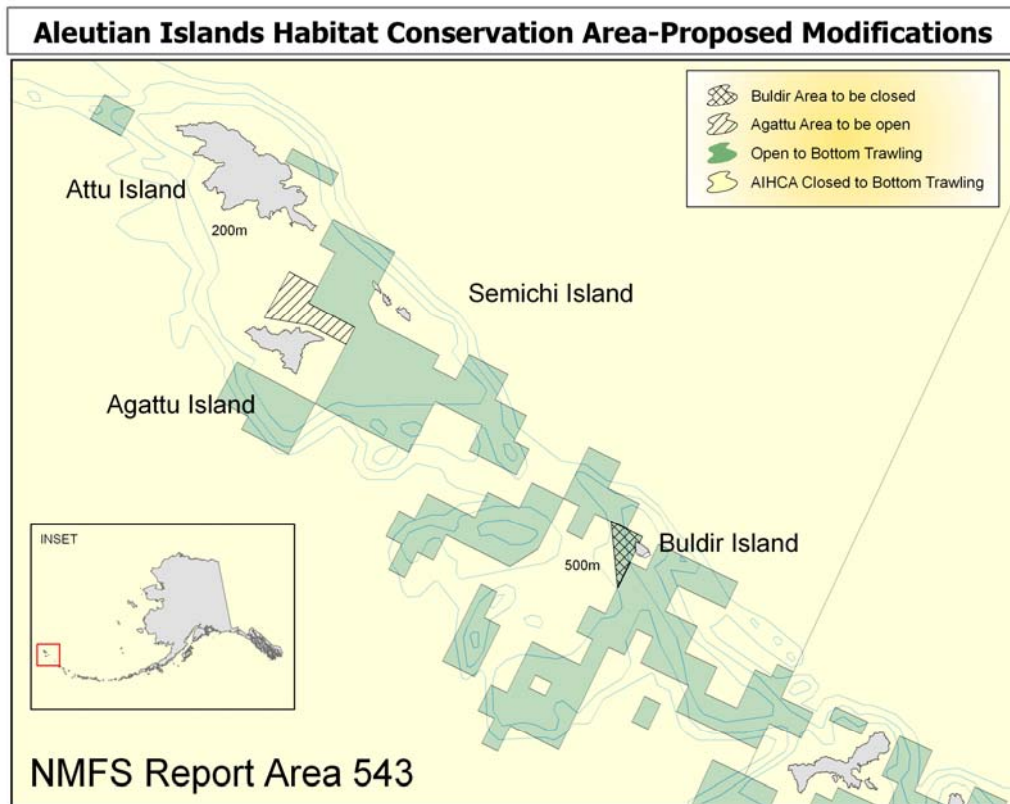
Two separate alternatives are analyzed in this EA as follows:

Alternative 1: No Action

Alternative 2: Modify the latitude and longitude definitions for open areas for the AIHCA which would effectively change the boundaries in two areas, one north of Agattu Island and one north of Buldir Island.

Proposed AIHCA Area	Latitude	Longitude	Management	NOAA Chart number	Area
North of Agattu Island	52°40.0 N 52°30.0 N 52°32.0 N 52°32.0 N 52°36.0 N 52°36.0 N 52°40.0 N	173° 25.0 E 173° 25.0 E 173° 40.0 E 173° 54.0 E 173° 54.0 E 173° 36.0 E 173° 36.0 E	Remove from AIHCA closure (area will now be open)	530_1	128 nm ² or 383 km ²
North of Buldir Island	52°24 N 52°24 N 52°12 N	175°42 E 175°54 E 175°54 E	Add to AIHCA (area will now be closed)	530_1	50 nm ² or 149 km ²

Table ES-1.1-1 Name, location and area pf proposed AIHCA changes (Alternative 2)



ES- 2. Proposed modifications of the AIHCA under Alternative 2. Yellow areas are closed to bottom trawling and the green areas are opened.

The analysis of direct, indirect and cumulative effects for the proposed action indicated no significant impacts on the human environment from the alternatives. The status quo provides EFH protection measures that provide habitat protection for vulnerable benthic habitat by bottom trawl closures. Thus Alternative 1 is not likely to result in any significant effects regarding habitat, target species, non-target resources, protected species or the ecosystem. The impacts of Alternative 2 likely are similar in magnitude to Alternative 1 due to the slight size change of the boundary areas and the trade off between the open and closed areas from an environmental perspective in terms of protecting fragile coral and sponge habitat. Additionally, Alternative 2 would provide some economic benefit to the fishery.

The proposed open area north of Agattu Island will likely cause an insignificant impact to habitat since the area has been historically fished for years according to industry sources, and fishing is of limited duration in the spring. Although some coral has been documented near Agattu Island these coral locations do not intersect with the proposed modified open area.

The proposed closure of the Buldir Island location is currently outside the AIHCA. This area contains both corals and sponges documented both by NOAA Fisheries as well as anecdotal information from local fishers.. This vulnerable habitat is an example type of habitat of that may be affected by fishing gear. A closure of this area would result in a slight positive effect on habitat since no potential bottom trawling would occur in the area.

Because Alternative 2 may protect areas of known coral and sponge occurrence, Alternative 2 may be more protective of habitat than Alternative 1. The remaining resource categories have similar effects as Alternative 1. By prohibiting bottom trawling in locations where coral and sponge occur, Alternative 2 may result in less mortality or damage to living substrate than Alternative 1. Based on available data of coral and sponges occurrence, protecting the Buldir Area under Alternative 2 may be more protective of benthic diversity and habitat suitability than Alternative 1.

1.0 PURPOSE AND NEED FOR ACTION

NMFS and the Council published a Final Environmental Impact Statement (EIS) for Essential Fish Habitat (EFH) Identification and Conservation in April 2005 (NMFS 2005). The Final EIS evaluates three actions: describe and identify EFH, adopt an approach to identify HAPCs, and minimize to the extent practicable the adverse effects of fishing on EFH. The Council's selection to reduce adverse effects of fishing on EFH included action within the Aleutian Islands regions including the Aleutian Island Habitat Conservation Area (AIHCA). The action amended the FMPs to prohibit the use of certain bottom contact fishing gear in designated areas of the AI to reduce the effects of fishing on corals, sponges, and hard bottom habitats that protects habitats from potential future disturbance without incurring significant short-term costs. The AIHCA closes most of the Aleutian Islands fishery management area to bottom trawling (279,114 square nautical miles). Most fishing areas that have been trawled repeatedly in the past will remain open. The intent of the AIHCA is to protect bottom habitat in those areas that have not been minimally or not historically fished with bottom trawl gear and to provide continued fishing opportunities in those areas identified as historical fishing locations for vessels using bottom trawl gear.

In February 2005 the Council adopted EFH Amendments 78/16/9/7 to the BSAI Groundfish FMP, the BSAI Crab FMP, the Scallop FMP, and the Salmon FMP, respectively, and submitted them for review by the Secretary. The Secretary approved these amendments on May 3, 2006 and finalized implementing regulations for the AIHCA (71 FR 36694, June 28, 2006).

In June 2006, based on corrected information provided by fishing industry representatives, the Council requested an analysis of two locations within AIHCA to determine if adjustments should be made to the locations open and closed to bottom trawling. One location near Agattu Strait has been historically fished but was included into the closure area. A second location near Buldir Island was included in the portions of the AIHCA open to bottom trawling but has some documented presence of corals and sponges which is indicative of a fragile habitat (Figure 2.1). FMP and regulatory amendments are needed to modify EFH protection measures for these two locations to ensure the coordinates in the FMPs and regulations implement the intent of the AIHCA.

The purpose of this action is to revise the regulations to correct the AIHCA coordinates for these two locations. These locations were incorrectly specified during the EFH amendments development and need to be corrected to ensure fishing activities are conducted only in locations of historical bottom trawl fishing and bottom trawling is excluded where coral or sponge habitat may be adversely affected and there is minimal historic fishing. The original EFH EIS analysis was based upon the best scientific information available, and the guidelines articulated in the Final Rule to implement the EFH provisions of the Magnuson-Stevens Act (see 50 CFR Part 600, Subpart J). This information included detailed fishing activities provided by the fishing industry that were not available through NMFS observer or other types of fisheries data. The information provided by the industry at that time regarding these two locations did not accurately reflect historical fishing activities. Industry provided updated information in December 2006, for the area to be considered for opening in this analysis.

The proposed open area near Agattu Island was selected based on historic fishing patterns and bathymetric features. The area best depicts the locations of trawl tows to prosecute groundfish trawl fisheries, and is suggested to be an area without the presence of coral or sponge habitat. The proposed closed area near Buldir is based on the location of coral and sponge habitat suggested by both fishers and documented presence in the NOAA groundfish surveys. The area is triangular in shape to best match the bathymetry in the area. Some fishing has occurred in the area, but was indicated to be in vulnerable habitat areas and recommended by fishers to be closed.

1.1 Decisions to Be Made and Proposed Schedule

Based on the analyses in this EA, the Council and NMFS will decide if modifications to the AIHCA should be implemented. If the Council takes final action in April 2007, FMP and regulatory amendments may be completed by mid 2008, depending on approval by the Secretary of the Department of Commerce.

1.2 Organization of the EA

The required components of an environmental assessment (EA) are in the following sections:

- Need for the action (Section 1),
- The alternatives (Section 2),
- The status of the affected environment (Section 3), and
- The environmental impacts of the proposed action and alternatives (Section 4)

A RIR/IRFA is presented in sections 5 & 6. A list of agencies and persons consulted is included later in this document in Section 7. References are included as Section 8.

1.3 Public Process

This EA/RIR/IRFA was reviewed at both the October, 2006 and February 2007 Council meetings. The Council's Scientific and Statistical Committee and Advisory Panel reviewed the document and provided comments to the Council regarding this action and the analysis. Public comment on the document was received by the Council during public testimony at the meetings. Public comment on the EA/RIR/IRFA also may be provided to NMFS during the proposed rule public comment period.

October 2006 Council Meeting: After hearing a report from staff and comments from the advisory panels on the preliminary analysis the Council made the following recommendations for refinements to the EA/RIR/IRFA:

- Prohibited Species- Provide additional information on the avifauna potentially impacted, especially for red-faced cormorants, which have undergone large declines in recent years. Information was compiled from USF&W to ensure adequate information was included in the analysis.
- Review the significance criteria table (Table 4.1-4) and note any changes to the original habitat analysis in the EFH EIS.
- Clarification on the link between rockfish and target biomass in terms of significance.
- Provide additional charts displaying bathymetry or other geographic information pertinent to the analysis including maps to illustrate the location of red-faced cormorant rookeries and their proximity to open fishing areas. Additionally, information on the dive depths of these cormorants, bottom depths in the areas opened, and substrate types in these areas may help to assess the potential for the proposed change to affect cormorant foraging.
- Resolve, in cooperation with the industry, the appropriate boundaries of the Agattu area opening using the same methodology as that used in the original EFH EIS.

February 2007 Council Meeting: After hearing a report from staff and comments from the advisory panels on the preliminary analysis the Council made the following recommendations for refinements to the EA/RIR/IRFA and make this available for public review:

- Reorganize the description of environmental consequences to habitat between the alternatives.

1.4 Relevant NEPA Documents

The NEPA documents listed below have detailed information on the groundfish fisheries, and on the natural resources and the economic and social activities and communities affected by those fisheries. These documents

contain valuable background for the action under consideration in this EA/RIR/IRFA. The Council on Environmental Quality (CEQ) regulations encourages agencies preparing NEPA documents to incorporate by reference the general discussion from a broader EIS and concentrate solely on the issues specific to the environmental assessment subsequently prepared. According to the CEQ regulations, whenever a broader EIS has been prepared and a NEPA analysis is then prepared on an action included within the entire program or policy, the subsequent analysis shall concentrate on the issues specific to the subsequent action. The subsequent EA need only summarize the issues discussed and incorporate discussions in the broader EIS by reference (see 40 CFR 1502.20).

Alaska Groundfish Programmatic Supplemental EIS (PSEIS)

In June 2004, NMFS completed the PSEIS that disclosed the impacts from alternative groundfish fishery management programs on the human environment (NMFS 2004). NMFS issued a Record of Decision on August 26, 2004, with the simultaneous approval of Amendments 74 and 81 to the FMPs, respectively. This decision implemented a policy for the groundfish fisheries management programs that is ecosystem-based and is more precautionary when faced with scientific uncertainty. For more information on the PSEIS, see the Alaska Region website at: <http://www.fakr.noaa.gov/sustainablefisheries/seis/default.htm>. The following provides information on the relationship between this EA/RIR/IRFA and the PSEIS.

The PSEIS brings the decision-maker and the public up to date on the current state of the human environment, while describing the potential environmental, social, and economic consequences of alternative policy approaches and their corresponding management regimes for management of the groundfish fisheries off Alaska. In doing so, it serves as the overarching analytical framework that will be used to define future management policy with a range of potential management actions. Future amendments and actions will logically derive from the chosen policy direction set for the PSEIS' preferred alternative.

As stated in the PSEIS, any specific FMP amendments or regulatory actions proposed in the future will be evaluated by subsequent environmental assessments (EAs) or EISs that incorporate by reference information from the PSEIS but stand as case-specific NEPA documents and offer more detailed analyses of the specific proposed actions. As a comprehensive foundation for management of the GOA and BSAI groundfish fisheries, the PSEIS functions as a baseline analysis for evaluating subsequent management actions and for incorporation by reference into subsequent EAs and EISs that focus on specific Federal actions.

Alaska Groundfish Harvest Specifications EIS

In January 2007, NMFS completed an EIS analyzing the impacts of various harvest strategies for the Alaska groundfish fisheries (NMFS 2007). Except for the no action alternative, the alternatives analyzed would implement the preferred management strategy contained in the PSEIS. This document contains an analysis of the effects of the alternative harvest strategies on target groundfish species, non-target species, prohibited species, marine mammal, seabirds, habitat, ecosystem relationships and social and economic concerns. The analysis is based on the latest information regarding the status of each of these environmental components and provides the most recent consideration of reasonably foreseeable future actions to consider in the cumulative effects analysis. The EIS provides the latest overall analysis of the impacts of the groundfish fisheries on the environment and will provide a substantial amount of reference material for the purposes of this EA/RIR/IRFA.

Essential Fish Habitat EIS

In 2005, NMFS and the Council completed the EIS for Essential Fish Habitat Identification and Conservation in Alaska (EFH EIS, NMFS 2005). The EFH EIS provided a thorough analysis of alternatives and environmental consequences for amending the Council's FMPs to include EFH information pursuant to Section 303(a)(7) of the Magnuson-Stevens Act and 50 CFR 600.815(a). Specifically, the EFH EIS examined three actions: (1) describing and identifying EFH for Council managed fisheries, (2) adopting an approach to identify Habitat

Areas of Particular Concern within EFH, and (3) minimizing to the extent practicable the adverse effects of fishing on EFH. The Council's preferred alternatives from the EFH EIS are implemented through Amendments 78/65 and 73/65 to the GOA and BSAI groundfish FMPs, respectively, Amendments 16 and 12 to the FMP for BSAI King and Tanner Crab, Amendments 9 and 7 to the FMP for the Scallop Fishery off Alaska and Amendments 7 and 8 to the FMP for Salmon Fisheries in the Exclusive Economic Zone off the Coast of Alaska. A Record of Decision was issued on August 8, 2005. NMFS approved the amendments on May 3, 2006. Regulations implementing the EFH/HAPC protection measures were effective July 28, 2006 (71 FR 36694, June 28, 2006). The Final EIS may be found on the NMFS AKR web site at: <http://www.fakr.noaa.gov/habitat/seis/efheis.htm>.

Several management analytical tools and measures are contained in appendices to the EFH EIS.

Appendix B - Evaluation of Fishing Activities that May Adversely Affect EFH. Appendix B addresses the requirement to conserve and protect fish habitats from adverse fishing activities. Appendix B includes a newly developed model completed by NMFS and reviewed by a panel of independent scientists. The model evaluates current fishing activities on areas specifically described as EFH, incorporates the most accurate and up-to-date fishing gear descriptions, and formulates an effects index. Index values provide a range of fishing gear effects on habitat.

Appendix F – Essential Fish Habitat Assessment Reports (HAR). Appendix F is the most recent compilation of habitat related information for each fishery stock by FMP. The HAR contains life history, reproductive traits, and predator/prey relationship information. Additionally, each species profile in the HAR contains a list of references and information sources used by stock assessment experts for that species.

EFH EIS, Section 3.4.1 Magnuson-Stevens Act Managed Fisheries. For each of the five FMPs (GOA Groundfish, BSAI Groundfish, BSAI Crab, Scallops, and Salmon), a subsection accurately describes the fisheries and gears used within that particular fishery. These descriptions are a product of a workshop held between fisheries managers and fishers regarding specific gear types currently used. This information was used in the fishing effects model to assess gear impacts on different habitat types.

Because the proposed action is a change to an EFH protection area, and the EFH EIS contains the latest information on fishing effects on habitat; the analysis contained in the EFH EIS will be referenced to describe the potential impacts on habitat by the proposed action analyzed in this EA.

Steller Sea Lion Protection Measures Supplemental EIS

A supplemental EIS (SEIS) was completed in 2001 to evaluate the impacts of groundfish fishery management measures in the GOA and BSAI on Steller sea lions (NMFS 2001). The purpose of the SEIS was to provide information on potential environmental impacts from implementing a suite of fisheries management measures to protect the western population of Steller sea lions. Fisheries management measures were designed to not jeopardize the existence of the western population of Steller sea lions nor adversely modify their critical habitat. Alternative 4, the area and fishery-specific approach, was selected in the Record of Decision. Revision of fishery management measures in accordance with that decision has been promulgated through proposed and final rulemakings in accordance with Magnuson-Stevens Act procedures (68 FR 204, January 2 2003). The EIS may be found at the NMFS AKR web site at: <http://www.fakr.noaa.gov/sustainablefisheries/seis/sslpm/default.htm>.

The proposed action analyzed in this EA/RIR/IRFA would occur in areas that are Steller sea lion designated critical habitat and may have an effect on Steller sea lions. The Steller sea lion SEIS will be referenced to describe fishing effects on Steller sea lions from the proposed action.

Habitat Areas of Particular Concern EA/RIR/IRFA

This document evaluates the alternatives to designate and conserve Habitat Areas of Particular Concern (NMFS 2006b). Habitat Areas of Particular Concern (HAPC) are site-specific areas of Essential Fish Habitat (EFH) of managed species. Identification of HAPCs provides focus for additional conservation efforts for those habitat sites that are ecologically important, sensitive to disturbance, exposed to development activities, or rare. This EA evaluates alternatives for designating HAPC sites in the Gulf of Alaska (GOA) and the Aleutian Islands (AI) and implementing associated fisheries management measures to provide additional conservation of specified HAPC areas.

The significance criteria used to evaluate the effects of the alternatives is applicable to the evaluation of effects of the alternatives in this EA. The criteria were used to evaluate the effects in discrete areas and for certain types of fishing restrictions, similar to the proposed action in this EA. Therefore the significance criteria from the HAPC EA are appropriate for this EA.

This EA will analyze the proposed action, revision of the AIHCA. This revision derives from the policy established in the preferred alternatives in the PSEIS and in the EFH EIS. This EA incorporates by reference information from the NEPA documents described above, when applicable, to focus the analysis on the issues ripe for decision and eliminate repetitive discussions.

2.0 DESCRIPTION OF THE ALTERNATIVES

Two alternatives are presented in this analysis: no modifications of the AIHCA (Alternative 1) and modifications of the AIHCA area (Alternative 2). Alternative 2 refines the boundaries of the AIHCA in two locations. No other alternatives are considered because the requests to change the regulatory and FMP latitude and longitude bounds are only for two areas described in Section 1.0 and Alternative 2. No additional information exists that identifies other locations within the AIHCA that may be open or closed to fishing contrary to historical fishing activities and the intent of implementing the AIHCA. Therefore, no additional alternatives are identified that meet the purpose and need of this action.

In this analysis, the alternatives are evaluated for all direct, indirect, and cumulative effects on resources, species, and issues within the action area (Western Aleutians).

Alternative 1: No Action.

Alternative 2: Modify the latitude and longitude definitions for open areas for the AIHCA which would effectively change two boundaries see Figure 2.1 and Table. 2.1. The two locations are relatively small in area compared to the entire AIHCA, and the modifications would change the overall configuration of the AIHCA very subtly with less than 0.02 % area reduction (a net change of 78 nm²).

North Agattu area

The proposed area is located in the Western Aleutian Islands, NMFS management area 543, on the north side of Agattu Island. The area falls within 1-200 meters of depth. No specific physical information is available on this area. The area has been commercially fished and therefore assumed not to contain coral rich areas that have not been impacted by trawling. The primary fisheries that occur in this area are Pacific Cod and Atka mackerel harvested by bottom trawl gear.

Buldir area

The proposed area is located in the Western Aleutian Islands NMFS management area 543, on the southeast side of Buldir. The area falls within 1-500 meters of depth. No specific physical information is available on this area. However some of the AI NOAA Fisheries Trawl Surveys have been conducted inside these bounds and some sponges and corals have been found within the area. The area has had some commercial fishing in the early 1990's however anecdotal information from fishers suggests it did not continue due to presence of corals and sponges that can damage fishing gear. The primary fisheries that occur in this area were for rockfish harvested with bottom trawl gear.

Table 2.1. Name, location and area of proposed AIHCA changes (Alternative 2).

Proposed AIHCA Area	Latitude	Longitude	Management	NOAA Chart number	Area
North of Agattu Island	52°40.0 N 52°30.0 N 52°32.0 N 52°32.0 N 52°36.0 N 52°36.0 N 52°40.0 N	173° 25.0 E 173° 25.0 E 173° 40.0 E 173° 54.0 E 173° 54.0 E 173° 36.0 E 173° 36.0 E	Remove from AIHCA closure (area will now be open)	530_1	128 nm ² or 383 km ²
North of Buldir Island	52°24 N 52°24 N 52°12 N	175°42 E 175°54 E 175°54 E	Add to AIHCA (area will now be closed)	530_1	50 nm ² or 149 km ²

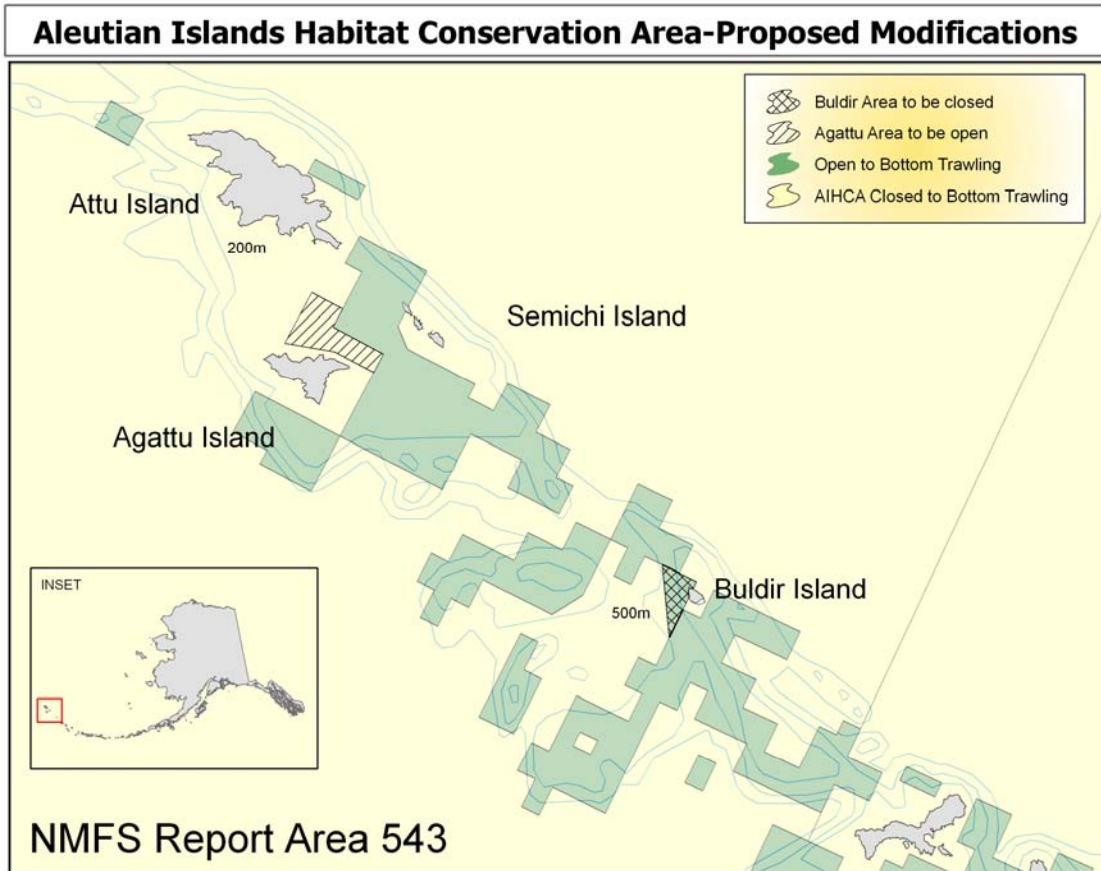


Figure 2-1. Locations of proposed changes in the AIHCA

Table 24 to 50 CFR part 679 would be revised to adjust the boundaries for area 26, Buldir and for area 30, Semichi Island to implement the opened and closed locations under the proposed action. The Buldir area would be divided into two areas, North Buldir and South Buldir. Figure 2-2 shows the revised AIHCA from the proposed action. The areas listed in Table 24 would be renumbered after Buldir to retain sequential numbering of sites (Appendix 1).

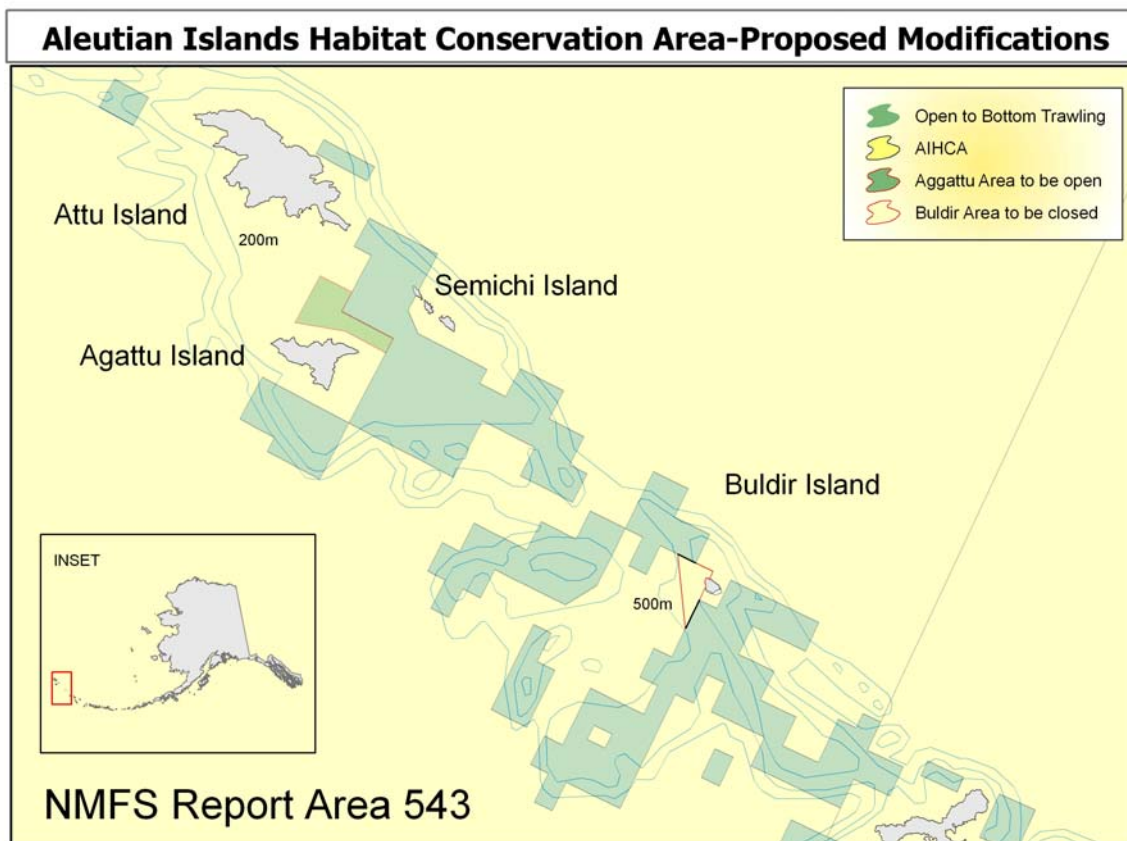


Figure 2-2 Proposed Revised AIHCA

3.0 STATUS OF THE AFFECTED ENVIRONMENT

This action would occur in the far western Aleutian Islands in NMFS reporting area 543 as shown in Figure 2-1. A comprehensive description of the action area is contained in previous EISs prepared for North Pacific fishery management actions (NMFS 2004 and 2005). The description of the affected environment is incorporated by reference from Chapter 3 of the PSEIS (NMFS 2004) and Chapter 3 of the EFH EIS (NMFS 2005). These documents contain extensive information on the fishery management areas, marine resources, habitat, ecosystem, social, and economic parameters of these fisheries. Rather than duplicate an affected environment description here, readers are referred to those documents. Both of these public documents are readily available in printed form or on the Internet at www.fakr.noaa.gov.

Any additional information beyond the references above on each of the resource components analyzed in this EA/RIR/IRFA is contained in the chapter addressing that resource component and is not repeated here in Chapter 3.

4.0 ENVIRONMENTAL CONSEQUENCES OF THE ALTERNATIVES

An EA must consider whether an action will have a significant effect on the quality of the human environment (40 CFR 1508.27; NAO 216-6, 6.01b). Significance is determined by considering the contexts (geographic, temporal, and societal) in which the action will occur, and the intensity of the effects of the action. The evaluation of intensity should include consideration of the magnitude of the impact, the degree of certainty in the evaluation, the cumulative impact when the action is related to other actions, the degree of controversy, and consistency with other laws. If an impact is not considered significant, a Finding of No Significant Impact (FONSI) is issued.

The proposed action is limited to two locations in the western Aleutian Islands and to bottom trawl fishing. Any effects of this action are therefore limited to these locations and to any component of the environment that may be impacted by bottom trawl fishing in these locations.

This section describes the criteria by which the impacts of the proposed action are analyzed for each of the following resource categories:

- Habitat
- Target Species
- Economic and Socioeconomic Aspects of Federally Managed Fisheries
- Other Fisheries and Fishery Resources
- Protected Species
- Ecosystem

Evaluation criteria have been developed for each of these categories recently within the Habitat Areas of Particular Concern (HAPC) EA (NMFS 2006b). The EFH EIS, (NMFS 2005) provide recent information on the effects of fishing on EFH. The analysis used in this EA draws upon the evaluations used in the EFH EIS and adopts the significance criteria used in the HAPC EA (NMFS 2006b) because of the similar type of action analyzed and the latest information provided by these analyses.

The four ratings used to assess each potential effect are:

Significantly negative (S-): Significant adverse effect in relation to the reference point. Information, data, and/or professional judgment indicate that the action will cause a significant adverse effect on the resource.

Insignificant impact (I): Insignificant effect in relation to the reference point. Information, data, or professional judgment suggests that the action will not cause a significant adverse effect on the resource.

Significantly positive (S+): Significant beneficial effect in relation to the reference point.

Information, data, and/or professional judgment indicate that the action will cause a significant benefit to the resource.

Unknown (U): Unknown effect in relation to the reference point. There is an absence of information to determine a reference point for the resource, species, or issue and data is insufficient to adequately assess the effect of the action. Professional judgment is also not able to determine the effect of the action on the resource.

The reference point condition, where used, represents the state of the environmental component in a stable condition or in a condition judged not to be threatened at the present time. For example, a reference point condition for a fish stock would be the state of that stock in a healthy condition, able to sustain itself, successfully reproducing, and not threatened with a population-level decline. The following subsections describe the significance criteria used to evaluate the proposed alternatives. Significance criteria are provided for each of the resource categories listed above.

4.1 Potential Effects and Significance Criteria

The EFH EIS provided analyses of the effects of Alternative 1 in this EA/RIR/IRFA (through its evaluation of EFH-Action 3 Alternative 5c in the EFH EIS) for effects on fish habitat, target species, other fisheries and fishery resources, protected species, ecosystems, and cumulative effects (NMFS 2005). Updated information on cumulative effects is in the Harvest Specifications EIS (NMFS 2007). Section 4.1 of the HAPC EA (NMFS 2006b) provides the significance criteria to determine the significance of effects of the proposed action analyzed in this EA on the components of the environment. No new information is available to support different criteria or conclusions than those presented in the EFH and Harvest Specifications EISs and the HAPC EA for the status quo (Alternative 1 in this EA/RIR/IRFA); and therefore, the Alternative 1 (status quo) effects analysis adopts by reference the effects analysis from the EFH and harvest specifications EISs (NMFS 2005 and 2007).

This section will focus on the effects of Alternative 2 on the components of the human environment and compare those effects to the significance criteria for each component and compare effects to Alternative 1 effects. The action is limited to changes in bottom trawling, and therefore, the analysis will focus on the effects of allowing or prohibiting bottom trawling in the discrete locations identified in Alternative 2.

4.1.1 Habitat

The issues of primary concern with respect to the effects of fishing on benthic habitat are the potential for damage or removal of fragile biota within each area that are used by fish as habitat and the potential reduction of habitat complexity, benthic biodiversity, and habitat suitability. Habitat complexity is a function of the structural components of the living and nonliving substrate and could be affected by a potential reduction in benthic diversity from long-lasting changes to the species mix. Many factors contribute to the intensity of these effects, including the type of gear used, the type of bottom, the frequency and intensity of natural disturbance cycles, and the history of fishing in an area. This process is presented in more detail in section 3.2 of the HAPC EA (NMFS 2006b). A specific description of the effects of bottom trawl on habitat is in section 3.2.1 of the HAPC EA and is adopted here by reference.

Based on the information available to date, the predominant direct effects caused by bottom trawling include smoothing of sediments, moving and turning of rocks and boulders, resuspension and mixing of sediments, removal of seagrasses, damage to corals, and damage or removal of epibenthic organisms (Auster et al. 1996, Heifetz 1997, Hutchings 1990, ICES 1973, Lindeboom and de Groot 1998, McConnaughey et al. 2000). Trawls affect the seafloor through contact of the doors and sweeps, footropes and footrope gear, and the net sweeping along the seafloor (Goudey and Loverich 1987). Trawl doors leave furrows in the sediments that vary in depth and width depending on the shoe size, door weight, and seabed composition. The footropes and net can disrupt benthic biota and dislodge rocks. Larger seafloor features or biota are more vulnerable to fishing contact, and,

larger diameter, lighter footropes may reduce damage to some epifauna and infauna (Moran and Stephenson 2000). An Alaska-based fishery impacts assessment model analyzes the effect of fishing gears on habitats, including fragile biota. This model is Appendix B of the EFH EIS (NMFS 2005).

In terms of habitat the AI has complicated mixes of substrates, including a significant proportion of hard substrates (pebbles, cobbles, boulders, and rock), but data are not available to describe the spatial distribution of these substrates. Therefore, it is difficult to assess habitat complexity in terms of specific substrates. Some information on vulnerable or fragile habitats can be surmised through the NMFS groundfish surveys or from anecdotal information provided by fishers who utilize these areas. NMFS conducts groundfish surveys in the AI every three years; during the course of these surveys any sponge or corals are documented, although the surveys specifically are not intended to find these species or their habitats. The original creation of the AIHCA took these two sources of information into consideration.

Each alternative was rated by significance criteria for any effect on marine benthic habitat. The significance criteria are outlined in Table 4.1.1 and are grouped into four categories:

1. Mortality and damage to living habitat species: Damage to or removal of HAPC biota by direct contact with fishing gear;
2. Modification of non-living substrate by direct contact with fishing gear (non-living substrates such as rock and cobble);
3. Modification of the community structure in terms of benthic biodiversity;
4. Modification of habitat suitability to support healthy fish populations.

Each of the criteria was assessed qualitatively, due to the lack of existing habitat data. Specifically, the second category, “modifications to nonliving substrate by gear” is somewhat hypothetical, as problems have been identified in assessing impacts for fishing gears. The third category identifies effects from fishing that may result in a change in the biodiversity within the habitat area. Intense or high frequency fishing activities within a relatively small area may result in a change in diversity by removing resident species and by attracting opportunistic fish species that feed on injured or uncovered marine organisms disturbed in the wake of the tow.

Specific impacts to habitat from different management regimes are very difficult to predict. The ability to predict the potential effects on benthic habitat from mitigative measures that change the geographical and seasonal patterns of fishing depends on having detailed information regarding habitat features, life histories of living substrates, the natural disturbance regime, and how fishing with bottom trawl gear at different levels of intensity affects different habitat types.

Several simplifying assumptions were made:

1. Disturbances, such as fishing, in sensitive habitats add additional stress on areas with slow recovery times and fragile sessile marine organisms.
2. Closing areas to disturbances benefits benthic habitat.
3. Removal or disruption of non-living structure, such as boulders, may remove attachment substrate for species, such as *Primnoa* coral species.
4. If more area is restricted or closed to fishing, fewer alterations and disturbances to marine habitat from fishing are expected. Conversely, increasing the fishing effort in an area will place additional stress on benthic habitat.
5. Management measures propose to protect one area will likely result in benefits to that area, with only slight increased stress on habitats elsewhere.

Criteria used in this EA to evaluate effects of the proposed action on habitat are provided in Table 4.1-1. The reference point against which the criteria are applied is the current size and quality of marine benthic habitat and other essential fish habitat in the Aleutian Islands.

Table 4.1-1 Criteria used to determine significance of effects on habitat.

Effect	Criteria			
	Significantly Negative (-)	Insignificant (I)	Significantly Positive (+)	Unknown (U)
Habitat complexity: Mortality and damage to living habitat species	Substantial increase in mortality and damage; long-term irreversible impacts to long-lived, slow growing species.	Likely not to substantially increase mortality or damage to long-lived, slow growing species.	Substantial decrease in mortality or damage to long-lived, slow growing species.	Information, magnitude and/or direction of effects are unknown.
Habitat complexity: (non-living substrates such as rock and cobble)	Substantial increase in the rate of removal or damage of non-living substrates.	Likely not to substantially increase alteration or damage non-living substrates.	Substantial decrease in the rate of removal or damage of non-living substrates.	Information, magnitude and/or direction of effects are unknown.
Benthic biodiversity	Substantial decrease in community structure from baseline.	Likely not to substantially decrease or increase community structure.	Substantial increase in community structure from baseline.	Information, magnitude and/or direction of effects are unknown.
Habitat suitability	Substantial decrease in habitat suitability over time.	Likely not to substantially change habitat suitability over time.	Substantial increase in habitat suitability over time.	Information, magnitude and/or direction of effects are unknown.

Section 4.3.8.1 of the EFH EIS provided an analysis of the effects of Alternative 1 (through its evaluation of EFH-Action 3 Alternative 5c) for effects on fish habitat (NMFS 2005). The AIHCA accounted for 39 percent of the shallow habitat type and 59 percent of the deep habitat, and the very large proportion of shallow and deep habitat types closed to trawling would afford very substantial protection to coral in the AI. Because the primary fishing grounds were not closed, changes in the long-term effects indices (LEI) values would be relatively moderate (-1 and -2 percent, respectively, for nonliving and biostructure in the shallow habitat; -6 and -8 percent for nonliving and biostructure, respectively, in the deep habitat). However, these would be proportional reductions to original LEIs that were all less than 10 percent, so the absolute improvements would represent less than 0.5 percent of the structure available in an unfished state. Because the status quo has an overall effect on the habitat structure in the Aleutian Islands was very small (0.5 percent based on LEI); Alternative 1 is not likely to result in any significant effects regarding habitat complexity of living and nonliving structures, benthic diversity or habitat suitability.

The size of the locations affected by this proposed action (Alternative 2) is provided in Table 2-1. Due to the relatively small size and limited fishing effort in these locations, adjacent areas will likely support the minimal amount of fishing being displaced if fishing were restricted. It is then possible to assume that some fishing grounds would be fished with more frequency, with the potential for increased direct impact. However, it is likely that the increased fishing effort in habitats currently fished would not be much greater than effort that already exists. Because the net loss of area closed to bottom trawling under Alternative 2 compared to Alternative 1 is 78 nm², or 0.02% of the entire AIHCA, the proposed action is not likely to result in any substantial changes to the current features of benthic habitat, including the habitat complexity, benthic diversity or habitat suitability. Because there is little difference between the sizes of areas impacted, the effects of Alternatives 1 and 2 on habitat are expected to be similar, with Alternative 2 being slightly more protective of known coral/sponge habitat. Therefore, any potential effects of Alternatives 1 and 2 on habitat are likely insignificant.

The closure of the Buldir area may seem insignificant in relation to the vast areas closed to fishing in Aleutian Islands; however, taking action to protect areas known or thought to contain sensitive marine habitats is a precautionary approach recognized in marine fisheries management and meets the management objectives of the FMPs (NMFS 2004). The Buldir Island location outside the AIHCA which is proposed to be closed has had both documented presence of corals and sponges by the NOAA Fisheries Surveys as well as anecdotal

information by fishers (Figure 4.1-1). This type of habitat is an example for vulnerable habitat that may be affected by fishing gear. A closure of this area would result in a slightly positive effect on habitat because fishing has already occurred there, but some coral and sponge habitat will likely be protected with the trawl closure.

The proposed open area north of Agattu Island will likely cause an insignificant impact to habitat since the area has been historically fished for years according to industry sources. Some documented presence of coral is close to Agattu Island (Figure 4.1-1) but these coral locations do not intersect with the proposed modified open area. An area to the north of the proposed area has some documented presence of coral referenced from the NMFS research surveys 1975-2001 (Witherell and Coon, 2001) and an initial analysis for Habitat areas of Particular Concern (HAPC)- (NPFMC, 2000) but these areas will fall into the closed portion of the AIHCA.

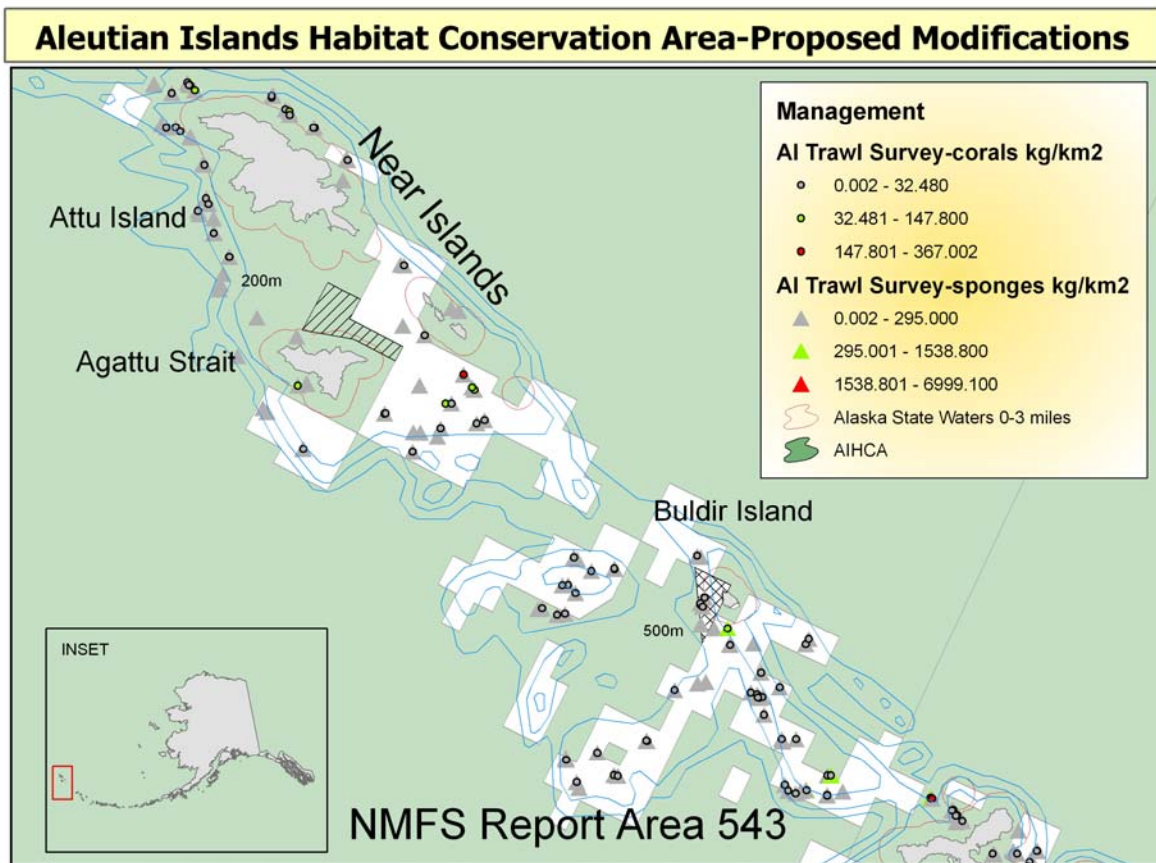


Figure 4-1-1. Location of NMFS trawl survey tows in the Aleutian Islands during years 1994 and 1997 that had documented samples of corals and sponges.

Because Alternative 2 may protect areas of known coral and sponge occurrence, Alternative 2 may be more protective of habitat than Alternative 1. By prohibiting bottom trawl in locations where coral occur, Alternative 2 may result in less mortality or damage to living substrate than Alternative 1. However, data on substrates in these areas are very limited, so the magnitude of protection cannot be determined. It is possible that because of the larger size of the Agattu area the total amount of sponge/coral habitat may actually be more extensive. Regarding non-living substrates the impact of Alternative 2 is likely the same as Alternative 1 because of the closed and open area offsets and the location of non-living substrate is likely ubiquitous, as compared to living substrate that is likely patchy in distribution. By not damaging corals and sponges in the Buldir location, Alternative 2 may be more protective of benthic diversity and habitat suitability than Alternative 1 based on available data. Considering all of the significance criteria for habitat effects, Alternative 2 effects are likely not substantial because of the intensity of the proposed action is limited to two relatively small locations and a small

number of vessels fish these areas, and because of the trade off of open and closed areas mitigating the impacts to some extent. The overall effects on habitat from Alternative 2 are likely insignificant.

4.1.2 Target Species

Target species for the AI area 543 are managed within the either AI or in combination with the Bering Sea subarea. In terms of target species, the FMP describes the target fisheries as, “those species which are commercially important and for which a sufficient data base exists that allows each to be managed on its own biological merits. Catch of each species must be recorded and reported. This category includes pollock, Pacific cod, yellowfin sole, Greenland turbot, arrowtooth flounder, rock sole, ‘other flatfish’ sablefish, Pacific Ocean Perch, ‘other rockfish, Atka mackerel, and squid. Other non-groundfish targeted FMP species in Federal waters include crab and scallops. In terms of state managed crab and invertebrates fisheries, no effects of these target species are expected as no fisheries for these species are prosecuted in these areas of the alternatives.

It was determined within the EFH EIS (NMFS 2005) that considerable scientific uncertainty remains regarding the consequences of habitat changes for managed species. Nevertheless, the EIS analysis concluded that the effects on EFH from fishing target species are minimal because no indication exists that continued fishing at the current rate and intensity would alter the capacity of EFH to support healthy populations of managed species over the long term.

The significance criteria used to evaluate the effects of the action on target species is in Table 4.1-2.

Table 4.1-2. Criteria used to estimate the significance of effects on the FMP managed target stocks.

Effect	Criteria			
	Significantly Negative (-)	Insignificant (I)	Significantly Positive (+)	Unknown (U)
Fishing mortality	Reasonably expected to jeopardize the capacity of the stock to yield fishable biomass on a continuing basis.	Reasonably expected not to jeopardize the capacity of the stock to yield fishable biomass on a continuing basis.	Action allows the stock to return to its unfished biomass.	Magnitude and/or direction of effects are unknown
Spatial or temporal distribution	Reasonably expected to adversely affect the distribution of harvested stocks either spatially or temporally such that it jeopardizes the ability of the stock to sustain itself.	Unlikely to adversely impact the distribution of harvested stocks either spatially or temporally such that it has an effect on the ability of the stock to sustain itself.	Reasonably expected to positively affect the harvested stocks through spatial or temporal increases in abundance such that it enhances the ability of the stock to sustain itself.	Magnitude and/or direction of effects are unknown
Change in prey availability	Evidence that the action may lead to a change prey availability such that it jeopardizes the ability of the stock to sustain itself.	Evidence that the action will not lead to a change in prey availability such that it jeopardizes the ability of the stock to sustain itself.	Evidence that the action may result in a change in prey availability such that it enhances the ability of the stock to sustain itself.	Magnitude and/or direction of effects are unknown

Historically, very little fishing effort has occurred in either the proposed Agattu or Buldir areas. The effects of each alternative on target groundfish commercial species were assessed by overlaying the recorded spatial concentration of each species and the spatial configuration of the current AIHCA boundaries (Alternative 1), with the modified configuration (Alternative 2). The observer data (1990-2005) was used as a proxy for a quantitative assessment of the relative impact of each AIHCA alternative might have on the stock biomass, mortality, and spatial/temporal distribution of target species, as well as the prey items that are important to fish harvest in target fisheries. Analyses were prepared for each target fishery which included Pacific Ocean perch, Atka mackerel and Pacific cod trawl fisheries. This quantitative assessment was based on the percentage of observed catch within the modified AIHCA boundaries and compared to the total target fishery catch in the

NMFS statistical areas. The three fisheries that occur in the Alternative 2 areas are less than .01% of the total observed catch.

Table 4.1-3 shows the metric tons of groundfish catch by species group in the proposed areas analyzed in this document.. Data at a finer temporal scale is not available due to confidentiality. The data in the table was based on observed catch by target species. The observed catch based on the observer data initially appears to have more catch in the Buldir Area than the Agattu area. Based on input from industry, the actual catch in the Agattu area is likely underestimated, since this area has been utilized for a spring Pacific cod fishery during several years between 1995 and 2005, which is not reflected in the observed catch.

Table 4.1-3 Catch by species group (metric tons), for Alternative 2. Amount shown is observed total harvest for 1995-2005.

Alternative 2: Species Group:	Agattu Open	% of catch of 543	Buldir Closed	% of catch of 543	Total catch in Area 543 with non-pelagic trawl gear
Atka Mackerel	290.80	0.13%	144.96	0.07%	219,047
Pollock	0.00	0.00%	60.43	2.66%	2,271
P Cod	632.4	2.37%	0.00	0.00%	26,656
Rockfish (POP)	28.50	0.05%	2507.69	4.26%	58,875
Sablefish/Greenland turbot	23.47	15.44%	193.48	127.29%	152
Total MT	975.17	0.32%	2,906.56	0.95%	307,001

In the areas potentially restricted by this action, a total of approximately 1,000 mt and 3,000mt of catch has been harvested between 1995 and 2005 in the Agattu area and Buldir area, respectively. The harvest of these species groups in both areas are less than 1.5% of the total catch in Area 543 utilizing non-pelagic trawl gear (Table 4.1-3). Additionally, the proposed action does not affect TAC specifications or fishing seasons for groundfish. As discussed in the target fisheries section, a very minimal amount of spatial redistribution of fishing effort may occur, shifting effort into other nearby open areas outside of the AIHCA.

Because Alternatives 1 and 2 nearly balance open and closed areas where target species may be harvested and fishers will likely make up for any loss access to fish by fishing in other locations, it is assumed that the amount of harvest under each alternative would be the same. Because overall harvest is not likely to change, stock biomass and changes in prey availability are not likely to occur. The only significance criterium that may be affected by the action is the spatial harvest of target species. The shifting of harvest under Alternative 2 is not expected to have an impact on the sustainability of the stocks because of the limited amount of harvest and the limited amount of area under consideration. Because the amount of harvest in the locations being examined is so small (net change of < 1.0 % of total observed non-pelagic trawl catch for area 543), the effects of both alternatives on the sustainability of the stocks under each of the criteria in Table 4.1-2 are not likely to occur. Therefore, Alternatives 1 and 2 effects on target species are insignificant.

4.1.3 Economic and Socioeconomic Aspects of Federally Managed Fisheries:

The reference point against which Alternative 2 was evaluated was the current economic and socioeconomic conditions from the current AIHCA closures. No significance determination is required for this component of the analysis. A thorough discussion of the socioeconomic effects of the proposed action is in sections 5 and 6 of this EA/RIR/IRFA.

The analysis generally finds that non-use values may be harmed by the proposed action. The proposed action would close an area that is less than half the size of the area proposed to be opened. On a simple square miles of habitat basis this represents a net loss to the nation of 78 nm². The area loss though has evidence of already

being impacted by bottom trawl fishing while the area proposed to be closed has evidence of coral/sponge habitat. Because the net loss would be 0.02 percent of the entire AIHCA, the proposed action may not be considered a great concern for non-use value of the area lost to bottom trawl protection.

Though defensible quantitative estimates of potential effects are not possible at this time, the qualitative analysis provided indicates that, based on the best available information, the proposed action does not appear to have the potential to produce an annual effect on the economy of \$100 million or more, or “adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities.” The proposed action would not be expected to meet or exceed the threshold for a “significant” action (as that term is defined in E.O. 12866).

4.1.4 Non-Target Resources:

Table 4.1-4 provides the significance criteria to evaluate impacts on non-target resources. These include groundfish species taken as bycatch in the targeted Atka mackerel, Pacific Ocean perch, and Pacific cod fisheries, prohibited species, non-specified species and forage fish. Retention of prohibited species (PSC) is forbidden in the BSAI fisheries. The prohibited species include: Pacific salmon, steelhead trout, Pacific halibut, Pacific herring, and Alaska king, Tanner, and snow crab. Pacific salmon include Endangered Species Act (ESA)-listed salmon that may occur in the BSAI (Table 4.1-6). Pacific salmon are primarily taken in the eastern Bering Sea pollock fishery. Very few Pacific salmon are taken in the AI (70 fish in the 2006 AI pollock fishery, NMFS Inseason Management data). No change in potential takes of ESA-listed salmon is expected with this action, because of the proposed action gear type, fishery locations, small areas, and no changes in overall harvest levels.

Management measures are currently in 50 CFR 679.21 to reduce the potential for incidental take of PSC species. These measures include limits on the take of certain PSC species and closures of areas to protect places where PSC species may occur. At present no active management and only limited monitoring of species in the other species and non-specified species occurs. Most of these animals are not currently considered commercially important and are not targeted or retained in groundfish fisheries. The information available for non-specified species is much more limited than that available for target fish species. Directed fishing for forage fish species is prohibited and most of the bycatch of these occur in the pollock pelagic trawl fishery.

The significance criteria used in the 2006-2007 Groundfish Harvest Specifications EA/RIRs for non-specified species is applicable to this analysis of the effects on nontarget species (NMFS 2006a). This EA/RIR provided the latest ideas on determining the significance of effects on nontarget species from the groundfish fisheries considering the lack of data regarding biomass and sustainability of most non-target species. The first criterion in the table was further refined for this analysis from NMFS 2006a to clearly provide a criterion for “insignificant impact” and to be consistent with other analyses of environmental components in this EA/RIR/IRFA. This analysis and the 2006-2007 EA/RIR analyze the effects of groundfish fisheries on nontarget resources in the AI with this proposed action being much more narrow in focus.

Table 4.1-4 Criteria used to estimate the significance of effects on nontarget species.

Insignificant Impact	The fishery would have insignificant impact on non-specified fish stocks if it did not change sustainable nontarget species biomass.
Adverse impact	A substantial reduction in the sustainable biomass of nontarget species stocks would be an adverse impact.
Beneficial impact	An increase in stocks above the levels they would reach in the absence of the fishery (perhaps due to the harvest of groundfish that compete for non-specified species prey) would be a beneficial impact.
Significantly adverse impact	Nontarget species bycatches that were not consistent with sustainable non-specified species populations would be a significantly adverse impact. For the purpose of this analysis, the bycatch of nontarget species will be assumed to be proportional to the sum of fishery TACs. A 50% increase in the harvest of target species from the baseline level is used as a proxy for an adverse significant threshold for nontarget species
Significantly beneficial impact	No benchmark is available for a significantly beneficial impact, and this is not defined in this instance.
Unknown impact	Insufficient information available to predict target fish harvest change.

Due to limited information, a mostly qualitative assessment of the relative impact of Alternatives 1 and 2 was made. The bycatch levels in the three target fisheries that occur in the areas are a small proportion of the total catch of Pacific cod, Pacific ocean perch, and Atka mackerel. Less than 1% of the target species harvest in the AI is taken from the Agattu and Buldir areas. Consequently the proportion of non target species (nonspecified, forage fish, and PSC) removed would also be very small in relationship to the entire management area. In terms of bycatch of non-target species, it not expected that any negative incremental changes will occur from Alternative 2 because the amount of effort in the Agattu site is low. There would be no change by closing the Buldir area in terms of incidental take of bycatch species.

Table 4.1-5 provides the bycatch of prohibited species in the Pacific cod, Atka mackerel and Pacific ocean perch fisheries in 2003-2005 in Area 543 compared to the average bycatch from these fisheries for the entire AI. For most PSC, very little bycatch of prohibited species occurred in area 543 compared to the total amount of bycatch of PSC in the Aleutian Islands subarea for these target fisheries. In the Atka mackerel fishery, halibut and non Chinook salmon appear to have higher proportions of bycatch compared to bycatch in volume or number for other PSCs in the entire AI. For the Pacific cod fishery, the proportion of bycatch for all PSCs in area 543 appear to be low compared to the overall AI bycatch of PSC species in this fishery. A large amount of halibut is taken in the Pacific Ocean perch fishery compared to the overall amount of halibut bycatch in this fishery in the AI. The halibut mortality limit for trawl pollock, Atka mackerel and other species (including Pacific Ocean perch) was not exceeded in 2003-2005. The incidental takes of prohibited species is not anticipated to be different between Alternative 1 and Alternative 2 due to the small areas, the small amount of effort, the trade off of open and closed areas and the same amount of target species expected to be harvested under each alternative.

Table 4.1-5 Average Bycatch of PSC in the Atka mackerel, Pacific cod and Pacific Ocean Perch Fisheries from 2003-2005

Fishery	Bycatch Species	Area 543 Amount	Aleutian Islands Subarea Total Average	543 Bycatch Percent of Total Average Catch in AI subarea
Atka mackerel	Halibut (kg)	28118	64179	44
	Chinook Salmon (no. of fish)	144	525	27
	NonChinook Salmon (no of fish)	1084	1294	84
	Red King Crab (no. of crabs)	23	180	13
	Bairdii Crab (no. of crabs)	15	52	29
	Opilio Crab (No. of crabs)	2	4	50
	Herring (kg)	2	8	25
Pacific Cod	Halibut (kg)	6464	67188	10
	Golden King Crab (no. of crabs)	16	51	31
	Bairdii Crab (No. of crabs)	605	7514	8
	Chinook salmon (no. of fish)	17	1127	2
Pacific Ocean perch	Halibut (kg)	27326	64379	42
	Golden King crab (no. of crabs)	1621	3486	46
	Red King crab (no. of crabs)	196	779	25

Information Source: Mary Furuness, NMFS Alaska Region Inseason Management, September 11, 2006.

Under Alternatives 1 and 2, the total harvest of Atka mackerel, Pacific cod and Pacific Ocean perch are expected to be the same. Because the groundfish harvest is not expected to increase, the harvest of non-specific, PSC species and forage species are also not expected to increase and no change in the sustainability of nontarget species biomass is expected. Therefore the effects of either Alternative 1 or Alternative 2 are expected to be the same and to be insignificant.

4.1.5 Marine Mammals and Seabirds

Impacts of the proposed action on marine mammals and seabirds may be a concern because they may be listed as endangered or threatened under the ESA, they may be protected under the Marine Mammal Protection Act (MMPA), they may be candidates or being considered as candidates for ESA listings, their populations may be declining in a manner of concern to State or federal agencies, they may experienced large bycatch or other mortality related to fishing activities, or they may be particularly vulnerable to direct or indirect adverse effects from some fishing activities. These species have been given various levels of protection under the current FMPs of the Council, and are the subjects of continuing research and monitoring to further define the nature and extent of fishery impacts on these species. ESA-listed and candidate species are listed in Table 4.1-6. A current description of ESA consultations for each species is contained in section 3.4 of the harvest specifications EIS (NMFS 2007).

Table 4.1-6. ESA listed and candidate species that range into the BSAI and GOA groundfish management areas.

Common Name	Scientific Name	ESA Status
Blue Whale	<i>Balaenoptera musculus</i>	Endangered
Bowhead Whale	<i>Balaena mysticetus</i>	Endangered
Fin Whale	<i>Balaenoptera physalus</i>	Endangered
Humpback Whale	<i>Megaptera novaeangliae</i>	Endangered
Right Whale ¹	<i>Balaena glacialis</i>	Endangered
Sei Whale	<i>Balaenoptera borealis</i>	Endangered
Sperm Whale	<i>Physeter macrocephalus</i>	Endangered
Steller Sea Lion (Western Population)	<i>Eumetopias jubatus</i>	Endangered
Steller Sea Lion (Eastern Population)	<i>Eumetopias jubatus</i>	Threatened
Chinook Salmon (Lower Columbia R.)	<i>Oncorhynchus tshawytscha</i>	Threatened
Chinook Salmon (Upper Columbia R. Spring)	<i>Oncorhynchus tshawytscha</i>	Endangered
Chinook Salmon (Upper Willamette)	<i>Oncorhynchus tshawytscha</i>	Threatened
Chinook Salmon (Snake River spring/summer)	<i>Oncorhynchus tshawytscha</i>	Threatened
Chum Salmon (Hood Canal Summer run)	<i>Oncorhynchus keta</i>	Threatened
Coho Salmon (Lower Columbia R.)	<i>Oncorhynchus kisutch</i>	Threatened
Steelhead (Snake River Basin)	<i>Oncorhynchus mykiss</i>	Threatened
Steller's Eider ²	<i>Polysticta stelleri</i>	Threatened
Short-tailed Albatross ²	<i>Phoebaotria albatrus</i>	Endangered
Spectacled Eider ²	<i>Somateria fishcheri</i>	Threatened
Kittlitz's Murrelet ²	<i>Brachyramphus brevirostris</i>	Candidate
Northern Sea Otter	<i>Enhydra lutris</i>	Threatened

¹NMFS designated critical habitat for the northern right whale on July 6, 2006 (71 FR 38277).

²The Steller's eider, short-tailed albatross, spectacled eider, Kittlitz's murrelet, and Northern sea otter are species under the jurisdiction of the USFWS. For the bird species, critical habitat has been established for the Steller's eider (66 FR 8850, February 2, 2001) and for the spectacled eider (66 FR 9146, February 6, 2001). The Kittlitz's murrelet has been proposed as a candidate species by the USFWS (69 FR 24875, May 4, 2004).

Many measures are already in place to protect marine mammals and seabirds from potential adverse effects from fishing activities. These measures include seasonal and geographic closed areas, requirements for seabird avoidance devices, observer requirements, and voluntary industry research activities to reduce vessel and gear encounters with protected species. These measures will remain in place in the future. And as new knowledge becomes available to minimize adverse impacts of fishing activities on protected species, the Council and NMFS likely will consider employing additional or modified measures to further reduce adverse effects on seabirds and marine mammals.

Assumed in this analysis is the global potential for fuel spills, other accidental contaminant releases, and accidental loss of fishing gear (nets, lines, buoys, pots or traps, hooks) from fishing activities throughout the North Pacific. Much of this lost gear or released contaminants disperse in the ocean, settle to the sea floor, or wash up on shore along the Alaskan or other coastlines. Some of the lost gear may entangle with marine mammals or birds, and this is further discussed below. Some contaminants may contact swimming fish, mammals, or birds and be absorbed by animal tissues. While these instances of contamination are most likely not lethal, some mortalities may occur to these species that are unseen and undocumented. Vessel strikes of mammals and sea birds also may occur and be either unknown to the vessel operator or unreported. Thus there likely are some unrecorded mortalities to marine mammals and seabirds from ship strikes, but Angliss and Lodge (2002) note that the mortality levels from such instances can only be estimated. They have made some attempts to estimate a minimum mortality level to marine mammals from vessel strikes where possible. It is likely that strikes are few in number and have little effect on overall animal populations in the North Pacific. To summarize, these elements of fishing activities cannot be quantified to the extent necessary to be evaluated in any one fishery, region, or season, but are considered here generally and recognized as a byproduct of commercial fishing in the North Pacific. Because this action is limited in scope and intensity to a few vessels

using non-pelagic trawl gear in two discrete areas of the Aleutian Islands, these effects are not considered major factors in the proposed action contemplated in this EA.

Descriptions of how fisheries in the North Pacific may interact with protected species are provided in many other documents. These relevant discussions were incorporated from the following: Wilson (2003), the EFH EIS (NMFS 2005), the PSEIS (NMFS 2004), the SAFE documents for 2006 (Boldt 2006) , the EA/RIR for establishing an AI pollock fishery (NMFS 2005a), and Angliss and Outlaw (2005).

Because this proposed action impacts only the location of bottom trawling, the potential impacts are isolated to those protected species that may use the locations that are to be either opened or closed. Because the amount of harvest is expected to be the same under each alternative, impacts are likely to be limited to certain direct and indirect effects on marine mammals and seabirds. These include:

1. Disturbance by fishing vessels
2. Potential localized depletion of prey resources where trawling is allowed
3. Incidental take by fishing gear or ship strikes
4. Changes to benthic habitat (for seabirds only)

The criteria for determining significance of effect from various fisheries were developed based on known interactions of marine mammals and seabirds with commercial fisheries in the North Pacific. It is very unlikely, given the very small geographic areas of the proposed action and no overall change in harvest amounts, that ESA-listed salmonids will be affected from the very small spatial changes in fishing activities anticipated from the AIHCA or its modification; thus, salmonids were not discussed in detail in the following analyses (see also section 4.1.4).

4.1.5.1 Marine Mammals:

Table 4.1-7 contain the significance criteria for analyzing the effects of the proposed action on marine mammals. These criteria are from the 2006-2007 groundfish harvest specifications EA/RIR (NMFS 2006a). These criteria are applicable to this action because this analysis and the harvest specifications analysis both analyze the effects of groundfish fisheries on marine mammals and seabirds. The EA/RIR provided the latest ideas on determining the significance of effects on marine mammals and seabirds based on similar information that is available for this EA/RIR/IRFA. The first criterium in the table was further refined for this analysis from NMFS 2006a to clearly provide a criterium for “insignificant impact” and to be consistent with other analyses of environmental components in this EA/RIR/IRFA.

Table 4.1-7 Criteria for determining significance of impacts to marine mammals.

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

Direct and indirect interactions between marine mammals and groundfish harvest activity may occur due to overlap of groundfish fishery activities and marine mammal habitat. Fishing activities may either directly take marine mammals through injury, death, or disturbance, or indirectly affect these animals by removing prey items important for growth and nutrition or cause sufficient disturbance that marine mammals avoid or abandon important habitat. Fishing also may result in loss or discard of fishing nets, line, etc. that may ultimately entangle marine mammals causing injury or death. Because of the gear type, fisheries, and discrete location of the action and limited harvest, most marine mammals are not likely to be affected by the action. Because the action is located in areas of Steller sea lion designated critical habitat, the western distinct population segment (DPS) of Steller sea lions may be encountered by vessels operating in the Agattu area or may compete for prey, and therefore this the only marine mammal discussed in detail. Other marine mammals such as harbor seals and killer whales have very limited information or no site specific information for the Agattu and Buldir areas, and it is not likely that the potential effects from the small number of vessels under the proposed action on these species are discernable.

The area of the Western Aleutians already has several management closures in place for the Stellar Sea Lion (Figure 4.2). Pacific cod and Atka mackerel are important prey species for Steller sea lions (NMFS 2001). The proposed action would not change the Atka mackerel, Pacific cod, and groundfish closures associated with the two Steller sea lion rookeries on Agattu Island and with the rookery located on Buldir Island. Atka mackerel and Pacific cod fishing in the Agattu and Buldir areas are restricted by the Steller sea lion protection measures (50 CFR 679.22). The harvest of Atka mackerel and Pacific cod in these areas is temporally and spatially dispersed through seasonal apportionments, platooning of the Atka mackerel fleet, and area closures. These rookeries are closed to 10 nm to Pacific cod fishing and closed up to 20 nm during the Atka mackerel harvest limit area fishery to limit prey species removals (50 CFR 670.20(a)(8)(iii) and 679.22(a)(8)(iv)). The Buldir area is closed to 15 nm to Atka mackerel fishing. The important areas within 3 nm of the rookeries on Agattu and Buldir Islands would remain closed to groundfish fishing. All of the temporal and spatial restrictions on the Atka mackerel and Pacific cod fisheries decrease the likelihood of disturbance, incidental take, and competition for prey to ensure the groundfish fisheries do not jeopardize the continued existence or adversely modify the designated critical habitat of Steller sea lions..

Alternatives 1 and 2 would not change the implementation of the Steller sea lion protection measures, and therefore would not affect Steller sea lions or their designated critical habitat beyond those effects already analyzed in previous consultations (NMFS 2001). Harvest of prey species would be similar under both alternatives. Any potential for an increase in fishing activity near Agattu is done within the context of the Steller sea lion protections measures so that no change in harvest of prey species, potential incidental takes or disturbance over the status quo are expected. The action of closing Buldir will only affect the Pacific Ocean perch fishery which is currently permitted outside of 3 nm. There is little or no interaction by the Pacific Ocean Perch fishery with marine mammals (List of Fisheries for 2006 71 FR 48802, August 22, 2006 and Angliss and Outlaw 2005). Pacific Ocean perch is not considered a principal prey species for Steller sea lions. Considering the existing closures under the Steller sea lion protection measures, the amount of potential removal of prey species and the small number of vessels, Alternatives 1 and 2 would have insignificant effects on prey removals, disturbance, and incidental take in either the Agattu or Buldir locations for Steller sea lions and their designated critical habitat. For these reasons, Alternatives 1 and 2 would have similar and insignificant impacts on the western DPS of Steller sea lions and their designated critical habitat.

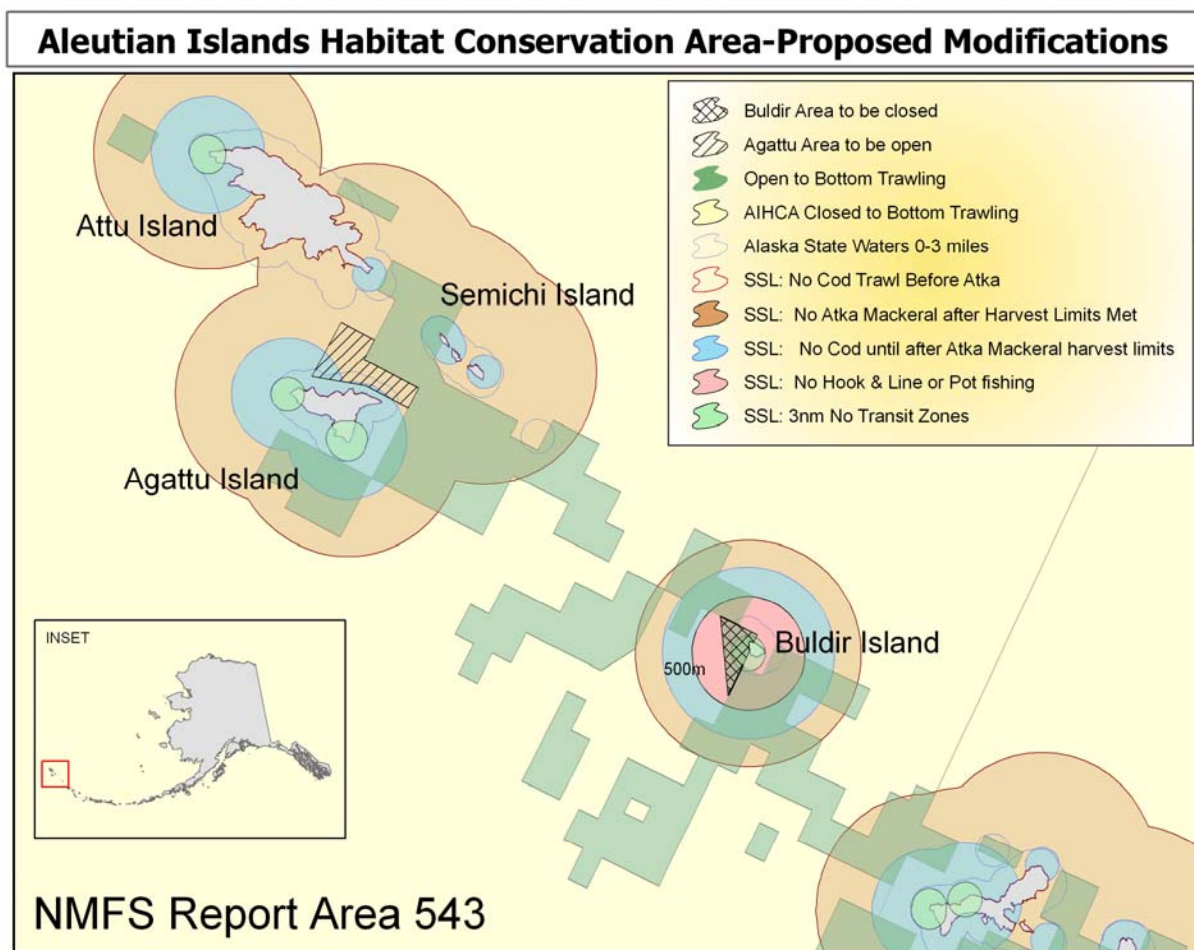


Figure 4-2. Locations of Stellar Sea Lion management areas in the Aleutian Islands, NMFS reporting area 543, with the areas for Alternative 2.

4.1.5.2 Seabirds:

Table 4.1-8 contain the significance criteria for analyzing the effects of the proposed action on seabirds. These criteria are from the 2006-2007 groundfish harvest specifications EA/RIR (NMFS 2006a). These criteria are applicable to this action because this analysis and the harvest specifications analysis both analyze the effects of groundfish fisheries on seabirds. The EA/RIR provided the latest ideas on determining the significance of effects on seabirds based on similar information that is available for this EA/RIR/IRFA. The first criterium in

the table was further refined for this analysis from NMFS 2006a to clearly provide a criterium for “insignificant impact” and to be consistent with other analyses of environmental components in this EA/RIR/IRFA.

Table 4.1-8 Criteria used to determine significance of impacts on seabirds.

	Incidental take	Prey availability	Benthic habitat
Insignificant	No substantive change in bycatch of seabirds during fishing operations.	No substantive change in forage available to seabird populations.	No substantive change in gear impact on benthic habitat used by seabirds for foraging.
Adverse impact	Non-zero take of seabirds by fishing gear.	Reduction in forage fish populations, or the availability of forage fish, to seabird populations.	Gear contact with benthic habitat used by benthic feeding seabirds reduces amount or availability of prey.
Beneficial impact	No beneficial impact can be identified.	Availability of offal from fishing operations or plants may provide additional, readily accessible, sources of food.	No beneficial impact can be identified.
Significantly adverse impact	Trawl and hook-and-line take levels increase substantially from the baseline level, or level of take is likely to have population level impact on species.	Food availability decreased substantially from baseline such that seabird population level survival or reproduction success is likely to decrease.	Impact to benthic habitat decreases seabird prey base substantially from baseline such that seabird population level survival or reproductive success is likely to decrease. (ESA listed eider impacts may be evaluated at the colony level).
Significantly beneficial impact	No threshold can be identified.	Food availability increased substantially from baseline such that seabird population level survival or reproduction success is likely to increase.	No threshold can be identified.
Unknown impacts	Insufficient information available on take rates or population levels.	Insufficient information available on abundance of key prey species or the scope of fishery impacts on prey.	Insufficient information available on the scope or mechanism of benthic habitat impacts on food web.

Buldur Island has a large and diverse population of breeding seabirds, with approximately 3 million birds of 21 species, with 2 species of storm-petrels and 6 species of auklets being the most numerous. From that standpoint, closure of local waters may have some benefit, as most of these birds feed well beyond the existing 3 nm closure to groundfish fishing under the Steller sea lion protection measures. However, there are few species or numbers of birds that feed on prey that is directly affected by trawling or in areas potentially affected by trawling; most of the birds are either plankton feeders or surface or mid-water fish feeders (Kathy Kuletz, USFWS, personal communication September 2006). A study of the Buldur area in 1998 showed that a high density of birds occurred southeast of Buldur near Buldur Reef, and south to Tahoma Reef, as well as to the northeast of Buldur Is (Dragoo and Byrd 1999).

The Near Islands are emergent peaks of submarine mountains extending from a large shallow shelf that is unique among the Aleutians. Seabird breeding colonies in the Near Islands total about 189,000 birds of 13 species. The area also has most of the Aleutian's common eiders (about 16,000) and a high proportion of the Aleutian's red-faced cormorants and pelagic cormorants. The relatively shallow waters over the Near Islands' shelf probably accounts for the large populations of eiders and cormorants. These birds are bottom feeders (eiders) or feed on bottom fish as well as fish in the water column (cormorants). The proposed trawl area near Agattu Island is not within foraging range for cormorants from all of the Near Islands. The eiders tend to feed in shallower water that is not likely included in the proposed open area. Eiders may, however, disperse over deeper waters, and the importance of these areas to overwintering eiders is not known. In 2006, 26 eiders were

fitted with satellite transmitters to follow winter movements of this (apparently) resident population, so more information is forthcoming (Kathy Kuletz, USFWS, personal communication, September 2006).

Of potential concern in the Near Islands area is the cormorant population, which has declined by 87% since the 1970s, and is now about 8,000 birds. The reasons for this decline are unknown, but local movement, nesting habitat, and dieoffs of adults do not appear to explain the declines, leaving long-term reduced reproductive success a possibility (Byrd and Williams 2004). The red-faced cormorant is a concern because of its restricted range. Pacific sandlance is an important prey for cormorants in the Near Islands area. The importance of the specific area proposed for opening is not known for cormorants, or for their prey, but currently almost half of the Near Island shelf area is open for trawling. Trawl fishing should have little effect on the availability of the spawning sandlance to foraging cormorants because trawling occurs in deeper waters than the shallow waters used by sandlance for reproduction (Robards et al. 1999).

Given the sparse information, it is not likely that groundfish fishery effects on most individual bird species are discernable. For reasons explained in the Steller Sea Lion Protection Measures SEIS (NMFS 2001), the following species or species groups may be considered possible receptors of fishing activity impacts: northern fulmar, short-tailed albatross, spectacled and Steller's eiders, other albatrosses and shearwaters, piscivorous seabird species, and all other seabird species. Most of these effects are the incidental takes of these species by hook-and-line fisheries (USFWS 2003a and 2003b). Fishery-related processing waste and offal may also affect seabirds. ESA listed seabirds are under the jurisdiction of the USFWS, which has completed an FMP level (USFWS 2003a) and project level BiOp (USFWS 2003b) for the groundfish fisheries and the setting of annual harvest specifications. Both BiOps concluded that the groundfish fisheries and the annual setting of harvest specifications were unlikely to cause the jeopardy of extinction or adverse modification or destruction of critical habitat for ESA listed seabirds. There have been some observations of short tailed albatross breeding pairs near Buldir Island with a cursory spatial analysis, but those sightings were from 2000. A slight positive benefit for the seabirds near Buldir Island by imposing further restrictions on fishing effort may occur. Because this action would be implementation of the fisheries under the groundfish harvest specifications with only a trade off of areas to be fished, no discernable effects are likely beyond those already considered in previous consultations. Therefore there is no need for reinitiation of consultation for the proposed action..

Incidental take of birds in trawling operations in Alaska is low, and does not affect most of the locally occurring species. Thus direct interaction is not considered of consequence in evaluating the proposed changes. A possible exception might be vessel lights attracting auklets and storm-petrels during twilight or night during the breeding season, particularly at Buldir Is, which has large populations. However, waters within 3 nm of Buldir Island are already closed to trawling, and much of the remaining area around Buldir would remain open to trawling, so the benefit from the proposed closure is likely minimal. Furthermore, part of this fishery occurs in the winter, when birds are not on the island.

A description of the effects of prey abundance and availability on seabirds is in Section 3.7.1 of the PSEIS (NMFS 2004). Detailed conclusions or predictions cannot be made regarding the effects of forage fish bycatch on seabird populations or colonies. However, the present understanding is that fisheries management measures affecting abundance and availability of forage fish or other prey species could affect seabird populations (NMFS 2001; NMFS 2004), although commercial fisheries do not greatly compete directly with seabirds. There is no directed commercial fishery for those species that compose the forage fish management group, and seabirds typically target juvenile stages rather than adults for those target species where there is an overlap between seabirds and commercial fisheries. This proposed action is not likely to affect the harvest of forage species, as discussed in section 4.1.4 above and trawling occurs in waters deeper than used by Pacific sand lance for spawning. Buldir Island has a large and diverse population of breeding seabirds, with approximately 3 million birds of 21 species, with 2 species of storm-petrels and 6 species of auklets being the most numerous. From that standpoint, closure of local waters may have some benefit, as most of these birds feed well beyond the existing 3 nm buffer. However, there are few species or numbers of birds that feed on prey that is directly affected by trawling or in areas potentially affected by trawling; most of the birds are either plankton feeders or surface or mid-water fish feeders. The harvest of forage fish is estimated based on the overall harvest of groundfish species

(NMFS 2007). The proposed action is not expected to change the overall harvest of groundfish and therefore the overall harvest of forage species is not expected to be different between Alternatives 1 and 2. The proposed action involves a small overall amount of groundfish harvest which would likely result in a very small amount of forage species bycatch that would be unlikely to result in population level responses to reduced prey availability. Therefore, Alternative 1 and 2 have insignificant impacts on prey availability for seabirds.

The seabird species most likely to be impacted by any indirect gear effects on the benthos would be diving sea ducks, such as eiders and scoters, and cormorants and guillemots (NMFS 2004). Additional impacts from bottom trawling may occur, if sand lance habitat is adversely impacted. This would affect a wider array of piscivorous seabirds that feed on sand lance, particularly during the breeding season, when this forage fish is also used for feeding chicks. Bottom trawl gear has the greatest potential to indirectly affect seabirds via their habitat. It is anticipated there would be an insignificant impact on seabirds based on the small amount of fishing effort in the Agattu area. Red faced cormorants have been problematic in entangling in gill nets or long line gear in the Attu island area (Scott Hatch, personal communication); however, bottom trawl gears incidental take is small, and has not been observed for the Agattu area. Because the proposed action involves small discrete areas with small fishing effort by trawl vessels and a trade off of open and closed areas, the effects of Alternatives 1 and 2 are likely similar. Furthermore because of the isolated location and fishing gear, the impacts are not likely to lead to population level effects on the prey from benthic habitat, other prey availability or incidental takes. Therefore, Alternatives 1 and 2 have insignificant impacts on seabirds.

4.1.6 Ecosystem

The proposed action could affect the marine ecosystem through removals of fish biomass or alteration of the habitat. Three primary means of measurement of ecosystem change are evaluated here: predator-prey relationships, energy flow and balance, and ecosystem diversity. The criteria used to evaluate the significance of the effects on the ecosystem from the proposed action are provided in Table 4-1.9. The reference point for predator-prey relationships against which the criteria are compared are fishery induced changes outside the natural level of abundance or variability for a prey species relative to predator demands. The reference point for energy flow and balance will be based on bottom gear effort (qualitative measure of unobserved gear mortality particularly on bottom organisms) and a quantitative assessment of trends in retained catch levels over time in the area. The reference point for ecosystem diversity will be a qualitative assessment whether removals of one or more species (target, nontarget) affects overall species or functional diversity of the area.

Table 4.1-9 Significance thresholds for fishery induced effects on ecosystem attributes.

Effect	Criteria			
	Significantly Negative (-)	Insignificant (I)	Significantly Positive (+)	Unknown (U)
Predator-prey relationships	A decline outside of the natural level of abundance or variability for a prey species relative to predator demands.	No observed changes outside the natural level of abundance or variability for a prey species relative to predator demands	Increases of abundance or variability for a prey species relative to predator demands	Magnitude and/or direction of effects are unknown
Energy flow and balance:	Long-term changes in system biomass, respiration, production or energy cycling, due to removals.	No observed changes in system biomass, respiration, production or energy cycling, due to removals.	Increases in system biomass, respiration, production or energy cycling, due to lack of removals.	Magnitude and/or direction of effects are unknown
Ecosystem Diversity	Removals from area decreases either species diversity or the functional diversity outside the range of natural variability. Or loss in one or more genetic components of a stock that would cause the stock biomass to fall below minimum biologically acceptable limits	No observed changes outside the natural level for species diversity, functional diversity or genetic components of a stock.	Non-removal from the area increases the species diversity or functional diversity or improves the genetic components of a stock.	Magnitude and/or direction of effects are unknown

Fisheries can remove predators, prey, or competitors and thus alter predator-prey relationships relative to an unfished system. Fishing has the potential to impact food webs, but each ecosystem must be examined to determine how important the potential impacts to the food webs are for that ecosystem. A review of fishing impacts to marine ecosystems and food webs of the North Pacific under the status quo and other alternative management regimes was provided in the programmatic groundfish SEIS (NMFS 2004).

Fishing may alter the amount and flow of energy in an ecosystem by removing energy and altering energetic pathways through the return of discards and fish processing offal back into the sea. From an ecosystem point of view, total fishing removals are a small proportion of the total system energy budget and are small relative to internal sources of interannual variability in production.

Fishing can alter different measures of diversity. Species level diversity, or the number of species, can be altered if fishing removes a species from the system. Fishing can alter functional or trophic diversity if it selectively removes a trophic guild member and changes the way biomass is distributed within a trophic guild. Fishing can alter genetic level diversity by selectively removing faster growing fish or removing spawning aggregations that might have different genetic characteristics than other spawning aggregations. Large, old fishes may be more heterozygous (i.e., have more genetic differences or diversity) and some stock structures may have a genetic component, thus one would expect a decline in genetic diversity due to heavy exploitation.

Section 4.3.8.6 of the EFH EIS provided an analysis of the effects of Alternative 1 (through its evaluation of EFH – Action 3 Alternative 5c for effects on the ecosystem (NMFS 2005). The scale of the proposed action is small in area and the impacts of this action to the ecosystem are similar, and the findings of the effects between the two actions are also similar for effects on marine ecosystems. The difference between the status quo and Alternative 2 would be under diversity.

Predator-Prey Relationships– No effect on predator prey relationships is expected for Alternative 2. No substantial changes would be anticipated in biomass or numbers in prey populations, nor would there be an increase in the catch of higher trophic levels, or the risk of exotic species introductions. No large changes would be expected in species composition in the ecosystem. The trophic level of the catch would not be much different from the status quo, and little change would be expected in the species composition of the groundfish community, or in the removal of top predators. Alternatives 1 and 2 would likely have the same insignificant effects on predator-prey relationships because of the small spatial difference between the alternatives and the same types of species and amounts expected to be harvested.

Energy Flow and Balance – The amount and flow of energy in the ecosystem would be the same as the status quo with regard to the total level of catch biomass removals from groundfish fisheries. No substantial changes in groundfish catch or discarding would be expected. Therefore the effects on energy flow and balance under Alternatives 1 and 2 are the same and insignificant.

Diversity – A net change in locations where bottom trawling may occur would be an increase of 78 nm of the AI shelf and slope. The Agattu area has had historic fishing, and fishing may occur in disturbed habitats. In the proposed closed Buldir area, much of the effort would be redistributed to adjacent open areas however, the closed areas would provide protection to known areas of coral and sponge habitat. Thus, species level diversity may be reduced slightly relative to the status quo. The fishery closure around Buldir Island would help to maintain or enhance productive fish habitat and sustain fish populations that rely on these areas. Structural habitat diversity supported by living substrates would provide substantial protection. Genetic diversity could increase slightly if older, more heterozygous individuals were left in the populations – AI rockfish in particular, that are found near Buldir Island but not present in the Agattu area may provide a tradeoff. However, the exact spawning locations of these species are not well defined, so the effects on this aspect of diversity cannot be described. Overall, Alternative 2 has an insignificant effect on diversity and likely has a similar effect as Alternative 1 because of the area trade offs and the small spatial scale of the action.

4.2 Cumulative Impacts:

This section analyzed the cumulative effects of the action considered in this environmental assessment. A cumulative effects analysis includes the effects of past, present and reasonably foreseeable future action (RFFA). The past and present actions are described in several documents and are adopted by reference. These include the PSEIS (NMFS 2004), the EFH EIS (NMFS 2005) and the harvest specifications EIS (NMFS 2007). This analysis provides a brief review of the RFFA that may affect environmental quality and result in cumulative effects. Future effects include harvest of federally managed fish species and current habitat protection from federal fishery management measures, harvests from state-managed fisheries and their associated protection measures, efforts to protect endangered species by other federal agencies, and other non-fishing activities.

The most recent analysis of RFFAs for the groundfish fisheries is in the harvest specifications EIS (NMFS 2007). No additional RFFAs have been identified for this proposed action. The RFFAs are described in the Harvest Specifications EIS section 3.3 (NMFS 2007), are applicable for this analysis, and are adopted by reference. A summary table of these RFFA is provided below (4.2-1). The table summarizes the RFFAs identified applicable to this analysis that are likely to have an impact on a resource component within the action area and timeframe. Actions are understood to be human actions (e.g., a proposed rule to designate northern right whale critical habitat in the Pacific Ocean), as distinguished from natural events (e.g., an ecological regime shift). CEQ regulations require a consideration of actions, whether taken by a government or by private persons, which are reasonably foreseeable. This is interpreted as indicating actions that are more than merely possible or speculative. Actions have been considered reasonably foreseeable if some concrete step has been taken toward implementation, such as a Council recommendation or the publication of a proposed rule. Actions simply “under consideration” have not generally been included because they may change substantially or may not be adopted, and so cannot be reasonably described, predicted, or foreseen. Identification of actions likely to impact a

resource component within this action’s area and time frame will allow the public and Council to make a reasoned choice among alternatives.

Table 4.2-1 Reasonable foreseeable future actions.

Ecosystem-sensitive management	<ul style="list-style-type: none"> Increasing understanding of the interactions between ecosystem components, and on-going efforts to bring these understandings to bear in stock assessments, Increasing protection of ESA-listed and other non-target species components of the ecosystem, Increasing integration of ecosystems considerations into fisheries decision-making
Fishery rationalization	<ul style="list-style-type: none"> Continuing rationalization of Federal fisheries off Alaska, Fewer, more profitable, fishing operations, Better harvest and bycatch control, Rationalization of groundfish in Alaskan waters, Expansion of community participation in rationalization programs
Traditional management tools	<ul style="list-style-type: none"> Authorization of groundfish fisheries in future years, Increasing enforcement responsibilities, Technical and program changes that will improve enforcement and management
Other Federal, State, and international agencies	<ul style="list-style-type: none"> Future exploration and development of offshore mineral resources Reductions in United States Coast Guard fisheries enforcement activities Continuing oversight of seabirds and some marine mammal species by the USFWS Expansion and construction of boat harbors Expansion of State groundfish fisheries Other State actions Ongoing EPA monitoring of seafood processor effluent discharges
Private actions	<ul style="list-style-type: none"> Commercial fishing Increasing levels of economic activity in Alaska’s waters and coastal zone Expansion of aquaculture

RFFA that may affect target and prohibited species are shown in table 4.2.1. Ecosystem management, rationalization and traditional management tools are likely to improve the protection and management of target and prohibited species and are not likely to result in significant effects when combined with the direct and indirect effects of Alternative 2. The Council is pursuing methods of reducing salmon and halibut bycatch through FMP amendments and exempted fishing permits to allow testing of salmon and halibut excluder devices. Other government actions and private actions may increase pressure on the sustainability of target and prohibited fish stocks either through extraction or changes in the habitat or may decrease the market through aquaculture competition, but it is not clear that these would result in significant cumulative effects. Any increase in extraction of target species would likely be offset by federal management. These are further discussed in sections 4.1.3 and 7.3 of the harvest specifications EIS (NMFS 2007).

RFFA for non-specified and forage species include ecosystem-sensitive management, traditional management tools, and private actions. Impacts of ecosystem-sensitive management and traditional management tools are likely to be beneficial as more attention is brought to the taking of non-specified species in the fisheries and accounting for such takes. Private action includes the taking of grenadiers in a targeted fishery elsewhere, but any directed fishing for grenadiers would likely be controlled by emergency action if necessary. Because these RFFAs are primarily beneficial or not likely to cause an effect, the cumulative effect on non-specified species is insignificant.

RFFA for marine mammals and seabirds include ecosystem-sensitive management, rationalization, traditional management tools, actions by other federal, state and international agencies, and private actions, as detailed in sections 8.4 and 9.3 of the harvest specifications EIS (NMFS 2007). Ecosystem-sensitive management, rationalization, and traditional management tools are likely to increase protection to marine mammals and seabirds by considering these species more in management decisions and by improving the management of the fisheries through the observer program, catch accounting, seabird avoidance measures, and vessel monitoring systems (VMS). Any action by other entities that may impact marine mammals and seabirds will likely be offset by additional protective measures for the federal fisheries to ensure ESA-listed mammals and seabirds are not likely to experience jeopardy or adverse modification of critical habitat. Direct mortality by subsistence harvest is likely to continue, but these harvests are tracked and considered in the assessment of marine mammals and seabirds. The cumulative effect of these impacts in combination with Alternative 2 is likely to be primarily beneficial and is not likely to be significant because of the limited intensity of Alternative 2.

RFFA for habitat and the ecosystem include ecosystem-sensitive management, rationalization, traditional management tools, actions by other federal, state and international agencies, and private actions, as detailed in sections 10.3 and 11.3 of the harvest specifications EIS (NMFS 2007). Ecosystem-sensitive management, rationalization, and traditional management tools are likely to increase protection to ecosystems and habitat by considering ecosystems and habitat more in management decisions and by improving the management of the fisheries through the observer program, catch accounting, seabird and marine mammal protection, gear restrictions, and VMS. The Council is currently considering an analysis of the effects of fishing on EFH in the Bering Sea to determine if protection measures are warranted. Continued fishing under the harvest specifications is likely the most important cumulative effect on EFH, but the EFH EIS (NMFS 2005) has determined that this effect is minimal. The Council is also considering improving the management of non-specified species incidental takes in the fisheries to provide more protection to this component of the ecosystem. Any increase in fishing activities in state waters would likely result in a reduction in fishing in federal waters, offsetting potential impacts to EFH. Nearshore impacts of coastal development and the management of the Alaska Water Quality Standards may have an impact on EFH, depending on the nature of the action and the level of protection the standards may afford. Development in the coastal zone is likely to continue, but Alaska overall is lightly developed compared to coastal areas elsewhere and therefore overall impact to EFH are not likely to be great. The BSAI and GOA pollock, Pacific cod, halibut, and sablefish fisheries recently received Marine Stewardship Certification for ensuring harvests is conducted in a manner that maintains structure, productivity, function, and diversity of the ecosystem. Other groundfish fisheries are likely to strive for this honor to improve markets. Overall the cumulative effects on habitat and ecosystems are beneficial and not likely to result in significant impacts in combination with the impacts from Alternative 2.

4.3 Environmental analysis conclusions of the alternatives

The significance of impacts of the actions analyzed in this EA were determined through consideration of NEPA, NOAA Administrative Order (NAO) 216-6, 6.01b and 40 CFR Section 1508.27. Significance was determined by considering the contexts (geographic, temporal, and societal) in which the action would occur, and the intensity of the effects of the action. The evaluation of intensity included consideration of the magnitude of the impact, the degree of certainty in the evaluation, the cumulative impact when the action is related to other actions, the degree of controversy, and consistency with other laws.

For these actions, the setting is the groundfish fisheries of the AI. Any effects of these actions are limited to these areas. The effects of these actions on society within these areas are on individuals directly and indirectly participating in these fisheries and on those who use the ocean resources. Because these actions may result in the protection of a present and future resource, these actions may have impacts on society as a whole or regionally.

Intensity: Listings of considerations to determine intensity of the impacts are in 40 CFR 1508.28(b) and in the NAO 216-6, Section 6. Each consideration is addressed below in order as it appears in the NMFS Instruction 30-

124-1 dated July 22, 2005, Guidelines for Preparation of a FONSI. The preferred alternative is Alternative 2 and the focus of the responses to the questions.

1. Can the proposed action be reasonably expected to jeopardize the sustainability of any target species that may be affected by the action? *No. No significant adverse impacts were identified for Alternative 2. No changes in overall harvest of target species are expected with the proposed action (EA Section 4.1.2).*

2. Can the proposed action be reasonably expected to jeopardize the sustainability of any non-target species or prohibited species? *No. Potential effects of Alternative 2 on non-target/ prohibited species were expected to be insignificant and similar to status quo because no overall harvest changes for these species were expected (EA Section 4.1.4).*

3. Can the proposed action be reasonably expected to cause substantial damage to the ocean and coastal habitats and/or essential fish habitat as defined under the Magnuson-Stevens Act and identified in FMPs? *No. No significant adverse impacts were identified for Alternative 2. Alternative 2 provides additional protection to an area (Buldir Island) that has been identified as containing important coral and sponge habitat. No significant effects were expected on ocean or coastal habitat or EFH by opening the Agattu area. (EA Section 4.1.1).*

4. Can the proposed action be reasonably expected to have a substantial adverse impact on public health or safety? *No. Public health and safety will not be affected in any way not evaluated under previous actions or disproportionately as a result of the proposed action. The proposed action will not change fishing methods (including gear types), timing of fishing or quota assignments to gear groups, which are based on previously established seasons and allocation formulas in regulations.*

5. Can the proposed action be reasonably expected to adversely affect endangered or threatened species, marine mammals, or critical habitat of these species? *The only ESA-listed animal that may be impacted by the action is the western DPS of Steller sea lions. No potential effects were identified beyond those already considered under previous consultations. The proposed action would not change the Steller sea lion protection measures, ensuring the action is not likely to result in jeopardy or adverse modification of critical habitat for Steller sea lions. No ESA-listed seabirds or salmon were found to be affected by the proposed action. (EA Sections 4.1.4 and 4.1.5).*

6. Can the proposed action be expected to have a substantial impact on biodiversity and ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)? *No significant adverse impacts were identified for Alternative 2. No significant effects were expected on biodiversity, the ecosystem, marine mammals, or seabirds (EA Section 4.0).*

7. Are social or economic impacts interrelated with natural or physical environmental effects? *This proposed action would improve access of bottom trawl vessels to a discrete area historically used for fishing. Some impacts on the bottom habitat are possible with the harvesting near Agattu but the increase economic potential is not likely to result in significant impact on this habitat location because of previous fishing activities in this area. (EA Section 4.1.3).*

8. Are the effects on the quality of the human environment likely to be highly controversial? *No, this action is limited to two small areas of the AIHCA resulting in a change of no more than 0.02 percent of the entire areas. A very small number of vessels are expected to participate in any fisheries in this area due to the remote location and current fishing restrictions. (EA Section 1.0).*

9. Can the proposed action be reasonably expected to result in substantial impacts to unique areas, such as historic or cultural resources, park land, prime farmlands, wetlands, wild and scenic rivers, essential fish habitat, or ecologically critical areas? *No. This action takes place in the geographic area of the Aleutian Islands, within two discrete locations near Buldir Island and Agattu Island. The land adjacent to this marine area may contain archeological sites of Aleut villages. This action would occur in adjacent marine waters so no impacts on these*

cultural sites are expected. The marine waters where the fisheries occur contain ecologically critical areas. Effects on the unique characteristics of these areas are not anticipated to occur with this action because of the small amount of fish removed by few vessels in a very limited area (Agattu) which has already experienced historical fishing and the protection of the Buldir area by closing to bottom trawling.

10. Are the effects on the human environment likely to be highly uncertain or involve unique or unknown risks? *The potential effects of the action are well understood because of the fish species and harvest method involved and the limited duration, harvest amounts, and area of the activity. For the Steller sea lions, enough research has been conducted to know about the animals' abundance, distribution, and feeding behavior to determine that this action is not likely to result in population effects (EA Section 4.1.5.1). The feeding and foraging behavior of seabirds that may be impacted is well described in literature and this information is applied to the analysis (EA Section 4.1.5.2). The potential impacts of bottom trawling on habitat also are well understood as described in a previous NEPA analysis (EA Section 3.0).*

11. Is the proposed action related to other actions with individually insignificant, but cumulatively significant impacts? *Beyond the cumulative impact analyses in the Groundfish Harvest Specifications EIS (NMFS 2007), no other additional past, present or future cumulative impact issues were identified. The combination of effects from the cumulative effects and this proposed action are not likely to result in significant effects for any of the environmental component analyzed and are therefore not significant. Foreseeable future impacts include socio-economic beneficial effects for this action, as described above and in Section 5.0 of the EA.*

12. Is the proposed action likely to adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural or historical resources? *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. Because this action is in nearshore waters to 20 nm at sea, this consideration is not applicable to this action (EA Section 1.0).*

13. Can the proposed action be reasonably expected to result in the introduction or spread of a nonindigenous species? *This action poses no effect on the introduction or spread of nonindigenous species into the Aleutian Islands beyond those previously identified because it does not change fishing, processing, or shipping practices that may lead to the introduction of nonindigenous species.*

14. Will the proposed action likely establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration? *Because this action is a correction to a previous action, no additional actions are expected. No decisions in principle about future considerations are part of this action because the criteria previously used to delineate the AIHCA were applied to this action. Pursuant to NEPA for all future action, appropriate environmental analysis documents (EA or EIS) will be prepared to inform the decision makers of potential impacts to the human environment and to implement mitigation measures to avoid significant adverse impacts.*

15. Can the proposed action be reasonably expected to threaten a violation of Federal, State, or local law or requirements imposed for the protection of the environment? *This action poses no known violation of Federal, State, or local laws or requirements for the protection of the environment. The proposed action would be conducted in a manner consistent, to the maximum extent practicable, with the enforceable provisions of the Alaska Coastal Management Program within the meaning of Section 30(c)(1) of the Coastal Zone Management Act of 1972, and its implementing regulations*

16. Can the proposed action be reasonably expected to result in adverse impacts, not otherwise identified and described above? *Beyond the analysis in the 2006 and 2007 harvest specifications EA and the Groundfish Harvest Specifications EIS (NMFS 2007), no additional direct, indirect, or cumulative adverse impacts have been identified that would accrue from this action.*

Comparison of Alternatives and Selection of a Preferred Alternative

Alternative 1 is the status quo and does not provide for protection of coral and sponge habitat near Buldir nor bottom trawling near Agattu where fishing has historically occurred. Alternative 2 would provide for protection of the coral and sponge habitat located near Buldir and allow for bottom trawling near Agattu Island. Alternative 2 corrects the AIHCA to ensure it meets that original intent for allowing fishing in areas historically fished and provide protection to those areas that have little historical fishing and may contain coral and sponge habitat. Alternative 2 had no significant impacts identified and potential beneficial socioeconomic effects. Alternative 1 had no additional environmental impacts beyond those already identified in previous analyses, but Alternative 1 would not provide for the additional protection near Buldir and the potential fishing restriction relief near Agattu Island. Because Alternative 2 has no significant adverse impacts identified and provides the potential for improved fishing opportunity and additional coral and sponge habitat protection, Alternative 2 is the preferred alternative.

5.0 REGULATORY IMPACT REVIEW

5.1 Introduction

This Regulatory Impact Review (RIR) examines the costs and benefits of small changes to the Aleutian Islands Habitat Conservation Area. A benefit/cost framework is the appropriate way to evaluate the relative economic and socioeconomic merits of the alternatives under consideration in this Regulatory Impact Review (RIR). When performing a benefit/cost analysis, the principal objective is to derive informed conclusions about probable net effects of each alternative under consideration (e.g., net revenue impacts). However, in the present case, necessary empirical data (e.g., operating costs, capital investment, debt service, opportunity costs) are not available to the analysts, making a quantitative net benefit analysis impossible. Furthermore, empirical studies bearing on other important aspects of these alternative actions (e.g., non-use value, domestic and international seafood demand) are also unavailable, and time and resource constraints prevent their preparation for use in this analysis.

Nonetheless, the following RIR uses the best available information and quantitative data, combined with accepted economic theory and practice, to provide the fullest possible assessment (both quantitative and qualitative) of the potential economic benefits and presumptive costs attributable to each alternative action. Based upon this analysis, conclusions are offered concerning the likely economic and socioeconomic effects of each of the alternatives. This analytical approach is consistent with applicable policy and established practice for implementing Executive Order (EO) 12866.

5.2 What is a Regulatory Impact Review?

The preparation of an RIR is required under Presidential Executive Order (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 E.O.:

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

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

- Have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, local or tribal governments or communities;
- Create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;
- Materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or
- Raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this Executive Order.

5.3 Statutory Authority

Under the Magnuson-Stevens Act, the United States has exclusive fishery management authority over all marine fishery resources found within the Exclusive Economic Zone (EEZ), which extends between 3 and 200 nautical miles from the baseline used to measure the territorial sea. The management of these marine resources is vested in the Secretary of Commerce (Secretary) and in the Regional Councils. In the Alaska Region, the Council has the responsibility for preparing Fishery Management Plans (FMPs) for the marine fisheries it finds that require conservation and management and for submitting their recommendations to the Secretary. Upon approval by the Secretary, the National Marine Fisheries Service (NMFS) is charged with carrying out the federal mandates of the Department of Commerce with regard to marine and anadromous fish. The groundfish fisheries in the EEZ off Alaska are managed under the FMP for the Groundfish Fisheries of the Gulf of Alaska (GOA) and the FMP for the Groundfish Fisheries of the Bering Sea and Aleutian Island (BSAI). The crab fisheries in the EEZ off Alaska are managed under the FMP for the Crab Fisheries of the BSAI. The scallop fisheries in the EEZ off Alaska are managed under the FMP for the Scallop Fisheries of Alaska. The halibut fishery is managed by the International Pacific Halibut Commission (IPHC), which was established by a Convention between the governments of Canada and the United States. The IPHC's mandate is research on and management of the stocks of Pacific halibut within the Convention waters of both nations.

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

5.4 Purpose and Need for Action

The Council recognizes that Essential Fish Habitat (EFH) designations are necessarily broad in scope, because of the limited available scientific information about the habitat requirements of many managed species. The Council further recognizes that specific habitat areas within EFH may warrant additional management, because they are ecologically important, stressed, susceptible to adverse effects of fishing and other human activities, and/or rare. A Habitat Area of Particular Concern (HAPC) designation provides a way to call extra attention to such habitats and to focus conservation and enhancement priorities within EFH.

NMFS and the Council published a final EIS for EFH in April 2005 (NMFS 2005). The Final EIS evaluates three actions: describe and identify EFH, adopt an approach to identify Habitat Areas of Particular Concern (HAPCs), and minimize to the extent practicable the adverse effects of fishing on EFH. The Council's selection to reduce adverse effects of fishing on EFH included action within the Aleutian Islands regions including the Aleutian Island Habitat Conservation Area (AIHCA). The action amended the FMPs to prohibit the use of certain bottom contact fishing gear in designated areas of the AI to reduce the effects of fishing on corals, sponges, and hard bottom habitats that protects habitats from potential future disturbance without incurring significant short-term costs. The AIHCA closes most of the Aleutian Islands fishery management area to bottom trawling (279,114 square nautical miles). Most fishing areas that have been trawled repeatedly in the past will remain open. The intent of the AIHCA is to protect bottom habitat in those areas that have been

minimally or not historically fished with bottom trawl gear and to provide continued fishing opportunities in those areas identified as historical fishing locations for vessels using bottom trawl gear.

In February 2005 the Council adopted EFH Amendments 78/16/9/7 to the BSAI Groundfish FMP, the BSAI Crab FMP, the Scallop FMP, and the Salmon FMP, respectively, and submitted them for review by the Secretary. The Secretary approved these amendments on May 3, 2006 and finalized implementing regulations for the AIHCA (71 FR 36694) June 28, 2006.

5.4.1 Need for Action

In June 2006, based on corrected information provided by fishing industry representatives, the Council requested an analysis of two locations within AIHCA to determine if adjustments should be made to the locations open and closed to bottom trawling. According to industry sources, one location near Agattu Strait has been historically fished and was included into the closure area. A second location near Buldir Island was included in the portions of the AIHCA open to bottom trawling but has some documented presence of sponges which is indicative of a fragile habitat (Figure 2.1). FMP and regulatory amendments are needed to modify EFH protection measures for these two locations to ensure the coordinates in the FMPs and regulations implement the intent of the AIHCA.

5.4.1.1 Market Failure Rationale

The OMB guidelines for analysis under E.O. 12866 state that...

in order to establish the need for the proposed action, the analysis should discuss whether the problem constitutes a significant market failure. If the problem does not constitute a market failure, the analysis should provide an alternative demonstration of compelling public need, such as improving governmental processes or addressing distributional concerns. If the proposed action is a result of a statutory or judicial directive, that should be so stated.

The management programs that will be modified by the alternatives reviewed in this RIR are a response to common property and “public goods” market failures interfering with the ability to adequately protect marine habitat, and the ecosystems and associated species that habitat supports.

5.4.2 Purpose of Action

The purpose of this action is to ensure the intent of the AIHCA is implemented by correcting the coordinates for two locations within the AIHCA to determine whether and if to amend the Council FMPs pursuant to Section 303(a)(7) of the Magnuson-Stevens Act. These locations were incorrectly specified during the EFH amendments development and need to be corrected to ensure fishing activities are conducted only in locations of historical bottom trawl fishing and to close areas minimally fished to protect corals and sponges. The original EFH EIS analysis was based upon the best scientific information available and the guidelines articulated in the Final Rule to implement the EFH provisions of the Magnuson-Stevens Act (see 50 CFR Part 600, Subpart J). This information included detailed fishing activities provided by the fishing industry that were not available through NMFS observer or other types of fisheries data. The information provided by the industry at that time regarding these two locations did not accurately reflect historical fishing activities.

5.5 Alternatives Considered

The alternatives are discussed in detail in Section 2 of the EA, including tabular listing of coordinates and an accompanying map. The alternatives are summarized as follows:

Alternative 1: No Action.

Alternative 2: Modify the latitude and longitude definitions for open areas for the AIHCA which would effectively change two boundaries (Figure 5.1 and Table. 5.1.).

Table 5.5-1. Name, location and area of proposed AIHCA changes along within the Western Aleutian Islands (Alternative 2).

Proposed AIHCA Area	Latitude	Longitude	Management	NOAA Chart number	Area
North of Agattu Island	52°40.0 N 52°30.0 N 52°32.0 N 52°32.0 N 52°36.0 N 52°36.0 N 52°40.0 N	173° 25.0 E 173° 25.0 E 173° 40.0 E 173° 54.0 E 173° 54.0 E 173° 36.0 E 173° 36.0 E	Remove from AIHCA closure (area will now be open)	530_1	128 nm ² or 383 km ²
West of Buldir Island	52°24 N 52°24 N 52°12 N	175°42 E 175°54 E 175°54 E	Add to AIHCA (area will now be closed)	530_1	50 nm ² or 149 km ²

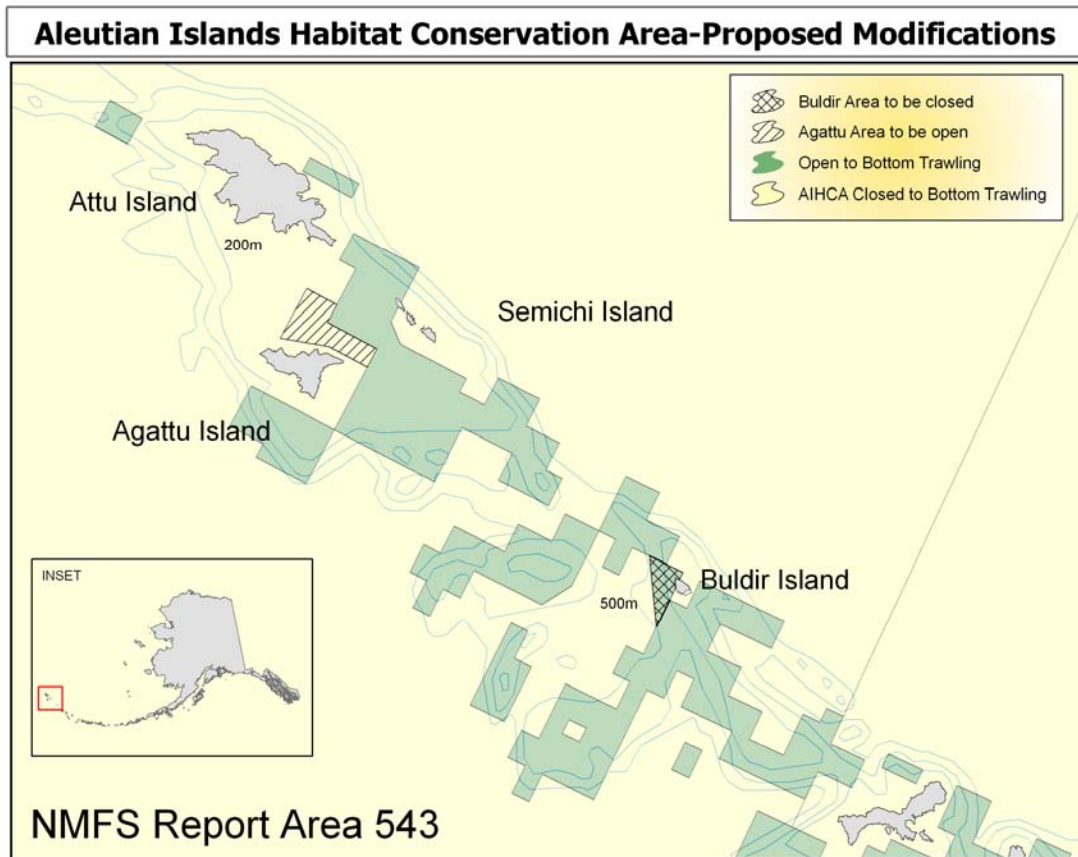


Figure 5-1. The Aleutian Island Habitat Conservation Area (AIHCA), yellow areas, are closed to bottom trawling beginning July, 2006, implemented as part of Essential Fish Habitat mitigation action.

5.6 Description of the Fisheries

The regulatory alternatives considered could potentially directly affect fishing vessels that harvest groundfish using trawl gear in the BSAI area. A review of catch, effort, and Vessel Monitoring System (VMS) data reveals that the target fisheries that are likely to be directly affected by this action are non-pelagic trawl fisheries targeting Pacific cod, Atka mackerel, rockfish, and pollock fisheries.

The fishery descriptions presented here are excerpted from the overall description of BSAI fisheries contained in the in the Regulatory Impact Review (RIR) supporting the Habitat Areas of Particular Concern actions (NPFMC, 2003). Sufficient analytical time and resources were not available to update this information with 2004 and 2005 data.

5.6.1 Description of BSAI Groundfish Fisheries by Species

Generally, the fishery descriptions presented here describe each BSAI groundfish fishery by species for the period 1995 through 2003. Historical information for the years prior to 1995 is also included to provide a more complete perspective on catch. Catch data for each fishery are provided by gear type. Trawl, hook-and-line, pot, and jig gear account for virtually all the catch in the BSAI groundfish fisheries. This description of the BSAI groundfish fisheries is drawn from NPFMC (2003a) and from groundfish catch statistics obtained from the NOAA Fisheries Alaska Region Web site at <http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm>.

5.6.1.1 BSAI Pollock Fishery

The directed pollock fishery is conducted exclusively by pelagic trawl gear in the BSAI. From 1954 to 1963, pollock were harvested at low levels in the eastern Bering Sea and directed foreign fisheries began in 1964. Catches increased rapidly during the late 1960s and reached a peak in 1970-75 when catches ranged from 1.3 to 1.9 million mt annually. Following a peak catch of 1.9 million mt in 1972, catches were reduced through bilateral agreements with Japan and the USSR.

Since the advent of the U.S. EEZ in 1977, the annual average eastern Bering Sea pollock catch has been 1.2 million mt and has ranged from 0.9 million mt in 1987 to nearly 1.5 million mt (including the Bogoslof Islands area catch (Table 5.6-1). Stock biomass has apparently ranged from a low of 4-5 million mt to highs of 10-12 million mt. U.S. vessels began fishing for pollock in 1980 and by 1987 they were able to take 99% of the quota. Since 1988, only U.S. vessels have been operating in this fishery. The pattern of the modern pollock fishery (since the early 1990s) has been to focus on a winter, spawning-aggregation fishery (the “A-season”) with an opening on January 20th. This first season typically lasts about 4-6 weeks, depending on the catch rates. A second season opening has occurred on September 1st (although in 1995 opened on Aug 15th). This has changed considerably over the past few years, and management has focused on minimizing the possibility that the pollock fishery inhibits the recovery of the Steller sea lion population or adversely modifies their habitat.

Table 5.6-1. Catch (mt) of Pollock in the BSAI by Gear, 1995-2003

Gear	1995	1996	1997	1998	1999	2000	2001	2002	2003
HAL	3,069	2,894	4,480	3,231	3,380	4,687	5,320	5,901	7,129
JIG	No data are available until 2003								0
OTHR	0	0	0	0	0	0	0	0	0
POT	15	42	64	44	25	60	18	29	21
TRW	1,229,024	1,126,631	1,057,127	1,037,865	887,150	1,015,522	1,242,098	1,326,641	1,335,378
Total	1,232,108	1,129,567	1,061,671	1,041,140	890,555	1,020,269	1,247,436	1,332,571	1,342,528

Source: NOAA Fisheries Alaska Region Web site at <http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm>.

Note: Except for the Pacific cod fishery, catch data do not separate jig gear from HAL gear until 2003.

Since the closure of the Bogoslof management district (INPFC area 518) to directed pollock fishing in 1992, the “A-season” (January – March) pollock fishery on the eastern Bering Sea shelf has been concentrated primarily north and west of Unimak Island. Depending on ice conditions and fish distribution, there has also been effort

along the 100 m contour between Unimak Island and the Pribilof Islands. This pattern has gradually changed during the period 1999-2002.

After 1992, the “B-season” (typically September–October) fishery has been conducted to a much greater extent west of 170°W than it had been prior to 1992. This shift was due to the implementation of the CVOA (Catcher Vessel Operational Area) in 1992 and also the geographic distribution of pollock by size. The pattern in the past few years shows an increase in this trend (towards catching pollock west of 170°W) and decreasing amounts within the Sea lion conservation area (SCA) until 2001. Concentrated removals occurred within the SCA in the second halves of 2001 and 2002 compared to 2000. However, the 2002 catch seems more evenly distributed within the SCA compared to 2000.

In 1998, Congress passed the American Fisheries Act (AFA) which made the following changes:

- limited the number of harvesting and processing vessels allowed to participate in the BSAI pollock fishery
- modified specific allocations of the BSAI pollock quota as follows: 10% to the western Alaska Community Development Quota (CDQ) program, with the remainder allocated 50% to the inshore sector, 40% to the offshore sector and 10% to the mothership sector;
- established the authority and mechanisms by which the pollock fleet can form fishing cooperatives;
- changed catch measurement and monitoring in the BSAI pollock fishery

In response to continuing concerns over the possible impacts groundfish fisheries may have on rebuilding populations of Steller sea lions, NMFS and the NPFMC have made changes to the Atka mackerel and pollock fisheries in the BSAI and GOA. These have been designed to reduce the possibility of competitive interactions with Steller sea lions. For the pollock fisheries, comparisons of seasonal fishery catch and pollock biomass distributions (from surveys) by area in the eastern Bering Sea led to the conclusion that the pollock fishery had disproportionately high seasonal harvest rates within critical habitat which could lead to reduced sea lion prey densities. Consequently, the management measures were designed to redistribute the fishery both temporally and spatially according to pollock biomass distributions. The underlying assumption in this approach was that the independently derived area-wide and annual exploitation rate for pollock would not reduce local prey densities for sea lions.

Three types of measures were implemented in the pollock fisheries:

- Additional pollock fishery exclusion zones around sea lion rookery or haulout sites,
- Phased-in reductions in the seasonal proportions of total allowable catch (TAC) that can be taken from critical habitat, and
- Additional seasonal TAC releases to disperse the fishery in time.

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

In 2000, further reductions in seasonal pollock catches from BSAI sea lion critical habitat were realized by closing the entire Aleutian Islands region to pollock fishing and by phased-in reductions in the proportions of seasonal TAC that could be caught from the SCA, an area which overlaps considerably with sea lion critical habitat. In 1998, over 22,000 mt of pollock were caught in the Aleutian Islands region, with over 17,000 mt caught in Aleutian Islands critical habitat. Since 1998, directed fishery removals of pollock have been prohibited.

5.6.1.2 BSAI Pacific Cod Fishery

During the early 1960s, a Japanese hook and line fishery harvested BSAI Pacific cod for the frozen fish market. Beginning in 1964, the Japanese trawl fishery for pollock expanded and cod became an important bycatch species and an occasional target species when high concentrations were detected during pollock operations. By the time that the MFCMA went into effect in 1977, foreign catches of Pacific cod had consistently been in the 30,000–70,000 mt range for a full decade. In 1981, a U.S. domestic trawl fishery and several joint venture fisheries began operations in the BSAI. The foreign and joint venture sectors dominated catches through 1988, but by 1989 the domestic sector was dominant, and, by 1991, the foreign and joint venture sectors had been displaced entirely.

Presently, there are target fisheries for Pacific cod stock for all major gears, including trawl, hook-and-line, pot, and jig components (Table 5.6-2). From 1980 through 2003, TAC averaged about 76% of ABC, and aggregate commercial catch averaged about 87% of TAC. In 8 of these 24 years (33%), TAC equaled ABC exactly, and in 4 of these 24 years (17%), catch exceeded TAC. Changes in ABC over time are typically attributable to three factors: (1) changes in resource abundance, (2) changes in management strategy, and (3) changes in the stock assessment model. For example, from 1980 through 2003, five different assessment models were used, though the present model has remained unchanged since 1997 (except for the addition of a new fishery selectivity era beginning in 2000). Historically, the great majority of the BSAI catch has come from the eastern Bering Sea area. During the most recent five-year period (1997-2001), the eastern Bering Sea accounted for an average of about 84% of the BSAI catch.

Table 5.6-2. Catch (mt) of Pacific Cod in the BSAI by Gear, 1995-2003

Gear	1995	1996	1997	1998	1999	2000	2001	2002	2003
HAL	102,600	94,701	124,233	98,094	78,852	85,106	96,874	89,802	94,323
JIG	599	267	173	192	169	71	71	166	156
POT	20,299	32,617	22,047	13,657	16,150	18,783	16,507	15,054	21,959
TRW	121,530	113,089	111,212	81,308	67,190	73,476	50,752	78,178	78,210
Total	245,028	240,674	257,665	193,251	162,361	177,436	164,204	183,200	194,648

Source: NOAA Fisheries Alaska Region Web site at <http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm>.

Current regulations specify that catches of Pacific cod will be allocated according to gear type as follows: the trawl fishery will be allocated 47%, the fixed gear (hook and line and pot) fishery will be allocated 51%, and the jig fishery will be allocated 2%; of the fixed gear allocation, the hook and line fishery will be allocated 80.3% (not counting catcher vessels less than 60 ft LOA), the pot fishery will be allocated 18.3% (not counting catcher vessels less than 60 ft. LOA), and fixed-gear catcher vessels less than 60 ft. LOA will be allocated 1.4%. Typically, as the harvest year progresses, it becomes apparent that one or more gear types will be unable to harvest their full allotment(s) by the end of the year. This is addressed by reallocating TAC between gear types in September of each year. Most often, such reallocations shift TAC from the trawl, jig, and sometimes pot components of the fishery to the hook and line catcher processors. The hook and line catcher processors typically receive 15,000-20,000 mt per year through such transfers.

5.6.1.3 BSAI Atka Mackerel Fishery

From 1970-1979, Atka mackerel were landed off Alaska exclusively by the distant water fleets of the U.S.S.R., Japan, and the Republic of Korea. U.S. joint venture fisheries began in 1980 and dominated the landings of Atka mackerel from 1982 through 1988. The last joint venture allocation of Atka mackerel off Alaska was in 1989, and, since 1990, all Atka mackerel landings have been made by U.S. fishermen.

Total landings declined from 1980-1983, primarily due to changes in target species and allocations to various nations rather than changes in stock abundance. From 1985-1987, Atka mackerel catches were some of the highest on record, averaging 34,000 mt annually. Beginning in 1992, TACs increased steadily in response to evidence of a large exploitable biomass, particularly in the central and western Aleutian Islands.

Prior to 1992, ABCs were allocated to the entire Aleutian management district with no additional spatial management. However, because of increases in the ABC beginning in 1992, the Council recognized the need to disperse fishing effort throughout the range of the stock to minimize the likelihood of localized depletions. In 1993, an initial Atka mackerel TAC of 32,000 mt was caught by March 11, almost entirely south of Seguam Island (Seguam Bank). This initial TAC release represented the amount of Atka mackerel which the Council thought could be appropriately harvested in the eastern portion of the Aleutian Islands subarea since there was no mechanism in place at the time to spatially allocate TACs. In mid-1993, however, Amendment 28 to the BSAI Groundfish FMP became effective, dividing the Aleutian Islands subarea into three districts at 177°W and 177°E longitudes for the purposes of spatially apportioning TACs. On August 11, 1993, an additional 32,000 mt of Atka mackerel TAC was released to the Central (27,000 mt) and Western (5,000 mt) districts. Since 1994, the BSAI Atka mackerel TAC has been allocated to the three regions based on the average distribution of biomass estimated from the Aleutian Islands bottom trawl surveys. Catch by gear for 1995-2003 is shown in Table 5.6-3.

Table 5.6-3. Catch (mt) of Atka Mackerel in the BSAI by Gear, 1995-2003

Gear	1995	1996	1997	1998	1999	2000	2001	2002	2003
HAL	61	36	40	90	71	138	270	43	21
JIG	No data are available until 2003								
POT	81	54	50	15	11	9	17	53	211
TRW	81,413	103,853	65,755	55,768	53,561	42,293	56,249	41,945	54,052
Total	81,555	103,943	65,845	55,873	53,643	42,440	56,536	42,041	54,284

Source: NOAA Fisheries Alaska Region Web site at <http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm>.

Note: Except for the Pacific cod fishery, catch data do not separate jig gear from HAL gear until 2003.

Amendment 34 allocates up to 2% of the Atka mackerel TAC specified for the eastern BSAI to vessels using jig gear.

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

As part of the plan to respond to the Court and comply with the ESA, NMFS and the NPFMC formulated new regulations for the management of Steller sea lion and groundfish fishery interactions that went into effect in 2002. The objectives of temporal and spatial fishery dispersion, cornerstones of the 1999 regulations, were retained. Season dates and allocations remained the same (A season: 50% of annual TAC from 20 January to 15 April; B season: 50% from 1 September to 1 November). However, the maximum seasonal catch percentage from critical habitat was raised from the goal of 40% in the 1999 regulations to 60%. To compensate, effort within critical habitat in the Central (542) and Western (543) areas was limited by allowing access to each area to half the fleet at a time. Vessels fishing for Atka mackerel are randomly assigned to one of two teams. Vessels may not switch areas until the other team has caught the critical habitat allocation assigned to that area. In the 2002 regulations, trawling for Atka mackerel was prohibited within 10 nm of all rookeries in areas 542 and 543; this was extended to 15 nm around Buldir Island and 3 nm around all major sea lion haulouts. Steller sea lion critical habitat east of 178°W in the Aleutian district, including all critical habitat in area 541 and a 1° longitude-wide portion of area 542, is closed to directed Atka mackerel fishing.

5.6.1.4 BSAI Rockfish Fisheries

The several rockfish fisheries that occur in the BSAI are managed as separate species or species groups. In this analysis data on rockfish catch are aggregated across all rockfish species and species groups. Therefore, a table of total rockfish catch by gear from 1995-2003 is provided (Table 5.6-4).

Table 5.6-4. Catch (mt) of All Rockfish in the BSAI by Gear, 1995-2003

Gear	1995	1996	1997	1998	1999	2000	2001	2002	2003
HAL	432	480	421	622	426	640	690	570	411
JIG	No data are available until 2003								
POT	7	9	4	2	4	9	4	5	12
TRW	16,352	23,465	16,776	14,360	18,562	14,599	15,879	15,150	19,188
Total	16,791	23,954	17,201	14,984	18,992	15,248	16,573	15,725	19,611

Source: NOAA Fisheries Alaska Region Web site at <http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm>. Note: Except for the Pacific cod fishery, catch data do not separate jig gear from HAL gear until 2003.

5.6.1.4.1 BSAI Pacific Ocean Perch Fishery

Pacific ocean perch and four other associated species of rockfish (northern rockfish; rougheye rockfish; shortraker rockfish; and sharpchin rockfish) were managed as a complex from 1979 to 1990. Known as the POP complex, these five species were managed as a single entity with a single TAC (total allowable catch). In 1991, the NPFMC separated POP from the other red rockfish in order to provide protection from possible overfishing. Of the five species in the former POP complex, Pacific ocean perch has historically been the most abundant rockfish and has contributed most to the commercial rockfish catch. Since 2001, Pacific ocean perch in the BSAI have been assessed and managed as a single stock.

Table 5.6-5 summarizes the catch of Pacific Ocean Perch by gear from 1995 through 2003.

Table 5.6-5. Catch (mt) of Pacific Ocean Perch in the BSAI by Gear, 1995-2003

Gear	1995	1996	1997	1998	1999	2000	2001	2002	2003
HAL	17	2	0	0	0	10	5	3	2
JIG	No data are available until 2003								
POT	1	1	0	0	0	0	0	0	1
TRW	11,492	15,679	13,465	10,003	12,260	9,018	8,807	10,526	13,909
Total	11,510	15,682	13,465	10,003	12,260	9,028	8,812	10,529	13,912

Source: NOAA Fisheries Alaska Region Web site at <http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm>.
 Note: Except for the Pacific cod fishery, catch data do not separate jig gear from HAL gear until 2003.

Pacific ocean perch were highly sought by Japanese and Soviet vessels and supported a major trawl fishery throughout the 1960s. Apparently, these stocks were not productive enough to support such large removals. Catches continued to decline throughout the 1960s and 1970s, reaching their lowest levels in the mid 1980s. With the gradual phase-out of the foreign fishery in the U.S. EEZ, a small joint-venture fishery developed but was replaced by a domestic fishery by 1990. The domestic fishery primarily consisted of trawl catcher processors producing frozen whole or headed and gutted products. In 1990, the domestic fishery recorded the highest Pacific ocean perch removals since 1977.

Estimates of retained and discarded Pacific ocean perch from the fishery have been available since 1990. The eastern Bering Sea region generally shows a higher discard rate than in the Aleutian Islands region. For the period from 1990 to 2002, the Pacific ocean perch discard rate in the eastern Bering Sea averaged about 25%, and the 2002 discard rate was 56%. In contrast, the discard rate from 1990 to 2002 in the Aleutian Islands averaged about 14%, and the 2002 discard rate was 12%.

There has been little change in the distribution of observed Aleutian Islands POP catch from the foreign and joint venture fisheries (years 1977-1988) and the domestic fishery (years 1990-present) with respect to fishing depth and management area. Management area 541 contributes the largest share of the observed catch in each fishery; with 46% and 41% in the foreign/joint venture and domestic fisheries, respectively. In contrast, area 543 contributed the largest share of the catch in the 2002 fishery due to the spatial allocation of harvest quotas. Although the catch by management area between the two time periods was similar, variations appeared to occur within each of these periods. For example, area 543 contributed a large share of the catch in the late 1970s foreign fishery, as well as the domestic fishery from the mid-1990s to the present. In the late 1980s to the early 1990s, area 541 contributed a large share of the catch and prompted management changes to spatially allocate POP harvest. Note that the extent to which the patterns of observed catch can be used as a proxy for patterns in total catch is dependent upon the degree to which the observer sampling represents the true fishery. In particular, the proportions of total POP caught that were actually sampled by observers were very low in the foreign fishery due to a low sampling ratio prior to 1984.

5.6.1.4.2 BSAI Shortraker/Rougheye Rockfish Fishery

In 1991, the Council enacted new regulations that changed the species composition of the POP complex. For the eastern Bering Sea slope region, the POP complex was divided into two subgroups: 1) Pacific ocean perch and 2) shortraker, rougheye, sharpchin, and northern rockfishes combined, also known as “other red rockfish.” For the Aleutian Islands region, the POP complex was divided into three subgroups: 1) Pacific ocean perch, 2) shortraker/rougheye rockfishes, and 3) sharpchin/northern rockfishes. In 2001, the other red rockfish complex in the eastern Bering Sea was split into two groups, rougheye/shortraker and sharpchin/northern, matching the complexes used in the Aleutian Islands. Additionally, separate TACs were established for the eastern Bering Sea and Aleutian Islands management areas. These subgroups were established to protect Pacific ocean perch, shortraker rockfish, and rougheye rockfish (the three most valuable commercial species in the assemblage) from possible overfishing. In 2002, sharpchin rockfish were assigned to the “other rockfish” category, leaving only northern rockfish and the shortraker/rougheye complex as members of the “other red rockfish” complex. Table 5.6-6 summarizes the catch of shortraker/rougheye rockfish by gear from 1995 through 2003.

Table 5.6-6. Catch (mt) of Shortraker/Rougheye Rockfish in the BSAI by Gear, 1995-2003

Gear	1995	1996	1997	1998	1999	2000	2001	2002	2003
HAL	99	189	96	251	144	231	253	179	131
JIG	No data are available until 2003								
POT	0	0	0	0	0	0	0	1	2
TRW	459	771	946	408	340	212	492	387	189
Total	558	960	1,042	659	484	443	745	567	322

Source: NOAA Fisheries Alaska Region Web site at <http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm>.
 Note: Except for the Pacific cod fishery, catch data do not separate jig gear from HAL gear until 2003.

After subtraction of reserves, Amendment 53 allocates 30% of the remaining shortraker/rougheye TAC to non-trawl gear and 70% of the remaining TAC to trawl gear.

As mentioned above, rougheye and shortraker rockfish have been managed in the domestic fishery as part of the “other red rockfish” or “shortraker/rougheye” complexes. Rougheye and shortraker rockfish are relatively high valued species compared to northern rockfish, accounting for the lower discard rates for the “shortraker/rougheye” complex as compared to the “other red rockfish” complex.

5.6.1.4.3 BSAI Northern Rockfish Fishery

Northern rockfish in the BSAI region have been previously assessed under Tier 5 of Amendment 56 of the BSAI Groundfish FMP, and have relied solely upon recent survey biomass estimates for an estimation of stock size. 2003 marked the initial use of an age-structured model for BSAI northern rockfish. The methodology for this model follows closely that used for BSAI Pacific ocean perch. The change in assessment methodology results in management recommendations based on Tier 3 criteria of Amendment 56.

Table 5.6-7 summarizes the catch of northern rockfish by gear from 1995 through 2003.

Table 5.6-7. Catch (mt) of Northern Rockfish in the BSAI by Gear, 1995-2003

Gear	1995	1996	1997	1998	1999	2000	2001	2002	2003
HAL	5	20	17	53	35	65	138	36	27
JIG	No data are available until 2003								
POT	0	0	0	0	0	0	1	0	1
TRW	3,867	6,633	1,979	3,620	5,220	4,672	5,991	3,677	4,624
Total	3,872	6,653	1,996	3,673	5,255	4,737	6,130	3,713	4,652

Source: NOAA Fisheries Alaska Region Web site at <http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm>.
 Note: Except for the Pacific cod fishery, catch data do not separate jig gear from HAL gear until 2003.

Rockfish management categories in the domestic fishery since 1991 have also included multiple species. From 1991 to 2000, northern rockfish harvest in the eastern Bering Sea was included in the “other red rockfish”

category, whereas harvest in the Aleutian Islands was reported in a “northern/sharpchin” category. In 2001, northern rockfish in the eastern Bering Sea were managed in a “northern/sharpchin” category, matching the species complex in the Aleutian Islands, and the management was combined across the BSAI area. In 2002, sharpchin rockfish were dropped from the complex because of their sparse catches, leaving a single-species management category of northern rockfish.

Northern rockfish catch prior to 1990 was small relative to more recent years (with the exception of 1977). Harvest data from 2000-2002 indicates that approximately 90% of the BSAI northern rockfish are harvested in the Atka mackerel fishery, with a large amount of the catch occurring in September in the western Aleutians (area 543). The distribution of northern rockfish harvest in the Aleutian Islands reflects both the spatial regulation of the Atka mackerel fishery and the increased biomass of northern rockfish in the western Aleutian Islands. Northern rockfish are patchily distributed and are harvested in relatively few areas, with important fishing grounds being Petral Bank, Sturdevant Rock, south of Amchitka Island, and Seguam Pass.

Information on the proportion discarded is generally not available for northern rockfish in those years in which the management categories consisted of multi-species complexes. However, because the catches of sharpchin rockfish are generally rare in both the fishery and stock assessment surveys, the discard information available for the “sharpchin/northern” complex can be interpreted as northern rockfish discard. This management category was used in 2001 in the eastern Bering Sea and from 1993-2001 in the Aleutians Islands. The discard rates are generally above 80%, with the exception of the mid-1990s, when some targeting occurred in the Aleutians Islands. The recent discard rates in the Aleutian Islands have been high, over 97% in both 2001 and 2002.

5.6.1.4.4 BSAI “Other Rockfish” Fishery

The “other rockfish” complex includes all species of *Sebastes* and *Sebastolobus* spp. other than Pacific ocean perch and those species in the “other red rockfish” complex (northern rockfish; roughey rockfish; and shortraker rockfish). This complex is one of the rockfish management groups in the BSAI region. Eight out of twenty-eight species of “other rockfish” have been confirmed or tentatively identified in catches from the eastern BSAI region; thus, these are the only species stocks managed in this complex.

Table 5.6-8 summarizes the catch of “other rockfish” by gear from 1995 through 2003.

Table 5.6-8. Catch (mt) of “Other Rockfish” in the BSAI by Gear, 1995-2003

Gear	1995	1996	1997	1998	1999	2000	2001	2002	2003
HAL	311	269	308	318	247	334	294	352	251
JIG	No data are available until 2003								
POT	6	8	4	2	4	9	3	4	8
TRW	534	382	386	329	742	697	589	560	466
Total	851	659	698	649	993	1,040	886	916	725

Source: NOAA Fisheries Alaska Region Web site at <http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm>.

Note: Except for the Pacific cod fishery, catch data do not separate jig gear from HAL gear until 2003.

In recent years in both the Aleutian Islands and eastern Bering Sea, the bulk of the other rockfish catch was comprised of light dusky rockfish and shortspine thornyheads. The target fisheries that catch these two species were defined by which species or species group occurred in the greatest abundance based on the total catch of the haul. During 2001 and 2002, 76 to 80% of the total light dusky rockfish catch (143t) in the Aleutian Islands, was caught during the Atka mackerel trawl fishery, and 33 to 51% of the total shortspine thornyhead catch was caught using hook and line gear in hauls in which the target was described as “other fish” (grenadiers and/or skates). During the same years in the eastern Bering Sea, 50% of the light dusky rockfish incidental catch (10t) was found in hauls designated as the pollock pelagic trawl fishery. In 2001 and 2002, hauls described as the arrowtooth/Kamchatka flounder bottom trawl fishery caught 46 to 66% of the eastern Bering Sea shortspine thornyhead incidental catch.

On average, 48% of those species in the “other rockfish” category were discarded in the Aleutian Islands. In the eastern Bering Sea 37% of those species in the “other rockfish” category were discarded on average. The difference in discard rates may be due to the difference in species composition. Shortspine thornyheads are a higher priced species than light dusky rockfish and therefore may be retained at higher rates.

5.6.1.5 BSAI Squid and “Other Species” Fisheries

In the BSAI squid is considered separately from the “other species” management group, which includes sculpins, skates, sharks, and octopus. There is currently little directed fishing for squid and “other species” in the BSAI. Generally, squid and “other species” are taken incidentally in target fisheries for groundfish. However, these species are considered ecologically important and may have future economic potential; therefore, an aggregate annual quota limits their catch. Directed fishing on one component of the “other species” category, skates, began in 2003 in the GOA. While there may be interest in targeting skates elsewhere, the catches within the “other species” category in the BSAI region were apparently still incidental catch in 2002-2003. Smelts were removed from the “other species” group and moved to the forage fish group beginning in 1999 as a result of fishery Amendments 36 and 39 to the BSAI and GOA groundfish FMPs.

Table 5.6-9 summarizes the catch of squid and “other species” by gear from 1995 through 2003.

Table 5.6-9. Catch (mt) of Squid and “Other Species” in the BSAI by Gear, 1995-2003

Gear	1995	1996	1997	1998	1999	2000	2001	2002	2003
HAL	11,485	8,792	13,482	14,608	8,899	11,889	13,950	13,215	15,467
JIG	No data are available until 2003								
OTHR	0	0	0	0	0	0	0	0	0
POT	579	621	387	343	740	814	461	421	404
TRW	10,596	13,194	12,853	11,000	9,439	11,660	12,471	13,444	10,749
Total	22,660	22,607	26,722	25,951	19,078	24,363	26,882	27,080	26,620

Source: NOAA Fisheries Alaska Region Web site at <http://www.fakr.noaa.gov/sustainablefisheries/catchstats.htm>.
 Note: Except for the Pacific cod fishery, catch data do not separate jig gear from HAL gear until 2003.

Squid and “other species” catches in aggregate were higher at 39,000 mt in 2002 than in any other year between 1997-2001. Squid are generally taken incidentally in the midwater trawl pollock fishery but have been the target of Japanese and Republic of Korea trawl fisheries in the past. After reaching 9,000 mt in 1978, total squid catches steadily declined to only a few hundred tons in 1987-95. Thus, squid stocks have been comparatively lightly exploited in recent years. The 2002 catch of squid was 1,748 mt and like the 2001 catch of 1,810 t, was much closer to the ABC of 1,970 mt than any estimated catch since the 1980s. In 1992-1998, discard rates of squid by the BSAI groundfish fisheries ranged between 40 and 85%.

Reported catches of “other species” increased during the 1960s and early 1970s and reached a peak of 133,000 mt in 1972. The “other species” catch in that year represented 6% of the total groundfish catch. Since 1990, catches have ranged between 17,000 and 33,000 mt and represented 2% or less of the total groundfish catches from the BSAI. Skates and sculpins constitute the bulk of the “other species” catches, accounting for between 66 and 96% of the estimated totals in 1992-2002.

While skates are caught in almost all fisheries and areas of the Bering Sea shelf, most of the skate catch is in the hook and line fishery for Pacific cod (53% of “other groundfish” caught in 2001 were caught in this fishery), with trawl fisheries for pollock, rock sole and yellowfin sole also catching significant amounts. Sculpins are also caught by a wide variety of fisheries, but trawl fisheries for yellowfin sole, Pacific cod, pollock, Atka mackerel and rock sole catch the most. Bottom trawl pollock and all three of the fisheries for Pacific cod (pots, hook and lines, and trawls) account for almost all of the octopus catch. In addition, there is a small directed fishery for octopus in the Aleutian Islands and southwestern Bristol Bay regions. Most of the shark catch occurs in the midwater trawl pollock fishery and in the hook and line fisheries for sablefish, Greenland turbot and Pacific cod along the outer continental shelf and slope of the Bering Sea. From 1992-1998, between 90 and 94% of the “other species” caught were discarded.

The recommended ABC for squid in the year 2004 is calculated as 0.75 times the average catch from 1978-1995, or 1,970 mt; the recommended overfishing level for squid in the year 2004 is calculated as the average catch from 1978-1995, or 2,624 mt. The rationale for a Tier 6-based ABC recommendation is that there is no reliable biomass estimate for squid. The recommended ABC for the “other species” complex in the year 2004 is also calculated as 0.75 times the average catch from 1978-1995, or 19,320 mt; the recommended overfishing level for the “other species” complex in the year 2004 is calculated as the average catch from 1978-1995, or 25,760 mt.

Analysis of the Alternatives

As previously noted, data limitations largely preclude a quantitative analysis of the relative economic and socioeconomic impacts of the proposed action. Data deficiencies include the following:

1. Cost and operating structure of the groundfish, halibut, crab, or scallop (i.e., potentially affected) segments of the industry
2. The linkages between changes in fishing behavior and catch per unit of effort, PSC, and bycatch rates
3. Market demand and price responses to supply shocks (e.g., reduced quantities; changes in timing, quality, or product form; etc.)
4. Affiliation and ownership linkages (both horizontal and vertical), which may influence the economic viability of any given operation.

Therefore, the ability to quantitatively define the effects of the proposed action is limited within this analysis. The balance of the regulatory impact analysis is limited to characterizing the nature, probable direction, and (in some cases) the likely gross magnitude of economic and operational effects resulting from these alternatives. Impacts have been monetized wherever possible and appropriate.

5.6.2 Confidentiality Restrictions

Federal law specifies that fisheries data collected for Federal fisheries, and the results of analysis of such data, may only be reported to the public when three or more operations (e.g., independently owned vessels and/or plants) are included in the reporting category, while State of Alaska confidentiality limits require no fewer than four independent entities. This analysis has found that observer records of catch exist in the affected areas for the years 2003-2005 and for more than three vessels. However, a species level analysis of catch and associated revenue reveals fewer than three vessels harvested each species group in one of the affected areas in 2003-2005. As a result, this analysis has aggregated catch by species group over the period 2003-2005 in order to protect the confidentiality of participants. Further, an analysis of Vessel Monitoring System tracks has been conducted but will only be discussed in summary form in order to protect the specific locations of fishing activity of participants. Given this limitation, this analysis has treated the potential effects of the proposed action in a largely qualitative way, while using what data can be made available illustratively.

5.6.3 Methodology

This analysis presents potential benefits and costs attributable to the proposed action from the point of view of all citizens of the United States; that is, it seeks to address the question: “What is likely to be the net benefit to the Nation?” The costs and benefits of the proposed action would not be homogeneously distributed across the population. Many of the effects are likely to be highly concentrated on a small number of particular fishing industry components affected by the proposed action.

The potential benefits associated with the proposed action are described in Section 6.7.2.1 and include both use benefits and non-use (passive-use) benefits. The potential costs associated with the proposed action are described in Section 6.7.2.2 under seven headings:

1. Revenue at risk
2. Operating costs

3. Costs to consumers
4. Impacts on related fisheries
5. Fishing safety
6. Effects to fishing communities
7. Regulatory and enforcement programs

To conduct this analysis, Observer records were obtained from the NORPAC database and analyzed to estimate annual catch within the areas being considered in the proposed action. However, relatively small position errors may exist in the observer data and when considering actions on very fine scale, such errors can create interpretation difficulties. It is important to point out that observer data is generally not collected with the specific intent to identify catch at fine spatial resolution. Using the observer data in this way is essentially using a tool in a way that it was not intended. As a result, all problems associated with fine spatial resolution discovered in this analysis are a function of this analysis and do not necessarily imply any failing of the observer program or its data collection activities. Due to the fine spatial scale of the proposed action, electronic VMS data was used to verify locations of fishing activity (personal reference Josh Keaton NOAA Fisheries). The analysis in the RIR takes into consideration both sources of information and provides quantitative information primarily for illustrative purposes.

5.6.3.1 Benefits

As discussed in the draft EFH EIS (NMFS, 2004a), the marine ecosystems and associated species that EFH supports may provide a range of benefits to humans. These benefits span a spectrum from use benefits associated with direct physical use or personal consumption of products or services derived from these environmental assets, to benefits accruing to individuals who do not use the assets but who derive value from knowing they are being protected.

5.6.3.1.1 Use Value

From the standpoint of effects on use value the most relevant consideration for distinguishing among the alternatives considered is how the production rates of FMP species and other species in the habitat areas of interest and surrounding environs might potentially benefit. In the case of commercial fisheries, use value can be quantified by translating fish production into revenues using market prices. Current knowledge, however, permits only a highly conditional evaluation of the effects of fishing on general classes of habitat features and allows only broad connections to be drawn between these features and the life history processes of some managed species (NMFS, 2005). Consequently, no quantifiable or even qualitative measure of sustained or increased yield in production or biomass of FMP species or other species is available for this analysis. That is, based upon currently available scientific data and understanding of these fishery and habitat resources, it is not possible to measure any direct use benefits linked to the biological or ecological changes attributable to the proposed action.

5.6.3.1.2 Non-use Value

From the standpoint of effects on non-use benefits the most relevant consideration for distinguishing among the alternatives considered is the degree to which ecosystem health and biodiversity in the habitat areas of interest might potentially benefit. As noted above, however, current knowledge permits only a highly conditional evaluation of the effects of fishing on general classes of habitat features. Moreover, the only widely accepted means of estimating non-use values is by surveying people to find out what they would be willing to pay (or willing to accept, depending upon with whom the implicit property right resides) for any given action that affects a resource for which these values are hypothesized to exist. The EFH EIS (NMFS, 2005) notes that there has been no study published to date concerning the non-use value of EFH in the EEZ off Alaska. Therefore, it is not possible to provide a specific monetary estimate of the non-use value that is hypothesized to be associated with one or another of the proposed alternatives.

It is not possible, at this time, to provide an empirical estimate of the total (both use and non-use) social value attributable to the proposed action. However, the alternative to the status quo would be expected to yield an incremental social cost over the baseline condition. This is because the alternative to the status quo would open 128 nm² while closing approximately 50 nm². On net, approximately 78 nm² of habitat is currently protected under the status quo AIHCA, and that area would no longer be protected from bottom trawl gear impacts. Further, the comparative analysis of observer and VMS data presented in section 6.7.2.2.1 below has found that the area proposed for opening has had little historic fishing activity but was fished extensively in the 2005 year. This seems to be in conflict with the rationale for the action, which is to provide for EFH protection by allowing fishing in historically used areas while closing relatively unfished areas. While VMS data does indicate that the Buldir area proposed for closure is relatively unfished, the area proposed to be opened does not appear to have been historically fished. NMFS consulted with industry representatives on this issue and determined that fishing activity likely has occurred in the Agattu area which was not required to be conducted with either observer or VMS monitoring. The reason for the unaccounted for harvest activity was due to activity occurring before the VMS regulations were effective, fishing for species which does not require VMS, or by vessels with limited observer requirements.

5.6.3.2 Costs

5.6.3.2.1 Revenue at Risk

Revenue at risk is an estimate of revenue, presently being earned under the status quo, which may be foregone if the proposed action is adopted. In this sense, the revenue is put “at risk” by the proposed action and industry may be required to change behavior to recover potentially foregone revenue. However, in this analysis, estimating status quo revenue is technically not possible. This is because the status quo condition (i.e. the AIHCA) has only become effective in the 2006 fishing year. Catch and fishing activity data is available to the analysts through 2005, but does not include the ongoing 2006 fishing year. Thus, this analysis has relied on data from the past five years (2001-2005) as a proxy for the status quo condition.

Observer data for the 2001-2005 years (source: North Pacific Groundfish Observer Database) reveals that five trawl catcher processor (CPs) vessels participated in the Buldir and Agattu areas in the years of 2003-2005, but not prior to 2003. There are records of observed catch in these areas dating back to the early and mid 1990s. However vessels that operated during those times are no longer active in the areas in question. In addition, one unobserved trawl Catcher Vessel (CV) was detected (from VMS data) operating in the Buldir area in 2004. No data exists on the catch that that single CV might have taken in the Buldir area; however, the proposed action would put that catch, and associated revenue, at risk and would preclude other trawl vessels that have not fished the area in the past from fishing it in the future. It is not possible to quantify the potential revenue at risk to those operators who might choose to fish the Buldir area in the future were it to remain open.

Overall, the 2003-2005 aggregated observer records show 2,935 mt of catch in the Buldir area (proposed to be closed) and 980 mt of catch in the Agattu area (proposed to be opened). Thus, the observer records indicate that approximately three times more catch, all species combined, was recorded in the area proposed for closure than the area proposed for opening. A review of species composition shows that Buldir catch is composed of rockfish and a small amount of unspecified catch, while Agattu catch is composed of Atka Mackerel, Pacific cod, pollock, and unspecified catch. These catch amounts can be monetized by applying the round weight equivalent first wholesale price per metric ton of each species group associated with CPs operating in the AI. These prices are calculated annually in the Total Allowable Catch Specifications Gross Revenue Model (NMFS, 2006) and are presently available in 2004 values as follows: Atka Mackerel, \$600/mt; Pacific cod, \$1,133/mt; pollock, \$812/mt; rockfish, \$796/mt; other species, \$348/mt.

Monetizing the catch by species provides a 2003-2005 aggregate round weight equivalent first wholesale value of \$2,053,728 in the Buldir area. This translates into an annual average of \$684,576. This catch was almost entirely composed of rockfish and was shared by five vessels (annual average of \$136,915 per vessel). Monetizing the Agattu area catch provides a 2003-2005 aggregate value of approximately \$873,056 or an average of approximately \$291,019 annually. It is difficult to further break down the Agattu value into a vessel

average because not all vessels recorded catch of all species and/or in all years. Overall, it appears that observer records indicate that the Agattu Catch is less than half the value of the Buldir catch, and that the net effect of the proposed action would be to put approximately \$393,557 in average annual revenue at risk to the AI CP fleet overall.

The finding of greater revenue at risk under the proposed action than the status quo is surprising. The area of the proposed closure (Buldir) is less than half as large as the area proposed to be opened (Agattu) and industry has asserted (public testimony June 2006) that the Buldir area is not fished but the Agattu area has been historically fished. In fact, the rationale for considering the proposed action follows from the original rationale used to develop the AIHCA; that is, to close areas that are historically relatively unfished while leaving open areas that are historically fished. As has been mentioned previously, (see methodology section) other issues have been discovered with the observer data in this area. Some anomalies have been corrected, while others remain and it must be made clear that the observer data is not intended to record catch on such fine scale as the areas being considered in the proposed action.

Given the limitations of the observer data, and the small size of the areas being considered, a parallel analysis of fishing activity using VMS data was conducted. All vessels operating in the Agattu and Buldir areas are required to carry and operate VMS units when fishing for Atka Mackerel, Pacific cod, and pollock, or when those fisheries are being prosecuted whether they are actively participating in those fisheries or not. The rockfish fishery in the area occurs concurrently with these three fisheries, thus it is highly unlikely that vessels would be targeting rockfish without operating VMS units. While the actual track plots from the VMS system are highly confidential, the results can be reported here in summary form.

The VMS analysis revealed three important results. First, there was no trawl CP activity recorded in the Buldir area from 2001-2005 (VMS data is only available beginning in 2001). This is in sharp contrast to the observer records, which indicate catch in that area. The VMS data did, however, reveal that a single trawl catcher vessel operated in the Buldir area in 2004. Unfortunately, that vessel was not observed and no data exists to quantify its catch in the Buldir area.

The second important finding in analyzing VMS data was that the Agattu area did not have a large amount of trawl CP activity until 2005. This 2005 activity occurred after finalization of the boundaries of the AIHCA, which seems to contradict the concept of that it was an historically fished area. VMS data for the Agattu area shows no activity in 2001 or 2002, several trawls within the area in each of 2003 and 2004, and multiple haulbacks in 2005. It is important to note that the VMS data for the Agattu area does show some trawl activity that begins outside of the area, continues through it, and concluded with haulback outside of the area. This situation does not occur until 2003, where it appears once, but does occur multiple times in 2005 and may partially explain the relatively low amount of catch attributed to the Agattu area in observer records for 2005.

In light of these seemingly contradictory findings, what can be said about the potential revenue at risk under both the status quo (e.g. existing AIHCA boundaries) versus the proposed action? Observer records alone seem to indicate that the proposed action has the potential to put annual average revenue of approximately \$393,557 at risk and that that revenue may be shared by as many as five vessels. However, the VMS data, if assumed to be of greater accuracy than observer data, negates the CP catch in the Buldir area and reverses the finding of any revenue placed at risk by the proposed action. In fact, VMS data suggests that the status quo may place as much as \$291,019 in annual average revenue at risk. However, to come to that conclusion one must assume that the VMS data is correct at Buldir and drop the observer records for that area, while at the same time assuming that the observer records for Agattu are supported by the VMS data and are a correct estimate of the potential impacts of the status quo. Complete verification of the accuracy of the observer records for Agattu would require haul by haul analysis of observer records with a cross reference to VMS data. Time and resources do not allow that level of analysis in support of this action and, as that type of analysis has never been conducted, it is not clear how much effort it would require. Thus, it is not possible with present information and analysis to conclusively determine the potential impact of either the status quo or the proposed action on revenue at risk.

However, neither the status quo nor the proposed action appears to have the potential to create \$100 million or more in impacts on industry and thus have insignificant effects on revenue at risk.

5.6.3.2.2 Operating Costs

The analysis of revenue at risk identifies a potential effect on operating costs of the fishing fleet. VMS data suggests that some trawls tracks begin outside the Agattu area, cross it, and end outside of the area. If the Agattu area remains closed (i.e. status quo AIHCA boundary), vessel operators would have to end the trawl before entering the area, and resume fishing outside of it. This interruption in activity with associated transit across the closed area could result in increased operational costs. VMS tracks in the Agattu area do not show much of this type of activity until 2005. While the effect of the proposed action is not thought to have a significant effect on operating costs, data adequate to evaluate such cost differences is not available.

5.6.3.2.3 Costs to Consumers

Potential domestic consumer losses resulting from the proposed action fall into two parts. One part, corresponding to the loss of benefits from fish products that are no longer produced, would be a total loss to society. This is often referred to as a deadweight loss. The second part, corresponding to a reduction in consumer benefits, because consumers have to pay higher prices for the fish they continue to buy, would be offset by a corresponding increase in revenues to industry. While this second part is a loss to consumers, it is not necessarily a loss to society. It is a measure of the benefit that consumers used to enjoy, but that now accrues to industry in the form of increased prices and additional revenues.

The actual loss to society cannot be measured with current information about the fisheries. Estimation would require better empirical information about domestic consumption of the different fish species and products, and information about the responsiveness of consumers to the reduction in the supply (e.g., their willingness and ability to substitute other available sources of protein). Under OMB guidelines, costs incurred by foreign consumers are to be excluded from the net benefit analysis performed in a Regulatory Impact Analysis.

5.6.3.2.4 Fishing Safety

Changes in fishery management regulations that result in vessels, particularly smaller vessels, operating farther offshore, or in exposed areas, appear likely to increase the risk of property loss, injury to crew members, and loss of life. In addition, fishing vessel owners would face economic pressures on their fishing operations if gross revenues decrease and operating costs increase. The resulting decline in profits may induce some vessel operators to try to squeeze longer trips into marginal weather conditions and to defer needed maintenance on vessels and equipment. These changes in fishing behavior and patterns could lead to an increased level of fishing safety risk to vessels and crews, albeit an increase that cannot be empirically estimated, because little is known about factors that might increase risk, or that might offset risk increases, for fishing vessels operating in the EEZ off Alaska.

This action would close a small area and open another area that is close by. The area proposed for closure is in a slightly more exposed location than the area proposed for opening. However, the area proposed for closure is slightly closer to the nearest port than the area proposed for opening. In light of these attributes, the proposed action is not expected to have a significant effect on fishing safety.

5.6.3.2.5 Related Fisheries

The area under consideration is in the remote region of the far western Aleutian Islands. The other Fisheries occurring in this area are hook and line (i.e. hook and line) fisheries for sablefish and potentially Pacific Halibut. The area may also be used by AI brown king crab vessels. VMS data shows a single set of hook and line gear in each of the Buldir and Agattu areas respectively in the 2001-2005 period. No other activity has been detected. Thus the proposed action is not expected to have a significant effect on related fisheries.

5.6.3.2.6 Fishing Communities

The analysis of revenue at risk, although inconclusive due to data difficulties, did not find that either the status quo or the proposed action had the potential to create significant impacts. It follows that significant effects on fishing communities are not likely.

5.6.3.2.7 Regulatory and Enforcement Programs

The proposed action would not likely alter U.S. Coast Guard operations. The Coast Guard, consistently reports that it considers all activities to support the commercial fisheries off Alaska as part of a national budget. That is to say, the agency has a long standing commitment to enforce, to the best of its ability, any fishery management measure the Council proposes and the Secretary of Commerce approves, and to do so within existing budgetary and resource constraints. Thus, Coast Guard resource levels can generally be regarded as fixed within the federal budget cycle, and the proposed action is not expected to change those resource levels or how they are applied. Further, all vessels operating in the area are presently required to comply with VMS requirements. Those requirements, the resources necessary to monitor the VMS system, and associate enforcement activities are not expected to be significantly affected by the proposed action.

5.7 Summary of the Costs and Benefits of the Proposed Action

The analyses presented above provide qualitative estimates of the benefits and costs of the measures under consideration by the Council. It was not possible to conclusively estimate the gross revenue placed at risk under the proposed action in light of contradictory data. Lacking the data necessary to derive empirical net results, and with the legal and administrative obligation to use the best available quantitative and qualitative information to draw informed conclusions about the potential net national effects of adopting the proposed action, the foregoing analysis makes a good-faith effort to meet these requirements.

The analysis generally finds that non-use values may be harmed by the proposed action. The proposed action on a simple square miles of habitat basis, would result in a net loss to the nation of 78 nm². Further, VMS data does not support the assertion that the area proposed to be opened has been historically fished and only shows significant activity in that area after the AIHCA boundaries were finalized. Thus, it appears that the original analysis of the open areas alternative in the Essential Fish Habitat Environmental Impact Statement (EFH EIS) process may better represent the historically fished areas than the proposed action. That is to say, the data conflicts that have arisen in assessing in this analysis of very fine spatial scale changes to open areas should not be construed as an indication that the original analysis that established the AIHCA was in any way flawed. Quite the contrary, the original analysis used a combination of observer data and industry provided vessel plotter tracks to establish the open area boundary that appears to be a better representation, on net, of historically fished areas than the proposed action. Since the EFH EIS and in the development of this analysis, NMFS has established through consultation with industry representatives that historical fishing had occurred in the Agattu area that was not monitored through VMS or observer programs. Despite the finding that non-use values may be harmed by the proposed action, there is no existing mechanism available to quantify such harm, however, it is not anticipated that the level of harm would be sufficient to result in a significant adverse effect under E.O. 12866.

Though defensible quantitative estimates of potential effects are not possible at this time, the qualitative analysis provided indicates that, based on the best available information, the proposed action does not appear to have the potential to produce an annual effect on the economy of \$100 million or more, or “adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities.” The proposed action would not be expected to meet or exceed the threshold for a “significant” action (as that term is defined in E.O. 12866).

6.0 INITIAL REGULATORY FLEXIBILITY ACT ANALYSIS

6.1 The Purpose of an IRFA

The Regulatory Flexibility Act (RFA), first enacted in 1980, was designed to place the burden on the government to review all regulations to ensure that, while accomplishing their intended purposes, they do not unduly inhibit the ability of small entities to compete. The RFA recognizes that the size of a business, unit of government, or nonprofit organization frequently has a bearing on its ability to comply with a Federal regulation. Major goals of the RFA are: (1) to increase agency awareness and understanding of the impact of their regulations on small business, (2) to require that agencies communicate and explain their findings to the public, and (3) to encourage agencies to use flexibility and to provide regulatory relief to small entities. The RFA emphasizes predicting impacts on small entities as a group distinct from other entities and on the consideration of alternatives that may minimize the impacts while still achieving the stated objective of the action.

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

In determining the scope, or 'universe', of the entities to be considered in an IRFA, the National Marine Fisheries Service (NMFS) generally includes only those entities that can reasonably be expected to be directly regulated by the proposed action. If the effects of the rule fall primarily on a distinct segment, or portion thereof, of the industry (e.g., user group, gear type, geographic area), that segment would be considered the universe for the purpose of this analysis. NMFS interprets the intent of the RFA to address negative economic impacts, not beneficial impacts, and thus such a focus exists in analyses that are designed to address RFA compliance.

Data on cost structure, affiliation, and operational procedures and strategies in the fishing sectors subject to the proposed regulatory action are insufficient, at present, to permit preparation of a "factual basis" upon which to certify that the preferred alternative does not have the potential to result in significant adverse economic impacts on a substantial number of small entities (as those terms are defined under RFA). Because, based on all available information, it is not possible to 'certify' this outcome, should the proposed action be adopted, a formal IRFA has been prepared and is included in this package for Secretarial review.

6.2 What is Required in an IRFA?

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

- A description of the reasons why action by the agency is being considered;
- A succinct statement of the objectives of, and legal basis for, the proposed rule;
- A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply;
- A description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
- An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap or conflict with the proposed rule;
- A description of any significant alternatives to the proposed rule which accomplish the stated objectives (*of the proposed action*), consistent with applicable statutes, and which would minimize any significant

economic impact of the proposed rule on small entities. Consistent with the stated objectives of applicable statutes, the analysis shall discuss significant alternatives, such as:

1. *The establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities;*
2. The clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities;
3. The use of performance rather than design standards; and
4. An exemption from coverage of the rule, or any part thereof, for such small entities.

6.3 Reasons for Considering the Proposed Action

In Section 2 of the Magnuson-Stevens Fishery Conservation and Management Act, Congress recognized that one of the greatest long-term threats to the viability of commercial and recreational fisheries is the continuing loss of marine, estuarine, and other aquatic habitats. Congress adopted specific requirements for Fisheries Management Plans (FMPs) to identify Essential Fish Habitat (EFH) and minimize to the extent practicable any adverse effects of fishing on EFH.

6.4 Objectives and Legal Basis of the Proposed Rule

6.4.1 Objectives of the Proposed Rule

The purpose of this action is to ensure the intent of the Aleutian Islands Habitat Conservation Area (AIHCA) is implemented by correcting the coordinates for two locations within the AIHCA to determine whether and if to amend the Council FMPs pursuant to Section 303(a)(7) of the Magnuson-Stevens Act. These locations were incorrectly specified during the EFH amendments development and need to be corrected to ensure fishing activities are conducted only in locations of historical bottom trawl fishing. The original EFH EIS analysis was based upon the best scientific information available and the guidelines articulated in the Final Rule to implement the EFH provisions of the Magnuson-Stevens Act (see 50 CFR Part 600, Subpart J). This information included detailed fishing activities provided by the fishing industry that were not available through NMFS observer or other types of fisheries data. The information provided by the industry at that time regarding these two locations did not accurately reflect historical fishing activities.

6.4.2 Legal Basis of the Proposed Rule

Under the Magnuson-Stevens Act, the United States has exclusive fishery management authority over all marine fishery resources found within the Exclusive Economic Zone (EEZ), which extends between 3 and 200 nautical miles from the baseline used to measure the territorial sea. The management of these marine resources is vested in the Secretary of Commerce (Secretary) and in the Regional Councils. In the Alaska Region, the Council has the responsibility for preparing FMPs for the marine fisheries it finds that require conservation and management and for submitting their recommendations to the Secretary. Upon approval by the Secretary, NMFS is charged with carrying out the federal mandates of the Department of Commerce with regard to marine and anadromous fish. The groundfish fisheries in the EEZ off Alaska are managed under the FMP for the Groundfish Fisheries of the GOA and the FMP for the Groundfish Fisheries of the BSAI.

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

6.5 Description and Number of Small Entities to which the Proposed Rule will Apply

6.5.1 Definition of a Small Entity

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

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

The SBA has established size criteria for all major industry sectors in the United States, including fish harvesting and fish processing businesses. A business involved in fish harvesting is a small business if it is independently owned and operated and not dominant in its field of operation (including its affiliates) and if it has combined annual receipts not in excess of \$4.0 million for all its affiliated operations worldwide. A seafood processor is a small business if it is independently owned and operated, not dominant in its field of operation, and employs 500 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide. A business involved in both the harvesting and processing of seafood products is a small business if it meets the \$4.0 million criterion for fish harvesting operations. Finally, a wholesale business servicing the fishing industry is a small business if it employs 100 or fewer persons on a full-time, part-time, temporary, or other basis, at all its affiliated operations worldwide.

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

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

Affiliation may be based on common management or joint venture arrangements. Affiliation arises where one or more officers, directors, or general partners controls the board of directors and/or the management of another

concern. Parties to a joint venture also may be affiliates. A contractor and subcontractor are treated as 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 not-for-profit enterprise that is independently owned and operated and is not dominant in its field.

Small governmental jurisdictions. The RFA defines small governmental jurisdictions as governments of cities, counties, towns, townships, villages, school districts, or special districts with populations of fewer than 50,000.

6.5.2 Estimated Number of Small Entities to which Proposed Rule Applies

The entities directly regulated by this action are those that harvest groundfish in the EEZ of the Aleutian Islands portion of the Bering Sea and Aleutian Islands (BSAI) management area and in parallel fisheries within State of Alaska waters. These directly regulated entities include the groundfish catcher vessels and groundfish catcher/processor vessels active in these areas. In the BSAI, direct allocations of groundfish are made to certain organizations, including the CDQ groups, the AFA catcher-processor and inshore processor sectors, and the Aleut Corporation. These entities are therefore also considered to be directly regulated. Business firms, non-profit entities, and governments are the appropriate entities for consideration in a regulatory flexibility analysis. Following the practice used in other analyses in the Alaska Region, fishing vessels have been used as a proxy for business firms. This is a practical response to the relative lack of information currently available on the ownership of multiple vessels by individual firms. This approach leads to overestimates of the numbers of firms, since several vessels may be owned by a single firm, and to an overestimate of the relative proportion of small firms, since more of the smaller vessels might have been treated as large if multiple vessel ownership was addressed, while no large entities would be moved to the small category.

Fishing vessels, both catcher vessels and catcher/processors, are considered small, for RFA purposes, if their annual gross receipts, from all their economic activities combined, as well as those of any and all their affiliates anywhere in the world, (including fishing in Federally managed non-groundfish fisheries, and in Alaska managed fisheries), are less than or equal to \$4.0 million in a year. Further, fishing vessels were considered to be large if they were affiliated with an AFA fishing cooperative in 2004. The members of these cooperatives had revenues that exceeded the \$4.0 million threshold. Vessels affiliated with cooperatives have retained their separate identities for the purposes of counting numbers of entities; that is, 10 vessels affiliated with an AFA cooperative are treated as 10 large entities, not as one large entity.

The entities that would be directly regulated by the proposed action are those businesses that have the potential to use non-pelagic trawl gear to harvest groundfish in the Aleutian Islands area. Such vessels are required to hold a License Limitation Program permit (LLP) that has an Aleutian Islands trawl gear endorsement. Data compiled by the Restricted Access Management Program of NOAA Fisheries Alaska Region (available at: <http://www.fakr.noaa.gov/ram/default.htm>) reveal that there are 103 vessels that currently hold AI trawl LLP permits.

An analysis of total revenue from all available fishing sources (i.e, federal, State of Alaska) was conducted for all 103 eligible vessels. This analysis used actual revenue reported by fishing entities for the year 2005 as compiled and supplied in a comprehensive database by the Alaska Fish Information Network (AKFIN). The analysis revealed that 28 of the 103 eligible vessels had total gross revenue from all directed fishing sources that was less than \$4 million in 2005. This implies that, ignoring affiliations, 28 vessels could be considered to be small entities. However, a review of American Fisheries Act permit data revealed that 18 of the 28 vessels with gross revenue less than \$4 million in 2005 are AFA permitted vessels. Thus, by their AFA affiliations, they are defined as large entities. The remaining 10 vessels consisted of 4 catcher processors (CPs) and 6 catcher vessels

(CVs). It is possible that some of these vessels are affiliated; however, incomplete vessel ownership and affiliation information makes the determination of the actual number of regulated small entities difficult.

Average revenue per vessel was estimated using the assuming that the 10 vessels determined to have less than \$4 million in annual revenue are not affiliated. The small CPs potentially affected by the proposed action had average revenue of \$2.2 million in 2005, while average revenue of small CVs potentially affected by the proposed action was \$1.4 million in 2005.

Through the Community Development Quota (CDQ) program, the North Pacific Fishery Management Council and NMFS allocate a portion of the BSAI groundfish, prohibited species, halibut, and crab TAC limits to 65 eligible Western Alaska communities. These communities work through six non-profit CDQ Groups, and are required to use the proceeds from the CDQ allocations to start or support activities that will result in ongoing, regionally based, commercial fishery or related businesses. Because they are nonprofit entities, the CDQ groups are considered small for RFA purposes.

The Aleut Corporation is an Alaska Native Corporation that receives an allocation of pollock in the AI. The Aleut Corporation is a holding company and evaluated according to the SBA criteria at 13 CFR 121.201, using a \$6 million gross annual receipts threshold for “Offices of Other Holding Companies.” Aleut Corporation revenues are believed to exceed this threshold, and the Aleut Corporation is considered to be a large entity. This follows from the analysis in the RFA certification for BSAI FMP Amendment 82. (NMFS, 2004d, page 413).

6.6 Description of the Projected Reporting, Record Keeping and Other Compliance Requirements of the Proposed Rule

The proposed rule does not directly mandate “reporting” or “record keeping” within the meaning of the Paperwork Reduction Act. However, the proposed rule contains compliance requirements not subject to the Paperwork Reduction Act. Specifically, the regulation prohibits the use of certain types of fishing gear in the area proposed for closure. Of those vessels that are directly regulated, only a small fraction would incur compliance costs as a result of the proposed rule, because the amount of fishing activity in the proposed area has been low and has historically been limited to five or fewer fishing vessels.

6.7 Identification of Relevant Federal Rules that may Duplicate, Overlap or Conflict with the Proposed Rule

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

6.8 Description of Significant Alternatives to the Proposed Rule

An IRFA must consider all significant alternatives that accomplish the stated objectives of the action, consistent with applicable statutes, and simultaneously minimize any significant economic impacts of the proposed rule on small entities. “Significant alternatives” are those with potentially lesser impacts on small entities (versus large-scale entities) as a whole. The kinds of alternatives that are possible will vary based on the particular regulatory objective and the characteristics of the regulated industry. However, section 603(c) of the RFA gives agencies some alternatives that they must consider at a minimum:

1. Establishment of different compliance or reporting requirements for small entities or timetables that take into account the resources available to small entities.
2. Clarification, consolidation, or simplification of compliance and reporting requirements for small entities.
3. Use of performance rather than design standards.
4. Exemption for certain or all small entities from coverage of the rule, in whole or in part.

The alternatives accepted by the Council for consideration in this EA/RIR/IRFA are described in detail in Section 2.3 of the EA and are briefly described in Section 6.5 of the RIR.

The RIR for this action analyzes potential economic impacts of the suite of available alternatives. At present, none of the alternatives before the Council currently contains explicit provisions in regard to mitigating the potential adverse effects of the alternatives on small entities.

6.9 Impacts of the Alternatives

The analyses presented in the attached Regulatory Impact Review above provide quantitative estimates of the benefits and costs of the measures under consideration by the Council. It was not possible to conclusively estimate the gross revenue placed at risk under the proposed action in light of contradictory data. Lacking the data necessary to derive empirical net results, and with the legal and administrative obligation to use the best available quantitative and qualitative information to draw informed conclusions about the potential net national effects of adopting the proposed action, the foregoing analysis makes a good-faith effort to meet these requirements.

The analysis generally finds that non-use values may be harmed by the proposed action. The proposed action would close an area that is less than half the size of the area proposed to be opened. On a simple square miles of habitat basis this represents a net loss to the nation of 78 nm².

Though defensible quantitative estimates of potential effects are not possible at this time, the qualitative analysis provided indicates that, based on the best available information, the proposed action does not appear to have the potential to produce an annual effect on the economy of \$100 million or more, or “adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities.” The proposed action would not be expected to meet or exceed the threshold for a “significant” action (as that term is defined in E.O. 12866).

7.0 CONTRIBUTORS AND THE AGENCIES AND PERSONS CONSULTED

7.1 North Pacific Fishery Management Council

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Fishery Analyst/GIS Analyst; Project Coordinator

Summary of Alternatives, Affected Environment

M.S. Fisheries Science University of Alaska, 2006

B.S. Biology, University of Arizona, 1991

NPFMC: 8 years; ADFG: 2 years; NMFS Observer Program: 4 years

David Witherell, Deputy Director

Reviewer

M.S. Fisheries Biology, University of Massachusetts, 1987

B.S. Fish and Wildlife Biology, University of Massachusetts, 1985

NPFMC: 15 years; Other: 7 years

7.2 National Oceanic and Atmospheric Administration/National Marine Fisheries Services–Alaska Region

Josh Keaton

Resource Management Specialist, Inseason Management, VMS Consultation

B.S. Fisheries Science, Sheldon Jackson College, 2000

NMFS: 5.5 years, Other: 1 year

Jonathan Kurland

Assistant Regional Administrator for Habitat Conservation, Reviewer

Williams College, Mystic Seaport Maritime Studies Program, 1989

B.A. Government and Public Policy, Hamilton College, 1990

M.A. Marine Affairs, University of Rhode Island, 1992

Scott Miller

Industry Economist, Alaska Region Analytical Team

Ch 3: Environmental Effects of Effects on Economic and Socioeconomic Aspects of Federally-Managed Fisheries; Section 4: Environmental Consequences of Effects on Economic and Socioeconomic Aspects of Federally-Managed Fisheries; RIR review

M.S. Resource Economics, University of Maryland, 1996

B.S. Economics and Mathematics, University of Puget Sound, 1987

NMFS: 1.5 yrs; Northern Economics: 1 year; Other: 7 years

John V Olson

Marine Habitat Resource Specialist

Description of modified AIHCA boundaries

B.S. Fisheries Science, Oregon State University, 1994

Graduate Studies, College of Oceanic & Atmospheric Science, Oregon State University, 1995-1998

NMFS: 4 years; ADFG: 3 years

Melanie N. Brown

Fisheries Regulations Specialist

Section 3, Section 4- Reviewer and overall guidance.

B.S. Natural Resources, Ohio State University, 1984

Graduate Studies, Colorado School of Mines and University of Alaska, Southeast. 1990-2000.

U.S. EPA: 8 years, NMFS: 7 years

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APPENDIX 1. Corrections to the boundaries for the AIHCA under Alternative 2.

Id	NAME	Site	long_min	Long_dm	E/W	lat_min	lat_dm	N/S
1	Buldir	31	177	12.00	E	52	6.00	N
2	Buldir	31	177	0.00	E	52	6.00	N
3	Buldir	31	177	0.00	E	52	12.67	N
4	Buldir	31	176	54.67	E	52	12.67	N
5	Buldir	31	176	54.67	E	52	9.00	N
6	Buldir	31	176	48.67	E	52	9.00	N
7	Buldir	31	176	48.67	E	52	0.00	N
8	Buldir	31	176	36.00	E	52	0.00	N
9	Buldir	31	176	36.00	E	52	6.00	N
10	Buldir	31	176	24.00	E	52	6.00	N
11	Buldir	31	176	24.00	E	52	12.67	N
12	Buldir	31	176	12.00	E	52	12.67	N
13	Buldir	31	176	12.00	E	52	18.67	N
14	Buldir	31	176	30.00	E	52	18.67	N
15	Buldir	31	176	30.00	E	52	24.00	N
16	Buldir	31	176	0.00	E	52	24.00	N
17	Buldir	31	176	0.00	E	52	18.67	N
18	Buldir	31	175	54.67	E	52	18.67	N
19	Buldir	31	175	54.67	E	52	6.00	N
20	Buldir	31	175	48.67	E	52	6.00	N
21	Buldir	31	175	48.67	E	52	0.00	N
22	Buldir	31	175	54.67	E	52	0.00	N
23	Buldir	31	175	54.67	E	51	54.67	N
24	Buldir	31	175	36.00	E	51	54.67	N
25	Buldir	31	175	36.00	E	51	42.00	N
26	Buldir	31	175	30.00	E	51	42.00	N
27	Buldir	31	175	30.00	E	51	36.67	N
28	Buldir	31	175	36.00	E	51	36.67	N
29	Buldir	31	175	36.00	E	51	30.67	N
30	Buldir	31	175	42.67	E	51	30.67	N
31	Buldir	31	175	42.67	E	51	36.67	N
32	Buldir	31	176	0.00	E	51	36.67	N
33	Buldir	31	176	0.00	E	52	0.00	N
34	Buldir	31	176	6.00	E	52	0.00	N
35	Buldir	31	176	6.00	E	52	6.00	N
36	Buldir	31	176	12.00	E	52	6.00	N
37	Buldir	31	176	12.00	E	52	0.00	N
38	Buldir	31	176	30.00	E	52	0.00	N
39	Buldir	31	176	30.00	E	51	54.67	N
40	Buldir	31	177	0.00	E	51	54.67	N
41	Buldir	31	177	0.00	E	52	0.00	N
42	Buldir	31	177	12.00	E	52	0.00	N
1	Buldir West	22	175	48.67	E	52	30.67	N
2	Buldir West	22	175	36.00	E	52	30.67	N
3	Buldir West	22	175	36.00	E	52	36.67	N
4	Buldir West	22	175	24.00	E	52	36.67	N
5	Buldir West	22	175	24.00	E	52	24.00	N
6	Buldir West	22	175	30.00	E	52	24.00	N
7	Buldir West	22	175	30.00	E	52	18.67	N
8	Buldir West	22	175	36.00	E	52	18.67	N
9	Buldir West	22	175	36.00	E	52	24.00	N

(cont.)

Id	NAME	Site	long_min	Long_dm	E/W	lat_min	lat_dm	N/S
10	Buldir West	22	175	48.67	E	52	24.00	N
1	Semichi I	26	175	6.00	E	52	30.67	N
2	Semichi I	26	175	0.00	E	52	30.67	N
3	Semichi I	26	175	0.00	E	52	36.67	N
4	Semichi I	26	174	48.67	E	52	36.67	N
5	Semichi I	26	174	48.67	E	52	42.00	N
6	Semichi I	26	174	33.00	E	52	42.00	N
7	Semichi I	26	174	33.00	E	52	36.00	N
8	Semichi I	26	174	24.00	E	52	36.67	N
9	Semichi I	26	174	24.00	E	52	39.00	N
10	Semichi I	26	174	0.00	E	52	39.00	N
11	Semichi I	26	173	54.67	E	52	42.00	N
12	Semichi I	26	173	54.67	E	52	45.16	N
13	Semichi I	26	173	54.67	E	52	46.35	N
14	Semichi I	26	173	54.67	E	52	54.67	N
15	Semichi I	26	173	30.00	E	52	54.67	N
16	Semichi I	26	173	30.00	E	52	48.67	N
17	Semichi I	26	173	36.00	E	52	48.67	N
18	Semichi I	26	173	36.00	E	52	40.01	N
19	Semichi I	26	173	25.00	E	52	40.00	N
20	Semichi I	26	173	25.00	E	52	30.00	N
21	Semichi I	26	173	39.97	E	52	32.99	N
22	Semichi I	26	173	54.00	E	52	33.00	N
23	Semichi I	26	173	54.67	E	52	18.67	N
24	Semichi I	26	174	30.00	E	52	18.67	N
25	Semichi I	26	174	30.00	E	52	30.67	N
26	Semichi I	26	174	48.67	E	52	30.67	N
27	Semichi I	26	174	48.67	E	52	24.00	N
28	Semichi I	26	175	6.00	E	52	24.00	N
1	Buldir Donut		175	48.00	E	51	48.00	E
2	Buldir Donut		175	42.00	E	51	48.00	E
3	Buldir Donut		175	42.00	E	51	45.00	E
4	Buldir Donut		175	48.00	E	51	45.00	E

