Steller Sea Lion Protection Measures for Groundfish Fisheries in the Bering Sea and Aleutian Islands Management Area

Draft Environmental Impact Statement/Regulatory Impact Review/Initial Regulatory Flexibility Analysis

May 2013

U. S. Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service, Alaska Region

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Abstract: This environmental impact statement/regulatory impact review/initial regulatory flexibility analysis provides decision-makers and the public with an evaluation of the environmental, social, and economic effects of alternatives to the Steller sea lion protection measures for the Bering Sea and Aleutian Islands Management Area groundfish fisheries, in particular the Atka mackerel, Pacific cod, and pollock fisheries in the Aleutian Islands. The western distinct population segment (WDPS) of Steller sea lions is listed as endangered under the Endangered Species Act, and the species population in the Aleutian Islands is declining. Atka mackerel, Pacific cod, and pollock are principal prey species for Steller sea lions in the Aleutian Islands. This proposed action would implement Steller sea lion protection measures for the Aleutian Islands Atka mackerel, Pacific cod, and pollock fisheries to mitigate the potential fishery impacts on the WDPS of Steller sea lions. This document addresses the requirements of the National Environmental Policy Act, Executive Order 12866, and the Regulatory Flexibility Act.

Comments Due: July 16, 2013

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ACRONYM AND ABBREVIATIONS

ABC	acceptable biological catch
AI	Aleutian Islands
APICDA	Aleutian Pribilof Island Community Development Association
BSAI	Bering Sea and Aleutian Islands
BS	Bering Sea
Council	North Pacific Fishery Management Council
CP	catcher/processor
CV	catcher vessel
CDQ	Community Development Quota
DEIS	Draft Environmental Impact Statement
EA	Environmental Assessment
EFH	essential fish habitat
EIS	environmental impact statement
ESA	Endangered Species Act
FMP	fishery management plan
FMP biop	fishery management plan-level biological opinion
GHL	guideline harvest level
IRFA	Initial Regulatory Flexibility Analysis
MRA	maximum retainable amount
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
NEPA	National Environmental Policy Act
nm	nautical mile
NMFS	National Marine Fisheries Service
PBR	potential biological removal
POP	Pacific ocean perch
PSC	prohibited species catch
PPA	Preliminary Preferred Alternative
PRD	NMFS Alaska Region Protective Resources Division
RIR	regulatory impact review
RPA	reasonable and prudent alternative
SAR	search and rescue
TAC	total allowable catch
VMS	Vessel Monitoring System
WDPS	western distinct population segment

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Executive Summary

This environmental impact statement/regulatory impact review/initial regulatory flexibility analysis (EIS/RIR/IRFA) analyzes alternative Steller sea lion protection measures. The Steller sea lion protection measures manage the location, gear type, and timing of fishing for Atka mackerel, pollock, and Pacific cod in the Aleutian Islands. The decision is whether to maintain the existing suite of Steller sea lion protection measures (Alternative 1) or to implement a new suite of Steller sea lion protection measures (Alternative 2, 3, 4, or 5). The action is focused on the Aleutian Islands because that is where Steller sea lions are experiencing population declines and on the fisheries that may affect the Steller sea lions or their critical habitat. This EIS/RIR/IRFA provides decision-makers and the public with an evaluation of the predicted effects of the alternatives on the human environment.

This action involves complex resources management in the marine environment by National Marine Fisheries Service (NMFS) applying management responsibilities under several statutes. NMFS has two major responsibilities related to the proposed action. The first responsibility is the management of groundfish fisheries in the exclusive economic zone off Alaska under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Steven Act). NMFS's second responsibility is the protection of most marine mammals listed, or proposed to be listed, as threatened or endangered under the Endangered Species Act (ESA). Under the ESA, a Federal agency must insure that any Federal action is not likely to jeopardize the continued existence or adversely modify or destroy designated critical habitat (jeopardy) for any ESA-listed species. If a Federal action may affect an ESA-listed species or its critical habitat, then a Section 7 consultation between the action agency and the consulting agency is required. If the action may adversely affect the ESA-listed species or its critical habitat, the consulting agency completes the consultation by issuing a biological opinion. The interpretation of responsibilities and the paucity of information for decision making for this action have resulted in contentious management and litigation.

The western distinct population segment (WDPS) of Steller sea lions is listed as endangered (62 FR 24345, May 5, 1997) and has critical habitat designated to protect haulout, rookery, and foraging locations throughout Alaska waters (58 FR 45269, August 27, 1993). The management of groundfish fisheries under the Magnuson-Stevens Act is a Federal action that may affect ESA-listed species and their critical habitat, including Steller sea lions, and is subject to the consultation requirements of Section 7 of the ESA.

In November 2010, NMFS completed a biological opinion on the effects of the groundfish fisheries on ESA-listed species (FMP biop). The FMP biop determined that the Alaska groundfish fisheries were likely to result in jeopardy for the WDPS of Steller sea lions and their designated critical habitat. The Alaska groundfish fisheries of concern are located in the Western and Central sub-regions of the Aleutian Islands, based on the population trends of the Steller sea lions in sub-regions, as identified in the Steller sea lion Revised Recovery Plan.

The FMP biop determined that an adverse relationship between Steller sea lions and the commercial fisheries may exist in the Western Aleutian Islands sub-region and portions of the Central Aleutian Islands sub-region where the Atka mackerel and Pacific cod fisheries target important Steller sea lion prey. The harvest of prey species by the fisheries may result in competition between fisheries and marine mammals, which could occur if the fisheries reduce the availability of prey to the extent that a marine mammal's condition, growth, reproduction, or survival is diminished. This presumed competition between Steller sea lions and the commercial fisheries, and the compromised prey field for Steller sea lions that it could create, made NMFS determine in the FMP biop that it could not insure that its action was not likely to jeopardize the continued existence of the WDP of Steller sea lions or adversely modify designated critical habitat. NMFS determined in the FMP biop that changes to the Pacific cod and Atka mackerel fisheries in the Aleutian Islands were necessary to avoid the likelihood of jeopardy for the WDPS of Steller sea lions and their designated critical habitat. This finding is based on the biological information of the WDPS of Steller sea lions and the potential effects of the groundfish fisheries on the WDPS of Steller sea lions and their critical habitat. The FMP biop includes a reasonable and prudent alternative (RPA) to mitigate the effects of the groundfish fisheries on the WDPS of Steller sea lions and their critical habitat that is specific to the Atka mackerel and Pacific cod fisheries in Areas 543, 542, and 541 of the Aleutian Islands.

FMP biop, the supporting science, and its findings are controversial. This controversy reflects the differences in opinion on the interpretation of scientific information and on the application of law in fisheries management. State of Alaska and the State of Washington sponsored a review of the FMP biop (NMFS 2010a) to provide an additional review of the information and analysis outside of NMFS. NMFS also sponsored a review of the FMP biop by the Center for Independent Experts (Stokes 2012), (Stewart 2012), and (Bowen 2012). NMFS considered the information and analysis in these reviews in the development of this EIS.

In December 2010, NMFS published an interim final rule that implemented the RPA in the FMP biop (75 FR 77535, December 13, 2010, corrected 75 FR 81921, December 29, 2010), effective January 1, 2011. The details of the Steller sea lion protection measures implemented by this interim final rule are in the description of Alternative 1 below. Fishery restrictions were focused primarily on the Atka mackerel and Pacific cod fisheries in the Aleutian Islands, with only a minor change made to the Atka mackerel fishery in the Bering Sea subarea to provide for management of the combined Area 541/Bering Sea total allowable catch (TAC) and to allow the continued practices for this fishery in this location.

The State of Alaska, the Alaska Seafood Cooperative, and the Freezer Longline Coalition filed suit against NMFS in the U.S. District Court for the District of Alaska in December 2010, on the FMP biop and the interim final rule implemented by NMFS. The Court found that NMFS properly applied the ESA and the Administrative Procedure Act in the development of the biological opinion and in the implementation of the interim final rule. The Court also found that the agency's National Environmental Policy Act (NEPA) process for preparing the environmental assessment (EA) (NMFS 2010b) for the interim final rule did not provide the public with sufficient opportunity for review and comment and that the conclusions of the environmental assessment were highly controversial and uncertain. Based on these findings, the court ordered NMFS to prepare an EIS. This EIS is in response to the Court's order, and must be completed by March 2, 2014.

This EIS does not replicate the analysis in the 2010 EA. So much has changed since that EA was written that the range of alternatives considered and the analysis conducted in that EA are no longer relevant to inform decision-making for the proposed action in this EIS. For this EIS, NMFS has a final FMP biop, expert reviews of the FMP biop, additional scientific information on Steller sea lions, a more refined method to analyze fishery data, and data from two years of finishing under the interim final rule (Alternative 1, status quo). None of this was available for the EA analysis. Therefore, NMFS started this EIS with public scoping. NMFS, in conjunction with the North Pacific Fishery Management Council (Council), developed the proposed action, purpose and need, and the range of alternatives based on public comments and the work of the Council's Steller Sea Lion Mitigation Committee. The scope of the analysis and the issues to address were informed through the public scoping process and through the Council process. The scoping process is explained in Chapter 1.

The decision is whether to maintain the existing Steller sea lion protections measures or implement new protection measures. NMFS intends to conduct proposed and final rulemaking to implement Steller sea lion protection measures and to replace the interim final rule. The recommended action based on this analysis may be the same as the 2011 Steller sea lion protection measures or different; but in either case, NMFS will conduct rulemaking.

One important piece of this EIS analysis is an understanding of the impacts of the measures NMFS implemented with the interim final rule (Alternative 1) relative to the management measures in place prior to the interim final rule (Alternative 4, with two exceptions). This EIS achieves that by comparing these alternatives with each other and with the baseline period (generally 2004 to 2010). This analysis predicts what the impacts of each alternative would have been had it been in place during the baseline period, to the extent possible with available information. From this analysis, the reader can understand the relative impacts of each alternative, including the impacts of fishing under the interim final rule (Alternative 1) compared to fishing under the measures in place prior to 2011. These analysis parameters are explained in Chapter 1.

Purpose and Need

This action is needed to comply with the ESA requirement that a Federal agency insure that the agency's actions are not likely to jeopardize the continued existence of endangered species or to adversely modify or destroy critical habitat. In this case, NMFS's action is the management of the Alaska groundfish fisheries (including the authorization of research necessary to support such management) and the endangered species is the WDPS of Steller sea lions. In the FMP biop, NMFS determined that it could not insure that the Alaska groundfish fisheries were not likely to jeopardize the continued existence of the WDPS of Steller sea lions and were not likely to adversely modify their designated critical habitat. In response to this determination, NMFS recommended an RPA to mitigate the fishery impacts that had been identified as having the potential to cause jeopardy. The RPA restricted the Aleutian Islands Atka mackerel and Pacific cod fisheries to provide additional protection to the WDPS of Steller sea lions and their critical habitat. The RPA and other existing fishery management measures designed to protect Steller sea lions in the Aleutian Islands are known, collectively, as the Steller sea lion protection measures. The Steller sea lion protection measures restrict the Atka mackerel, Pacific cod, and pollock fisheries in a manner that causes economic impacts.

The purpose of this action is to implement Steller sea lion protection measures for the Aleutian Islands groundfish fisheries, and its supporting research, in a manner that mitigates the Aleutian Islands groundfish fisheries' potential impacts on Steller sea lions and minimizes, to the extent practicable, economic impacts to the groundfish fisheries. New information is available to evaluate and potentially

revise the Steller sea lion protection measures to reduce the economic impacts to the extent practicable on the fisheries while still providing necessary protection to Steller sea lions.

Alternatives

Chapter 2 describes in detail the five alternatives for the proposed action. These alternatives were developed through a collaborative process with the North Pacific Fishery Management Council (Council) and its Steller Sea Lion Mitigation Committee and in consideration of public comments received during the scoping process. All of the alternatives were designed to accomplish the stated purpose and need for the action. Each alternative represents a suite of management measures for the Aleutian Islands fisheries that attempts to mitigate the fisheries' potential impacts on Steller sea lions in a way that reduces the potential economic burden to fishery participants, to the extent practicable. NMFS is analyzing the alternatives to select a proposed action that is a balance of meeting the ESA obligations while minimizing economic impacts to the extent practicable. Mitigating potential fishery impacts on Steller sea lions is necessary to insure that the agency's actions are not likely to jeopardize the continued existence of Steller sea lions or to adversely modify or destroy critical habitat.

The Steller sea lion protection measures are intended to spatially and temporally disperse fishing to mitigate potential competition for prey resources between the Atka mackerel, Pacific cod, and pollock fisheries and Steller sea lions. Dispersion is accomplished through closure areas, harvest limits, seasonal apportionment of harvest limits, and limits on participation in the fishery. The alternatives differ in the amounts and methods of fishing in the Aleutian Islands for Atka mackerel, Pacific cod, and pollock. The differences between the alternatives for each fishery are primarily management measures based on the location, gear type, and timing of fishing.

The alternatives are identified in order from more fishery restrictions and area closures (Alternative 1) to the least amount of fishery restrictions and closures (Alternative 4). Alternative 5 is the preliminary preferred alternative and contains primarily components of Alternatives 3 and 4, resulting in restrictions that are similar to Alternatives 3 or 4, depending on the fishery. NMFS would be interested in any public comment on these components and other flexible components that meet the purpose and need and scope of this EIS and that NMFS can consider as it strikes a balance between conservation goals and minimizing economic costs. The specific features of each alternative are described below. Tables ES-1 through ES-4 show the features of each alternative by fishery. Figures ES-1 through ES-4 show maps of the alternative closures by fishery.

Unless expressly modified by the alternative, the current protection measures (closures, allocations, and seasons) under status quo apply to Alternatives 2, 3, 4, and 5. The amount of critical habitat closed to directed fishing for Atka mackerel and Pacific cod under Alternative 1 to Alternative 4 range from the most area closed to the least area closed. Alternatives 3 and 4 are the same for the pollock fishery. The amount of critical habitat closed to directed fishing for pollock under Alternative 1 to Alternatives 3 and 4 range from the most area closed to the least closed. A big difference between Alternative 1 and Alternatives 2, 3, 4, and 5 is that the retention prohibition for Atka mackerel and Pacific cod in Area 543 under Alternative 1 is not included in Alternatives 2, 3, 4 and 5. All alternatives assume Pacific cod will be harvested under an Aleutian Islands TAC.

Because of the complexity of the closure areas for Steller sea lion protection measures and for the Aleutian Islands Habitat Conservation and Protection Areas, each alternative also includes a monitoring and enforcement option to require that the vessel monitoring system (VMS) polling rate increase from two times per hour to ten times per hour for federally permitted trawl vessels fishing for groundfish that is deducted off the Federal TAC. Applying this requirement to vessels harvesting groundfish deducted from

the Federal TAC will ensure the VMS requirement applies to trawl vessels participating in the Federal and State parallel groundfish fisheries. The increased polling rate would limit the ability of a vessel to operate inside or through a closed area undetected.

Alternative 1: Status quo, 2011 Steller Sea Lion Protection Measures (Interim Final Rule)

The Alternative 1 is the no action alternative that is required by NEPA. If NMFS took no action, then these measures would remain in place. Alternative 1 is the current management of the Aleutian Islands groundfish fisheries under the protection measures implemented by interim final rule (75 FR 77535, December 13, 2010), including the RPA in the FMP biop (NMFS 2010a), and the current management measures for the pollock fishery. Current management measures for Pacific cod and Atka mackerel under previous fishery management plan amendments also apply. The interim final rule implemented management measures for the Atka mackerel and Pacific cod fisheries in 2011. The Aleutian Islands pollock fishery is currently managed under the 2003 Steller sea lion protection measures (68 FR 204, January 2, 2003) and Amendment 82 (70 FR 9856, March 1, 2005). The major components of Alternative 1 include no retention of Atka mackerel or Pacific cod in Area 543, very limited fishing for Atka mackerel and Pacific cod in critical habitat in Areas 542 and 541, and no directed fishing for pollock in critical habitat throughout the Aleutian Islands. The following are specific management measures under Alternative 1.

<u>Groundfish</u>
Prohibit directed fishing for groundfish by federally permitted vessels in waters from 0–3 nautical miles (nm) around Kanaga Island/Ship Rock.

<u>Atka mackerel</u>

- A season: 1/20–6/10
- B season: 6/10–11/1
- Allow rollovers from A to B season

Area 543

- Prohibit retention of Atka mackerel by all federally permitted vessels.
- Set theAtka mackerel TAC sufficient to support the incidental discarded catch that may occur in other target groundfish fisheries (e.g., Pacific ocean perch).

Area 542

- Set the TAC for Area 542 at no more than 47 percent of the acceptable biological catch (ABC) amount apportioned to Area 542 by the Council's Scientific and Statistical Committee.
- Prohibit directed fishing for Atka mackerel by federally permitted vessels using trawl gear between 177° E to 179° W long. and 178° W to 177° W long. in critical habitat from 0–20 nm year round.
- Prohibit directed fishing for Atka mackerel by federally permitted vessels using trawl gear between 179° W to 178° W long. in critical habitat from 0–10 nm year round. Prohibit directed fishing for Atka mackerel between 179° W and 178° W long. in critical habitat from 10–20 nm by federally permitted vessels not participating in a harvest cooperative or fishing a Community Development Quota (CDQ) allocation.
- Apportion the CDQ Atka mackerel allocation seasonally at 50:50.

- No more than 10 percent of the annual allocation for each harvest cooperative or CDQ group may be harvested inside critical habitat. The annual critical habitat harvest limit is evenly divided between the A and B seasons.

Area 541

- Prohibit directed fishing for Atka mackerel using trawl gear in Area 541 critical habitat.
- Prohibit directed fishing for Atka mackerel using trawl gear in the Bering Sea subarea year round.

<u>Pacific cod</u>
Prohibit directed fishing for Pacific cod by all federally permitted vessels from November 1 to December 31.

Area 543

- Prohibit retention of Pacific cod by all federally permitted vessels.

Area 542

- Prohibit directed fishing for Pacific cod by federally permitted vessels using non-trawl gear in waters 0–6 nm of critical habitat year round. For vessels 60 ft or greater, prohibit directed fishing for Pacific cod by federally permitted vessels using non-trawl gear in critical habitat from 6 nm–20 nm January 1 to March 1.
- Between 177° E to 178° W long., prohibit directed fishing for Pacific cod by federally permitted vessels using trawl gear in critical habitat from 0–20 nm year round.
- Prohibit directed fishing by federally permitted vessels using trawl gear between 178° W to 177° W long. in critical habitat from 0–10 nm year round. Prohibit directed fishing by federally permitted vessels using trawl gear between 178° W to 177° W long. in critical habitat 10 nm–20 nm June 10 to November 1.
- Reinitiate ESA consultation if the non-trawl harvest of Pacific cod exceeds 1.5 percent of the Bering Sea and Aleutian Islands (BSAI) Pacific cod ABC (equivalent to the Area 542 maximum annual harvest amount from 2007 through 2009). Similarly, reinitiate ESA consultation if the trawl harvest of Pacific cod exceeds 2 percent of the BSAI Pacific cod ABC (equivalent to the Area 542 maximum annual harvest amount from 2007 through 2009).

Area 541

- Prohibit directed fishing for Pacific cod by all federally permitted vessels 0–10 nm of critical habitat year round.
- Limit the amount of catch that can be taken in the 10 nm–20 nm area of critical habitat based on gear type used:
    - Prohibit directed fishing for Pacific cod using non-trawl gear by federally permitted vessels in critical habitat 10 nm–20 nm January 1 to March 1.
    - Prohibit directed fishing by for Pacific cod using trawl gear by federally permitted vessels in critical habitat 10 nm–20 nm June 10 to November 1.
- Reinitiate ESA consultation if the non-trawl harvest of Pacific cod exceeds 1.5 percent of the BSAI Pacific cod ABC (equivalent to the Area 541 maximum annual harvest amount from 2007 through 2009). Similarly, reinitiate ESA consultation if the trawl harvest of Pacific cod exceeds 11.5 percent of the BSAI Pacific cod ABC (equivalent to the Area 541 maximum annual harvest amount from 2007 through 2009).

Pollock

Areas 543, 542, and 541

- Prohibit directed fishing inside critical habitat.
- Allocate the Aleutian Island pollock TAC, after subtraction for CDQ and incidental catch to the Aleut Corporation.
- Allocate 50 percent of the Aleutian Islands TAC to vessels ≤ 60 feet length overall.
- Limit A season harvest to no more than 40 percent of the ABC.
- TAC is no more than the ABC when the ABC is < 19,000 mt. TAC is 19,000 mt when the ABC is ≥ 19,000 mt.

Monitoring and Enforcement Option

Operators of federally permitted vessels in the Aleutian Islands subarea using trawl gear to directed fish for groundfish, which are deducted from the Federal TAC, must ensure their VMS is transmitting the vessel location at least 10 times per hour and that NMFS is receiving the transmissions.

Alternative 2: Modified 2011 Steller Sea Lion Protection Measures

Alternative 2 was developed by the Council's Steller Sea Lion Mitigation Committee with modifications by the Council. The provisions of the Council's motion were included in Alternative 2 as much as possible. Alternative 2 was designed to minimize the fishery impacts on Steller sea lions in a way that allows more fishing compared to Alternative 1. The major components of Alternative 2 is allowing directed fishing for Atka mackerel and Pacific cod in Area 543, including inside critical habitat, closing all of Area 543 to directed fishing for pollock, and allowing more portions of critical habitat in Areas 542 and 541 to be available for directed fishing for Atka mackerel, Pacific cod, and pollock compared to Alternative 1. We have added protective options for the Pacific cod and pollock fishery that would further mitigate the potential impacts of these fisheries on Steller sea lions and their critical habitat. The following are specific Steller Sea Lion Protection Measures under Alternative 2.

Groundfish

Close waters from 0–3 nm around Kanaga Island/Ship Rock to directed fishing for groundfish by federally permitted vessels.

Atka mackerel

- For trawl gear, establish the A season as 1/20 – 6/10 and the B season as 6/10 – 12/31.
- Seasonally apportion TAC and critical habitat catch limit, including CDQ 50:50.
- Allow rollover between seasons; prohibit harvest of rollover amounts inside critical habitat.

Area 543

- Remove the area-wide retention prohibition.
- Prohibit directed fishing inside Steller sea lion critical habitat.
- Prohibit directed fishing for Atka mackerel west of 174.5° East long.
- TAC set at 65 percent of ABC
  - Suboption: TAC set at 50 percent of ABC
  - Suboption: TAC set at 40 percent of ABC

Area 542

- Prohibit directed fishing in waters 0–3 nm at haulouts and 0–10 nm at rookeries.
- Prohibit directed fishing inside Steller sea lion critical habitat from 178° East long. to 180° long., and from 178° West long. to 177° West long.
    - option: In addition to the closures in the preceding bullet, prohibit directed fishing inside Steller sea lion critical habitat in Area 542 by the BSAI trawl limited access sector.
- TAC set at 65 percent of Area 542 ABC.
- Limits apply to all sectors.

Area 541/Bering Sea

- Prohibit directed fishing inside Steller sea lion critical habitat except for a portion of critical habitat between 12 nm and 20 nm southeast of Seguam.
- Prohibit directed fishing inside Steller sea lion critical habitat by the BSAI trawl limited access sector.
- Modify maximum retainable amount (MRA) regulations for Amendment 80 vessels and CDQ entities operating in the Bering Sea subarea to calculate MRAs for Atka mackerel as an incidental species on an offload-to-offload basis (in the same manner as pollock).

<u>Pacific cod</u>

- Apportion the Aleutian Islands portion of the BSAI Pacific cod TAC or the Aleutian Islands Pacific cod TAC as catch limits among the statistical areas in Aleutian Islands subarea based on the annual stock assessment process.
- Seasonal apportionment by sector of Pacific cod harvest would be set at the BSAI TAC level.
- Seasons are:
    - Non-trawl gear:
        - Hook and Line:
            - A season: 1/1–6/10
            - B seasons: 6/10–11/1
        - Pot:
            - A season: 1/1–6/10
            - B season: 9/1–11/1
        - Jig:
            - A season: 1/1–4/30
            - B season: 4/30–8/31
            - C season: 8/31–11/1
    - BSAI Trawl Limited Access:
        - A season: 1/20–4/1
        - B season: 4/1–6/10
        - C season: 6/10–11/1
    - CDQ Trawl and Amendment 80 Catcher/Processor:
        - A season: 1/20–4/1
        - B season: 4/1–6/10
        - C season: 6/10–12/31
- Under this alternative, operations are defined as:
    - Catcher/processors (CPs) are vessels that harvest and process only their own catch.

- Motherships are vessels that receive and process catch from other vessels. This would include CPs that receive fish from another vessel, stationary floating processors, and vessels that operate and report like a stationary floating processor but operate under a mothership permit.

Area 543

- Remove the area-wide retention prohibition.
- Set the catch limit as a portion of Area 543 abundance in relation to total abundance in Aleutian Islands subarea based on the annual stock assessment process.
- Prohibit directed fishing with trawl gear after April 30.

Pick one Option to define sector participation in the Pacific cod fishery in Area 543:

Option 1: Prohibit directed fishing by vessels except non-trawl CP, trawl CP, and catcher vessels delivering shoreside (no mothership participation).

- Establish catch limits for non-trawl CP and trawl CP, including CDQ, based on average ratio of annual catch in the Pacific cod target in these two sectors during 2006–2010.
- Prohibit directed fishing in critical habitat 0–6 nm from rookeries and haulouts for non-trawl vessels.
- Prohibit directed fishing in critical habitat 0–20 nm from rookeries and haulouts for trawl vessels, except prohibit directed fishing in critical habitat 0–10 nm from rookeries and haulouts between 173° East long. and 174.5° East long.
- Catcher vessels delivering to shoreside or stationary floating processors are subject to the overall Area 543 catch limit.

Option 2: Include mothership participation.

- Establish a catch limit for the non-trawl and trawl CP sectors, including motherships and CDQ, based on the portion of average annual catch in the Pacific cod target in these sectors during 2006–2010.
- Prohibit directed fishing in critical habitat 0–6 nm from rookeries and haulouts for non-trawl CPs and catcher vessels (CVs).
- Prohibit directed fishing in critical habitat 0–20 nm from rookeries and haulouts for trawl CPs and CVs, except between 173° East long. and 174.5° East long. prohibit directed fishing in critical habitat 0–10 nm from rookeries and haulouts by trawl CPs and CVs.
- Catcher vessels delivering to shoreside or stationary floating processors are subject to the overall Area 543 catch limit.

Protective Option: In place of the closures described in option 1 or option 2 described above for directed fishing for Pacific cod in Area 543, implement the following closures:

Trawl Gear between 173° East long. and 174.5° East long.:

- A season and B season: Close 0–10 nm from rookeries, close 0–20 nm from haulouts
- C season: Close 0–10 nm from rookeries and haulouts

Non-trawl Gear:

- A season: Close 0–10 nm from rookeries and haulouts
- B and C seasons: Close 0–6 nm from rookeries and haulouts

Areas 542/541

- Establish an Area 542/541 annual catch limit based on the Aleutian Islands TAC or Aleutian Islands portion of the BSAI Pacific cod TAC based on the annual stock assessment process, minus the State waters Pacific cod guideline harvest limit (GHL) fishery, and minus the area catch limit for Area 543.
- Establish a catch limit for non-trawl CP, trawl CP, including CDQ, and mothership (including CV delivering to mothership processor) based on the average annual catch in the Pacific cod target during 2006 – 2010 expressed as a ratio of the sector's catch to the total catch in 541 and 542. Catcher vessels delivering to shoreside and stationary floating processors are subject to the overall area 541/542 catch limit.
- Catcher vessels delivering to shoreside or stationary floating processors are subject to the overall area 541/542 catch limit.
- Prohibit directed fishing in critical habitat 0–3 nm at rookeries and in the Seguam Foraging Area by non-trawl gear.
- Prohibit directed fishing in critical habitat 0–20 nm west of 178° West long. and east of 174° West long. and in the Seguam Foraging Area by trawl gear.
- Prohibit directed fishing in critical habitat east of 178° West long. and west of 174° West long. by trawl gear 0–3 nm from haulouts and 0–10 nm from rookeries.

<u>Pollock</u>

Area 543

- Prohibit directed fishing for pollock.

Areas 542/541

- Establish an A season catch limit at 40 percent of the Aleutian Islands pollock ABC.
- Prohibit directed fishing inside Steller sea lion critical habitat except for:
    - a portion of Steller sea lion critical habitat west of 178° West long. outside of 3 nm from Krysi Pt. (Hawadax Island), Tanadak, and Segula haulouts, and outside 10 nm from Little Sitkin haulout and Ayugudak rookery, and
    - a portion of Kanaga Sound east of 178° West long. outside 3 nm from haulouts

  Any of the following Kanaga Sound options may be implemented alone. Options 1 may be combined with either option 2 or 3. Options 2 and 3 are mutually exclusive.

    - Option 1: In addition to the closures in Kanaga Sound, prohibit directed fishing inside the open portion of critical habitat at Kanaga Sound by vessels $\geq$ 60 feet length overall.
    - Option 2: instead of the 3 nm closure at Kanaga Island/Ship rock, prohibit directed fishing 0–10 nm around Kanaga I./Ship Rock rookery
    - Option 3: instead of the 3 nm closure at Kanaga Island/Ship Rock, prohibit directed fishing 0–6 nm around Kanaga I./Ship Rock rookery
- Prohibit directed fishing inside Steller sea lion critical habitat in Area 541 except for
    - a portion of critical habitat outside of 3 nm of haulouts at Atka North Cape,
    - a portion of critical habitat outside of 3 nm of haulouts at Amutka Pass/Seguam-southside

Protective Option: In place of the closures described above for directed fishing for pollock in Areas 542 and 541, implement the following closures:

Area 542

- A season: close 0–10 nm from rookeries, close 0–20 nm from haulouts
- B season: close 0–10 nm from rookeries and haulouts

Area 541

- A season: close 0–10 nm from rookeries, close 0–20 nm from haulouts
- B season: close 0–20 nm from rookeries, close 0–10 nm from haulouts

Monitoring and Enforcement Option

Operators of federally permitted vessels in the Aleutian Islands subarea using trawl gear to directed fish for groundfish, which are deducted from the Federal TAC, must ensure their VMS is transmitting the vessel location at least 10 times per hour and that NMFS is receiving the transmissions.

Alternative 3: Further Modified 2011 Steller Sea Lion Protection Measures

Alternative 3 is designed to allow more extensive relief to fishing fleets and communities in the Aleutians than Alternative 2. The Council's Steller Sea Lion Mitigation Committee recommended the provisions in this alternative based on the Committee's view that recent scientific information and review of information available prior to the development of the FMP biop indicates that the management actions enacted by the interim final rule are substantially over-restrictive. Alternative 3 was designed to minimize the fisheries' impacts on Steller sea lions in a way that provides additional opportunities for harvest of Atka mackerel, Pacific cod, and pollock in statistical Areas 543, 542, and 541 compared to Alternatives 1 and 2. Alternative 3 allows additional fishing inside critical habitat in each area with less catch limits for the Atka mackerel and Pacific cod fisheries compare to Alternative 2. The following are specific Steller Sea Lion Protection Measures under Alternative 3.

<u>Groundfish</u>

Close waters from 0–3 nm around Kanaga Island/Ship Rock to directed fishing for groundfish by federally permitted vessels.

<u>Atka mackerel</u>

- For trawl gear, establish the A season as 1/20 – 6/10 and the B season as 6/10 – 12/31.
    - option: Establish the B season as 6/10 – 11/1.
- Seasonally apportion the annual TAC and critical habitat catch limit, including CDQ, 50:50.
- Allow rollovers between seasons; prohibit the harvest of rollover amounts inside critical habitat.
- Establish a critical habitat harvest limit west of 178° W long. at 60 percent of TAC, evenly distributed between seasons.

Area 543

- Remove the area-wide retention prohibition.
- Prohibit directed fishing with trawl gear for Atka mackerel in waters 0–3 nm from haulouts and 0–10 nm from rookeries.
    - option: In place of the 0-3 nm haulout and 0-10 nm rookery closures, prohibit directed fishing with trawl gear in Steller sea lion critical habitat.

- Prohibit directed fishing with trawl gear 0–15 nm at Buldir Island, except for portions of critical habitat from 10–15 nm at Buldir Island.
    - option: In place of the 0-15 nm with portions of critical habitat closure with the open portions in the 10-15 nm zone at Buldir Island, prohibit directed fishing with trawl gear for Atka mackerel in waters west of 174.5° E long.

Area 542

- Prohibit directed fishing with trawl gear for Atka mackerel in Steller sea lion critical habitat from 0–3 nm of haulouts and 0–10 nm of rookeries west of 178° W long., except prohibit directed fishing with trawl gear for Atka mackerel in critical habitat between 178° E long. and 180° long. (around Amchitka Island).
- Prohibit directed fishing with trawl gear for Atka mackerel in Steller sea lion critical habitat east of 178° W long.

Area 541/Bering Sea

- Prohibit directed fishing with trawl gear inside critical habitat except a portion of critical habitat 12–20 nm at Seguam and prohibit directed fishing with trawl gear in the Bering Sea subarea.
- Modify MRA regulations for Amendment 80 vessels and CDQ entities operating in the Bering Sea subarea to calculate MRAs for Atka mackerel as an incidental species on an offload-to-offload basis (in the same manner as pollock).

<u>Pacific cod</u>

Apportion the Aleutian Islands portion of the BSAI Pacific cod TAC or the Aleutian Islands Pacific cod TAC as catch limits among the statistical areas in Aleutian Islands based on the annual stock assessment process.

Area 543

- Remove the area-wide retention prohibition.
- Establish an annual catch limit in area 543 based on the annual stock assessment process.
- Establish catch limits for non-trawl gear CP and trawl gear CP, including CDQ and motherships, based on average ratio of annual catch in the Pacific cod target in these sectors during 2006 – 2010 in the same manner as described under Alternative 2.
- Catcher vessels delivering to shoreside or stationary floating processors are subject to the overall Area 543 catch limit.
- Prohibit directed fishing for Pacific cod in waters 0–3 nm from rookeries and 0–10 nm from Buldir Island for non-trawl gear vessels.
- Prohibited directed fishing for Pacific cod in waters 0–3 nm of haulouts and 0–10 nm of rookeries for trawl gear vessels.
- Seasons
    - Non-trawl gear:
        - Hook and Line:
            - A season: 1/1–6/10
            - B seasons: 6/10–12/31
        - Pot:
            - A season: 1/1–6/10
            - B season: 9/1–12/31

        - Jig:
            - A season: 1/1–4/30
            - B season: 4/30–8/31
            - C season: 8/31–12/31
    - Trawl gear:
        - A season: 1/20–4/1
        - B season: 4/1–6/10
        - C season: 6/10–11/1

Areas 542 and 541

Pacific cod measures under Alternative 3 for Areas 542 and 541 are the same as Alternative 2.

Pollock

- Limit catch in the A season to 40 percent of ABC.

Area 543

- Prohibit directed fishing for pollock in critical habitat except open a portion of Steller sea lion critical habitat outside 3 nm from Shemya, Alaid, and Chirikof haulouts.

Area 542

- Prohibit directed fishing in waters 0–10 nm from rookeries and haulouts west of 178° West long.
- Prohibit directed fishing in waters 0–10 nm from rookeries and 0–3 nm from haulouts east of 178° West long.
- Open portions of critical habitat identified in Alternative 2.

Area 541

- Prohibit directed fishing for pollock in critical habitat to 0–10 nm from rookeries and 0–3 nm from haulouts and in the Seguam Foraging Area.

Protective Option: In place of the closures described above for directed fishing for pollock in Areas 542 and 541, implement the following closures:

Area 542

- A season: close 0-10 nm from rookeries, close 0-20 nm from haulouts.
- B season: close 0-10 nm from rookeries and haulouts.

Area 541

- A season: close 0-10 nm from rookeries, close 0-20 nm from haulouts.
- B season: close 0-20 nm from rookeries, close 0-10 nm from haulouts.

Monitoring and Enforcement Option

Operators of federally permitted vessels in the Aleutian Islands subarea using trawl gear to directed fish for groundfish, which are deducted from the Federal TAC, must ensure their VMS is transmitting the vessel location at least 10 times per hour and that NMFS is receiving the transmissions.

Alternative 4: Modified 2010 Steller Sea Lion Protection Measures

Alternative 4 would implement the majority of Steller sea lion protection measures in place during 2010, with two major exceptions. Note that Alternative 4 is basically the no action alternative from the 2010 EA (NMFS 2010b). The protection measures in Alternative 4 evolved from the 2001 biological opinion on the Alaska groundfish fisheries (NMFS 2001). The first major exception is that the Harvest Limit Area management of Atka mackerel fishing inside critical habitat and the accompanying prohibition on Pacific cod trawling would not be included in Alternative 4. The second major exception would be to allow pollock fishing inside critical habitat, as described under Alternative 3. The return to 2010 protection measures, with a few exceptions, allows Alternative 4 to provide the greatest relief from fishery management restrictions while mitigating potential fishery impacts on Steller sea lions and their critical habitat. This alternative is consistent with the Council's recommended third alternative in their December 2012 motion. The following are specific Steller Sea Lion Protection Measures under Alternative 4.

<u>Groundfish</u>

Close waters from 0–3 nm around Kanaga Island/Ship Rock to directed fishing for groundfish by federally permitted vessels.

<u>Atka mackerel</u>

- For trawl gear, establish the A season as 1/20 – 6/10 and the B season as 6/10 – 12/31.
- 50:50 seasonal apportionment of TAC, including CDQ
- Allow rollover between seasons.
- Establish a critical habitat harvest limit west of 178° W long. at 60 percent of TAC, evenly divided between seasons.

Area 543

- Remove the area-wide retention prohibition.
- Prohibit directed fishing with trawl gear for Atka mackerel in waters 0–3 nm from haulouts and 0–10 nm from rookeries.

Area 542

- Prohibit directed fishing with trawl gear for Atka mackerel in Steller sea lion critical habitat from 0–3 nm of haulouts and 0–10 nm of rookeries west of 178° W long.
- Prohibit directed fishing with trawl gear for Atka mackerel in Steller sea lion critical habitat east of 178° W long.

Area 541/Bering Sea

- Prohibit directed fishing with trawl gear inside critical habitat.
- Prohibit directed fishing for Atka mackerel in the Bering Sea subarea.
- Modify MRA regulations for Amendment 80 vessels and CDQ entities operating in the Bering Sea subarea to calculate MRAs for Atka mackerel as an incidental catch species on an offload-to-offload basis (in the same manner as pollock).

<u>Pacific cod</u>

- Set the seasons as follows:
    - Non-trawl gear:

- Hook and Line:
  - A season: 1/1-6/10
  - B seasons: 6/10-12/31
- Pot:
  - A season: 1/1-6/10
  - B season: 9/1-12/31
- Jig:
  - A season: 1/1-4/30
  - B season: 4/30-8/31
  - C season: 8/31-12/31

- Trawl Catcher Vessels and AFA Catcher/Processors:
  - A season: 1/20-4/1
  - B season: 4/1-6/10
  - C season: 6/10-11/1
- CDQ Trawl and Amendment 80 cooperative Catcher/Processors:
  - A season: 1/20-4/1
  - B season: 4/1-6/10
  - C season: 6/10-12/31

Area 543

- Remove the area-wide retention prohibition.
- Prohibit directed fishing for Pacific cod in waters 0-3 nm from rookeries and 0-10 nm from Buldir Island for hook-and-line and pot gear vessels.
- Prohibited directed fishing for Pacific cod in waters 0-3 nm of haulouts and 0-10 nm of rookeries by trawl gear vessels.

Areas 542

- Prohibit directed fishing for Pacific cod with trawl gear in waters 0-3 nm from haulouts and 0-10 nm from rookeries.
- Prohibit directed fishing for Pacific cod with hook-and-line and pot in waters 0-3 nm from rookeries.

Area 541

- Prohibit directed fishing for Pacific cod in the Seguam foraging area.
- Prohibit directed fishing for Pacific cod with trawl gear in waters 0-3 nm from haulouts and 0-10 nm from rookeries, except prohibit directed fishing for Pacific cod with trawl gear in waters 0-20 nm from Agligadak.
- Prohibit directed fishing for Pacific cod with hook-and-line and pot gear in waters 0-3 nm from rookeries west of 172.59° W long. and in critical habitat east of 172.59° W long.

<u>Pollock</u>

- Limit catch in the A season to 40 percent of ABC
- A season: 1/20–6/10
- B season: 6/10–11/1

Area 543

- Prohibit directed fishing for pollock in critical habitat except open a portion of Steller sea lion critical habitat outside 3 nm from Shemya, Alaid, and Chirikof haulouts.

Area 542

- Prohibit directed fishing in waters 0–10 nm from rookeries and haulouts west of 178° West long.
- Prohibit directed fishing in waters 0–10 nm from rookeries and 0–3 nm from haulouts east of 178° West long.
- Open portions of critical habitat identified in Alternative 2.

Area 541

- Prohibit directed fishing for pollock in critical habitat to 0–10 nm from rookeries and 0–3 nm from haulouts and in the Seguam Foraging Area.

Protective Option: In place of the closures described above for directed fishing for pollock in Areas 542 and 541, implement the following closures:

Area 542

- A season: close 0-10 nm from rookeries, close 0-20 nm from haulouts.
- B season: close 0-10 nm from rookeries and haulouts.

Area 541

- A season: close 0-10 nm from rookeries, close 0-20 nm from haulouts.
- B season: close 0-20 nm from rookeries, close 0-10 nm from haulouts.

Monitoring and Enforcement Option

Operators of federally permitted vessels in the Aleutian Islands subarea using trawl gear to directed fish for groundfish, which are deducted from the Federal TAC, must ensure their VMS is transmitting the vessel location at least 10 times per hour and that NMFS is receiving the transmissions.

Alternative 5: Preliminary Preferred Alternative

In April 2013, the Council recommended a preliminary preferred alternative (PPA) for the public's consideration during the review and comment period on the draft EIS and to provide a proposed action that could be analyzed in an ESA Section 7 consultation. The Council considered recommendations from its Steller Sea Lion Mitigation Committee, SSC, Advisory Panel, and public testimony in developing their recommended PPA for the draft EIS. The PPA is built from management measures for the fisheries analyzed under Alternatives 3 and 4 and includes area catch limits for the pollock fishery. The PPA includes the 3 nm no groundfish fishing closure at Kanaga Island/Ship rock rookery and the VMS requirements as described under Alternatives 1-4 for the same reasons stated under Alternative 1.

Atka Mackerel Fisheries Management under Alternative 5
Atka mackerel fisheries management under the preliminary preferred alternative is nearly identical to Alternative 3 without the options. The exception is at Buldir Island, waters 0-10 nm are closed to directed fishing under the PPA compared to being closed 0-15 nm under Alternative 3. In addition, the PPA includes a limit on the Area 543 TAC of less than or equal to 65 percent of the ABC, similar to Alternative 2. Alternative 2 established the TAC equal to 65 percent of the ABC. Alternative 5 would allow the Council to select a TAC at or below this portion of the ABC, providing flexibility during the harvest specifications process for limiting Atka mackerel harvest in Area 543.

Pacific Cod Fisheries Management under Alternative 5
Pacific cod fisheries management under the PPA is nearly identical to Alternative 4. The exception is the measure to set an Area 543 catch limit for Pacific cod in proportion to the Area 543 Pacific cod

abundance based on the stock assessment process, as provided under Alternatives 2 and 3. This measure would provide a limit on catch in relation to the best available information on Pacific cod abundance in the portion of the Aleutian Islands where Steller sea lions have experienced the greatest decline.

Pollock Fishery Management under Alternative 5
Pollock fishery management under the PPA is the same as described under Alternative 3 and 4 except the addition of A season area catch limits in relation to the Aleutian Island pollock ABC(shown below) and the closure of critical habitat in Area 542 west of 178° W longitude, except for the Rat Islands open area within critical habitat (same as Alternative 2). The catch limits are more restrictive from east to west, consistent with the FMP biop standards to provide more protection to Steller sea lions where more decline is evident.

Pollock A Season Catch Limits under Alternative 5 in mt

Year	ABC	Area 543 Catch Limit (5%)	Area 542 Catch Limit (15%)	Area 541 Catch Limit (30%)
2013	37,300	1,865	5,595	11,190
2014	39,800	1,990	5,970	11,940

Monitoring and Enforcement Option

Operators of federally permitted vessels in the Aleutian Islands subarea using trawl gear to directed fish for groundfish, which are deducted from the Federal TAC, must ensure their VMS is transmitting the vessel location at least 10 times per hour and that NMFS is receiving the transmissions.

Comparison of Alternatives

Tables ES-1 through ES-4 and figures ES-1 through ES-4 provide a comparison of the components of each alternative by fishery.

Table ES- 1 Comparison of alternatives for Atka mackerel

Alternative	Seasons	Area 543		Area 542		Area 541/Bering Sea	
		closures	Catch and participation limits	closures	Catch and participation limits	closures	Catch and participation limits
1	Trawl: A season: 1/20-6/10 B season: 6/10-11/1.	No retention.	Not applicable.	Critical habitat closed except between 178°W and 179° W long., critical habitat closed 0-10 nm	Must be in a cooperative or CDQ fishing to fish inside critical habitat.	Critical habitat closed to directed fishing.	TAC for combined Area 541/BS subarea.
	50:50 seasonal apportionment including CDQ.				No more than 10% of the group's allocation harvested from critical habitat, distribute evenly between seasons.		
	Rollover from A to B season.				TAC ≤ 47% of ABC.	BS subarea closed to directed fishing.	
2	Trawl: A season: 1/20-6/10 B season: 6/10-12/31.	Critical habitat closed. W of 174.5 E long. closed.	TAC set 65% of ABC. Option 1: TAC 50% of ABC. Option 2: TAC 40 % of ABC.	Critical habitat closed between 178°E long. to 180°E and between 178°W to 177°W. long. Option: prohibit BS trawl limited access vessels inside critical habitat.	TAC 65% of ABC.	Critical habitat closed except 12-20 nm portion southeast of Seguam Island.	Prohibit BS trawl limited access inside critical habitat.
							Critical habitat catch limit 50% of TAC, distribute evenly between seasons.
	50:50 seasonal apportionment including CDQ.				Critical habitat harvest limit 50% of TAC, distribute evenly between seasons.		TAC specified for combined Area 541 and BS.
	Rollover from A to B season fished outside of critical habitat.			In remaining critical habitat, close 0-3 nm from haulouts and 0-10 nm from rookeries.		BS subarea closed to directed fishing.	Amend. 80 coop and CDQ in BS: Revise MRA calculation for Atka mackerel as an incidental species.
3	Trawl: A season: 1/20-6/10 B season: 6/10-12/31 Option: B season June 10-Nov. 1.	Critical habitat closed 0-3 nm from haulouts and 0-10 nm from rookeries. Option: Close all critical habitat.	Critical habitat harvest limit 60% of TAC, distribute evenly between seasons.	Critical habitat closed 0-3 nm from haulouts and 0-10 nm from rookeries except close critical habitat between 178°E long. to 180° E and east of 178°W long.	Critical habitat harvest limit 60% of TAC west of 178° W long, distribute evenly between seasons.	Same as Alternative 2	Amend. 80 coop and CDQ in BS: Revise MRA calculation for Atka mackerel as an incidental species.
	50:50 seasonal apportionment including CDQ.	Close Buldir Island 0-15 nm except portions in 10-15 nm zone. Option: Close west of 174.5° E long.					
	Rollover from A to B season, fished outside critical habitat.						
4	Trawl: A season: 1/20-6/10 B season: 6/10-12/31.	Critical habitat closed 0-3 nm from haulouts and 0-10 nm from rookeries. Close Buldir Island 0-15 nm.	Same as Alternative 3	West of 178°W, critical habitat closed 0-3 nm from haulouts and 0-10 nm from rookeries.	Same as Alternative 3	Same as Alternative 1	Same as Alternative 3
	50:50 seasonal apportionment including CDQ.			Critical habitat closed east of 178°W. long.			
	Rollover from A to B season.						
5 (PPA)	Same as Alternative 2 and 3 without the option	Critical habitat closed 0-3 from haulouts and 0-10 from rookeries.	Critical habitat harvest limit 60% of TAC, distribute evenly between seasons.	Same as Alternative 3	Same as Alternatives 3 and 4	Same as Alternatives 2 and 3	Same as Alternatives 3 and 4
			TAC ≤ 65% ABC.				

CDQ=Community Development Quota, TAC=total allowable catch, ABC=acceptable biological catch, MRA=maximum retainable amount, BS=Bering Sea, PPA= Preliminary Preferred Alternative

Table ES- 2 Comparison of alternatives for Pacific cod non-trawl gear

Alternative	Seasons	Area 543		Area 542		Area 541	
		closures	Catch and participation limits	closures	Catch and participation limits	closures	Catch and participation limits
1	Hook-and-Line: A season: 1/1-6/10 B season: 6/10-12/31	No retention	Not applicable	Critical habitat closed 0-6 nm year round.	ESA reinitiation trigger with harvest more than 1.5% of BSAI Pacific cod ABC.	Critical habitat closed 0-10 nm year round and 0-20 nm Jan 1-March 1.	ESA reinitiation trigger with harvest more than 1.5% of BSAI Pacific cod ABC.
	Pot: A season: 1/1-6/10 B season: 9/1-12/31			For vessels ≥60 ft, close critical habitat 0-20 nm Jan 1-March 1			
	Jig: A season: 1/1-4/30 B season: 4/30-8/31 C season: 8/31-12/31					Seguam Foraging Area closed.	
	Seasonal apportionments based on BSAI-wide TACs under Amend 85.			Prohibit directed fishing after Nov. 1.		Prohibit directed fishing after Nov. 1.	
2	Hook-and-Line: A season: 1/1-6/10 B season: 6/10-11/1	Critical habitat closed 0-6 nm from rookeries and haulouts.	Catch limit in proportion to Area 543 abundance based on annual stock assessment.	Critical habitat closed 0-3 nm from rookeries.	Catch limit in proportion to Area 542/541 abundance based on annual stock assessment.	Critical habitat closed 0-3 nm from rookeries.	Catch limit in proportion to Area 542/541 abundance based on annual stock assessment.
	Pot: A season: 1/1-6/10 B season: 9/1-11/1		Option 1: Only CPs and shoreside CVs. Prohibit motherships. Option 2: Only CPs, CVs, and motherships with associated CVs.				
	Jig: A season: 1/1-4/30 B season: 4/30-8/31 C season: 8/31-11/1	<u>Protective option</u>: A season: Close 0-10 nm from rookeries and haulouts. B and C seasons: Close 0-6 nm from rookeries and haulouts.	Set catch limit for CP or CP/mothership sector in proportion to average annual catch 2006-2010.		Set 542/541 catch limit for CP/mothership sector based on portion of average annual catch 2006-2010.	Seguam Foraging Area closed.	Set 542/541 catch limit for CP/mothership sector based on portion of average annual catch 2006-2010.
	Seasonal apportionments based on BSAI-wide TACs under Amend 85.		Shoreside CVs limited to overall Area 543 catch limit.		Shoreside CVs limited to overall 542/541 area catch limit.		Shoreside CVs limited to overall 542/541 area catch limit.
3	Same As Alternative 1	Critical habitat closed 0-3 nm from rookeries and 0-10 nm from Buldir Island.	Catch limit in proportion to Area 543 abundance based on annual stock assessment.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2
			Set catch limit for CP/mothership sector in proportion to average annual catch 2006-2010.				
4	Same as Alternatives 1 and 3	Hook-and-line and pot: Critical habitat closed 0-3 nm from rookeries and 0-10 from Buldir Island.	None	Hook-and-line and pot: Critical habitat closed 0-3 nm from rookeries.	None	Hook-and-line and pot: Critical habitat closed 0-3 nm from rookeries W of 172.59° W long.,	None
						Hook-and-line and pot:: Critical habitat closed east of 172.59° W long.	
						Hook-and-line, pot and jig: Seguam Foraging Area closed.	
5 (PPA)	Same as Alternatives 1, 3, and 4	Same as Alternative 4	Catch limit in proportion to Area 543 abundance based on annual stock assessment.	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4

ESA=Endangered Species Act, TAC=total allowable catch, ABC=acceptable biological catch, BSAI=Bering Sea and Aleutian Islands Management Area, GHL=guideline harvest level, PPA=Preliminary Preferred Alternative, CV=catcher vessel, CP=catcher/processor

Table ES- 3 Comparison of alternatives for Pacific cod trawl gear

Alternative	Seasons	Area 543		Area 542		Area 541	
		closures	Catch and participation limits	closures	Catch and participation limits	Closures	Catch and participation limits
1	A season: 1/20-4/1 B season: 4/1-6/10 C season: 6/10-11/1	No retention	Not applicable	Critical habitat closed except between 178°W and 177° W long.	ESA reinitiation trigger with harvest more than 2% of BSAI Pacific cod ABC.	Critical habitat closed 0-10 nm year round and 0-20 nm June 10-Nov. 1.	ESA reinitiation trigger with harvest more than 11.5% of BSAI Pacific cod ABC.
	Seasonal apportionment based on BSAI wide TAC level under Amend 85.			Critical habitat closed 0-10 nm year round and 0-20 nm June 10-Nov. 1.		Seguam Foraging Area closed.	
2	A season: 1/20-4/1 B season: 4/1-6/10 C season: CVs and AFA CPs: 6/10-11/1. CDQ and Amend. 80 coop: 6/10-12/31.	Critical habitat closed except close 0-10 nm from rookeries and haulouts between 174.5° E long. and 173° E long.	Catch limit based on annual stock assessment.	Critical habitat closed except east of 178°W and west of 174°W long., critical habitat closed 0-3 from haulouts and 0-10 from rookeries .	Catch limit in proportion to Area 542/541 abundance based on annual stock assessment.	Critical habitat closed 0-3 nm from haulouts and 0-10 nm from rookeries.	Combined with Area 542.
			Vessels limited to CPs and CVs. Option 1: Prohibit motherships. Option 2: Allow motherships.				
	Seasonal apportionment based on BSAI wide TAC level under Amend 85.	Protective option: A and B season: Close 0-10 nm from rookeries, close 0-20 nm from haulouts between 173° E long. and 174.5° E long.	Set catch limit for CP or CP/mothership sector based on average annual catch 2006-2010.		Set CP/mothership catch limit based on average annual catch 2006-2010.	Critical habitat closed east of 174°W long.	
			Prohibit directed fishing after April 30				
			Shoreside CVs limited to overall area catch limit.		Shoreside CVs limited to overall area catch limit.	Seguam Foraging Area closed.	
3	Area 543: A season: 1/20-4/1 B season: 4/1-6/10 C season: 6/10-11/1	Critical habitat closed 0-3 nm from haulouts and 0-10 nm from rookeries.	Catch limit in proportion to Area 543 abundance based on annual stock assessment.	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2	Same as Alternative 2
	Areas 542/541: A season: 1/20-4/1 B season: 4/1-6/10 C season: CVs and AFA CPs: 6/10-11/1. CDQ and Amend. 80 coop: 6/10-12/31.		Set catch limit for CP/mothership sector based on average annual catch 2006-2010.				
	Seasonal apportionment based on BSAI wide TAC level under Amend 85.		Shoreside CVs limited to overall area catch limit.				
4	A season: 1/20-4/1 B season: 4/1-6/10 CVs and AFA CPs: C season: 6/10-11/1. Amend. 80 and CDQ: C season: 6/10-12/31	Same as Alternative 3	None	Critical habitat closed 0-3 nm from haulouts and 0-10 nm from rookeries.	None	Critical habitat closed 0-3 nm from haulouts and 0-10 nm from rookeries, except a 20 nm closure from Agligadak.	None
	Seasonal apportionment based on BSAI wide TAC level under Amend 85.					Seguam Foraging Area closed.	
5 (PPA)	Same as Alternative 4	Same as Alternatives 3 and 4	Catch limit in proportion to Area 543 abundance based on annual stock assessment.	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4	Same as Alternative 4

CDQ= Community Development Quota, TAC=total allowable catch, ABC=acceptable biological catch, BSAI=Bering Sea and Aleutian Islands Management Area, ESA=Endangered Species Act, CP= catcher/processor.
PPA=Preliminary Preferred Alternative, CV=catcher vessel, CP=catcher/processor

Table ES- 4 Comparison of alternatives for pollock

Alternative	Seasons	Area-wide Catch and Participation limits	Area 543	Area 542		Area 541
			Closures and catch limit	Closures and catch limit	Additional participation limits	Closures and catch limit
1	A season: 1/20-6/10.	Only CDQ and vessels registered with the Aleut Corporation in directed fishery.	Critical habitat closed to directed fishing.	Critical habitat closed to directed fishing.	None	Critical habitat closed to directed fishing.
		50% of Aleut Corp. directed fishery allocation to vessels ≤ 60 ft.				
	B season: 6/10-11/1.	When AI ABC ≥ 19,000 mt, AI TAC = 19,000 mt. When AI ABC < 19,000 mt, AI TAC ≤ ABC.				
		Total A season apportionment no more than 40% of ABC.				
2	A season: 1/20-6/10.	Same as Alternative 1	No directed fishing in the area.	Critical habitat closed to directed fishing except for: - Rat Island Area outside of 3 nm from Tanadak, Segula, and Krysi Point and 10 nm from Little Sitkin and Ayugudak, and -an area outside of 3 nm from Kanaga and Bobrof Island. Option: Kanaga area outside 10 nm closure at Kanaga/Ship rock. Option: Kanaga area outside 6 nm closure at Kanaga/Ship rock.	Option: prohibit directed fishing for pollock in Kanaga area by vessels ≥ 60 ft.	Critical habitat closed to directed fishing, except -an area at Atka North Cape outside of 3 nm from haulouts -an area at Amukta Pass outside of 3 nm from haulouts.
	B season: 6/10-11/1.			Protective Option: A season: close 0-10 nm from rookeries, close 0-20 nm from haulouts. B season: close 0-10 nm from rookeries and haulouts.		Protective Option: A season: close 0-10 nm from rookeries, close 0-20 nm from haulouts B season: close 0-10 nm from haulouts, close 0-20 nm from rookeries.
3 and 4	A season: 1/20-6/10.	Same as Alternative 1	Critical habitat closed except an area outside of 0-3 nm from Shemya, Alaid, and Chirikof haulouts.	Critical habitat closed 0-10 nm from rookeries and haulouts west of 178° W long.	None	Critical habitat closed to directed fishing 0-3 nm from haulouts and 0-10 nm from rookeries
	B season: 6/10-11/1.			Critical habitat closed 0-3 nm from haulouts and 0-10 nm from rookeries east of 178° W long., except open critical habitat in Rat Island and Kanaga areas as under Alternative 2.		Seguam Foraging Area closed to directed fishing.
				Protective Option: Same as Alternative 2.		Protective Option: Same as Alternative 2.
5 (PPA)	Same as Alternatives 1, 2, 3, and 4	Same as Alternatives 1, 2, 3, and 4	Critical habitat closed except an area outside of 0-3 nm from Shemya, Alaid, and Chirikof haulouts and outside 20 nm of rookeries.	Critical habitat closed 0-20 nm from at rookeries and haulouts west of 178°W long. except open a portion of critical habitat at Rat Island Area outside 3 nm from Tanadak, Segula, and Krysi Point, and 10 nm from Little Sitkin and Ayugudak	Same as Alternatives 1, 3, and 4	Critical habitat closed to directed fishing 0-3 nm from haulouts and 0-10 nm from rookeries
				Critical habitat closed 0-3 nm from haulouts and 0-10 nm from rookeries east of 178° W long., except open portions of critical habitat outside 3 nm from Kanaga and Bobrof Island.		Seguam Foraging Area closed to directed fishing.
			A season catch limit 5% of ABC.	A season catch limit 15% of ABC.		A season catch limit 30% of ABC.

TAC=total allowable catch, ABC=acceptable biological catch, PPA=Preliminary Preferred Alternative, AI=Aleutian Islands

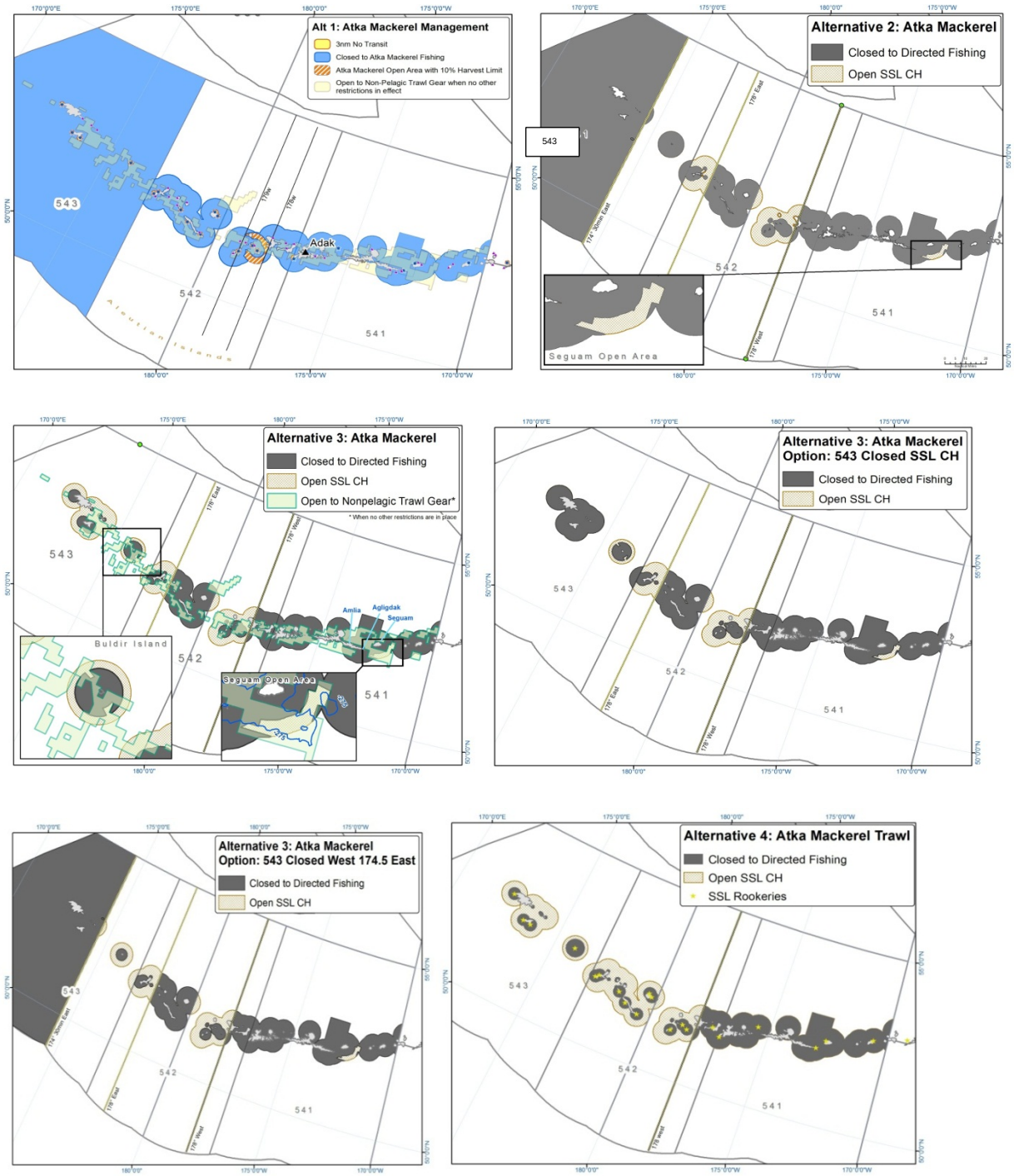


Figure ES- 1 Alternative closures for Atka mackerel

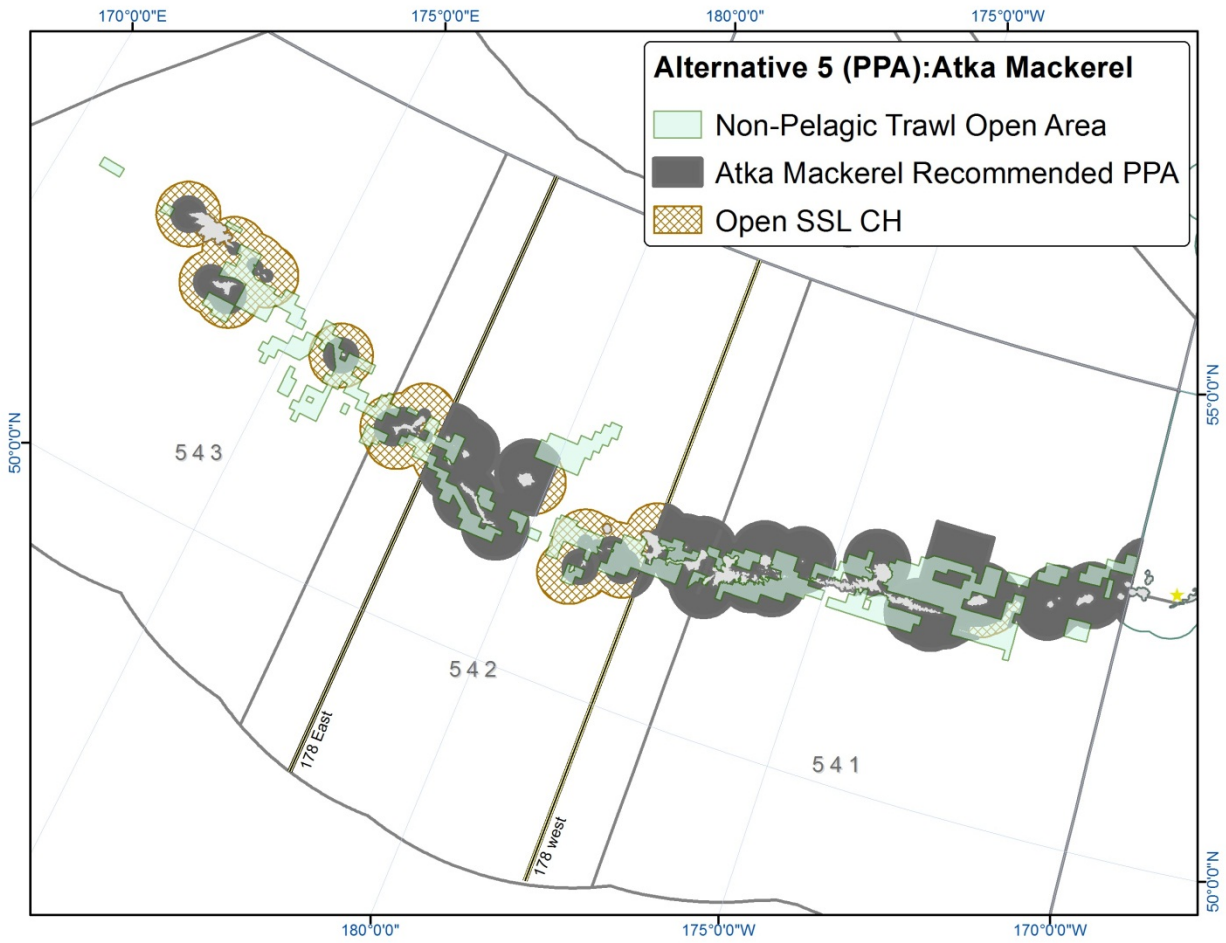


Figure ES-1 Alternative closures for Atka mackerel, Cont.

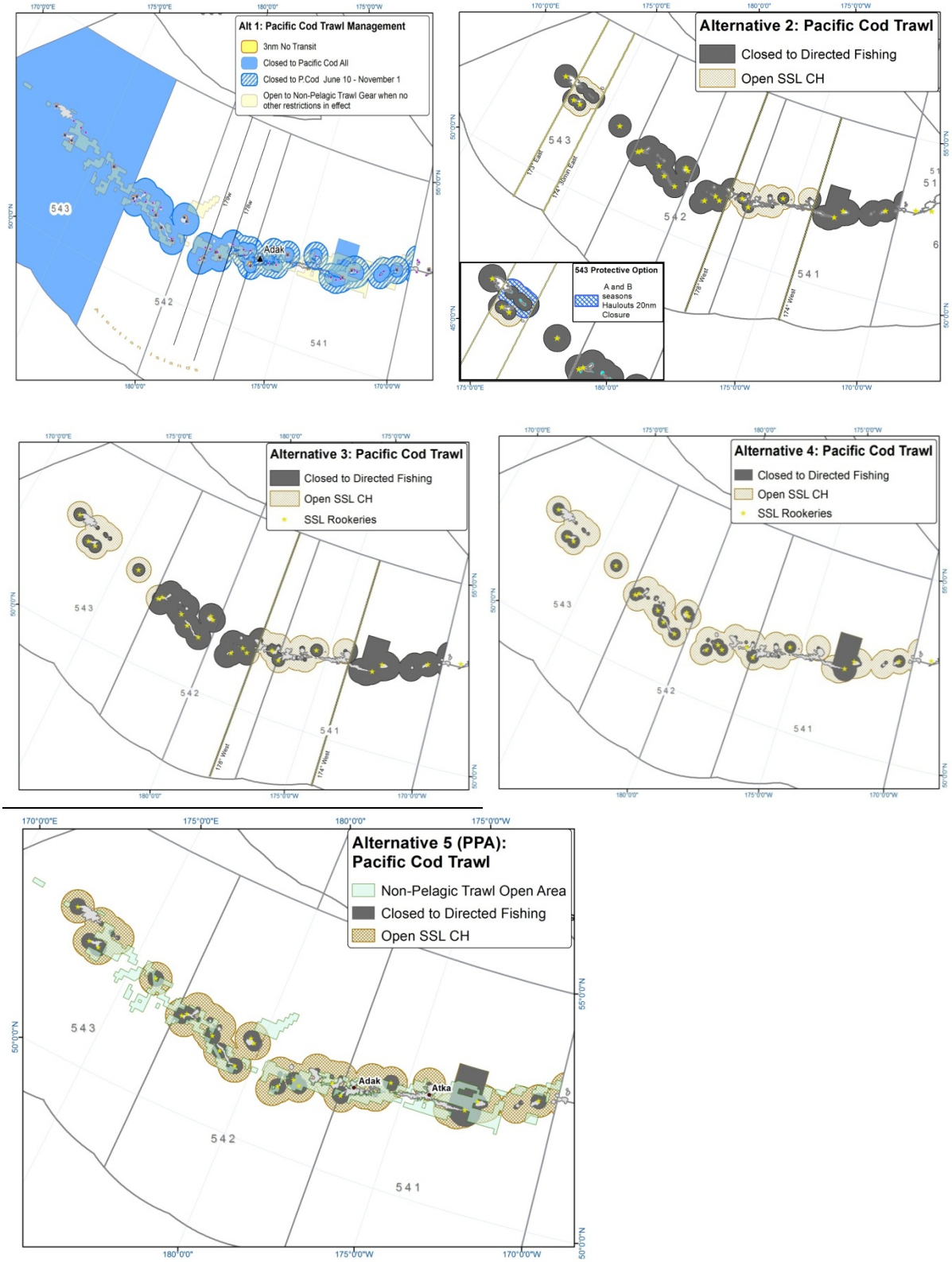
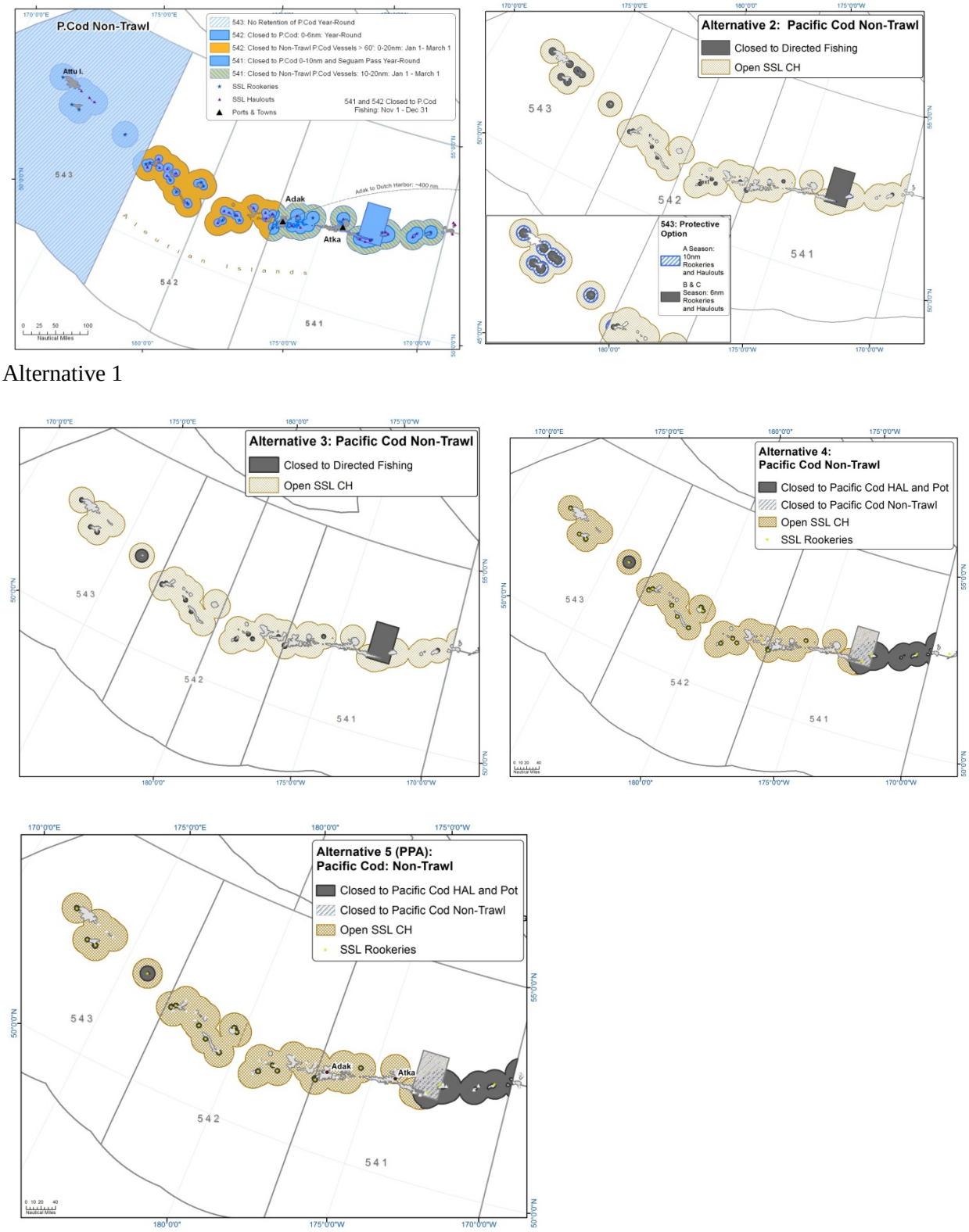
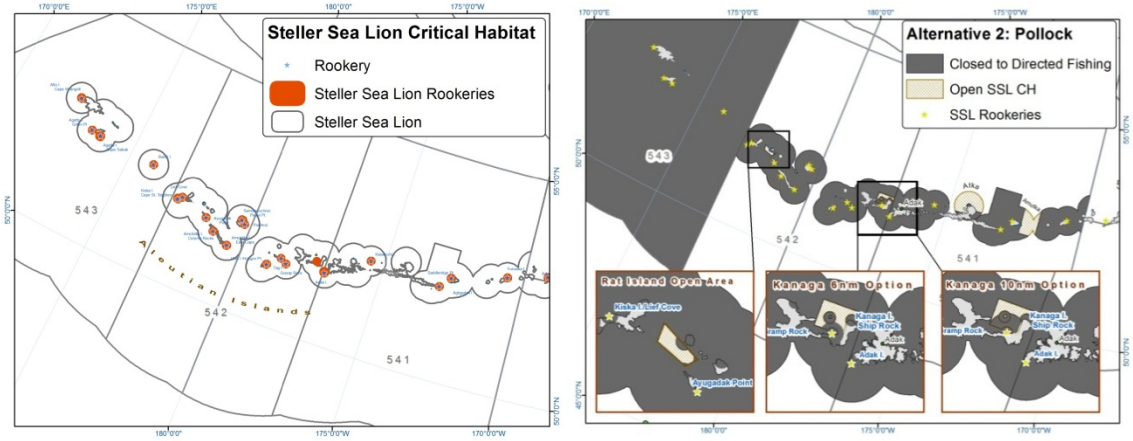


Figure ES- 2 Alternative closures for Pacific cod trawl gear

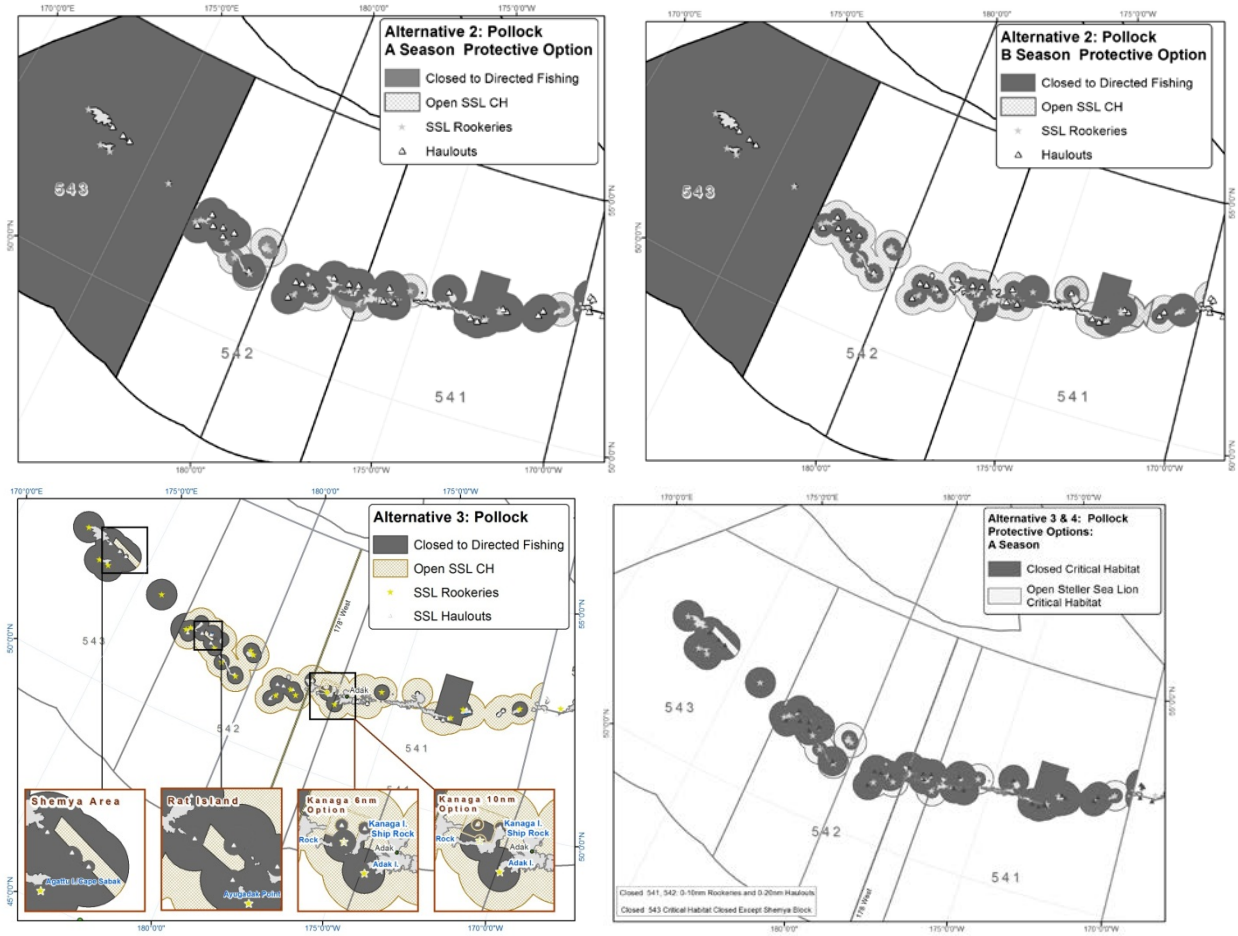


Alternative 1

Figure ES- 3 Alternative closures for Pacific cod non-trawl gear

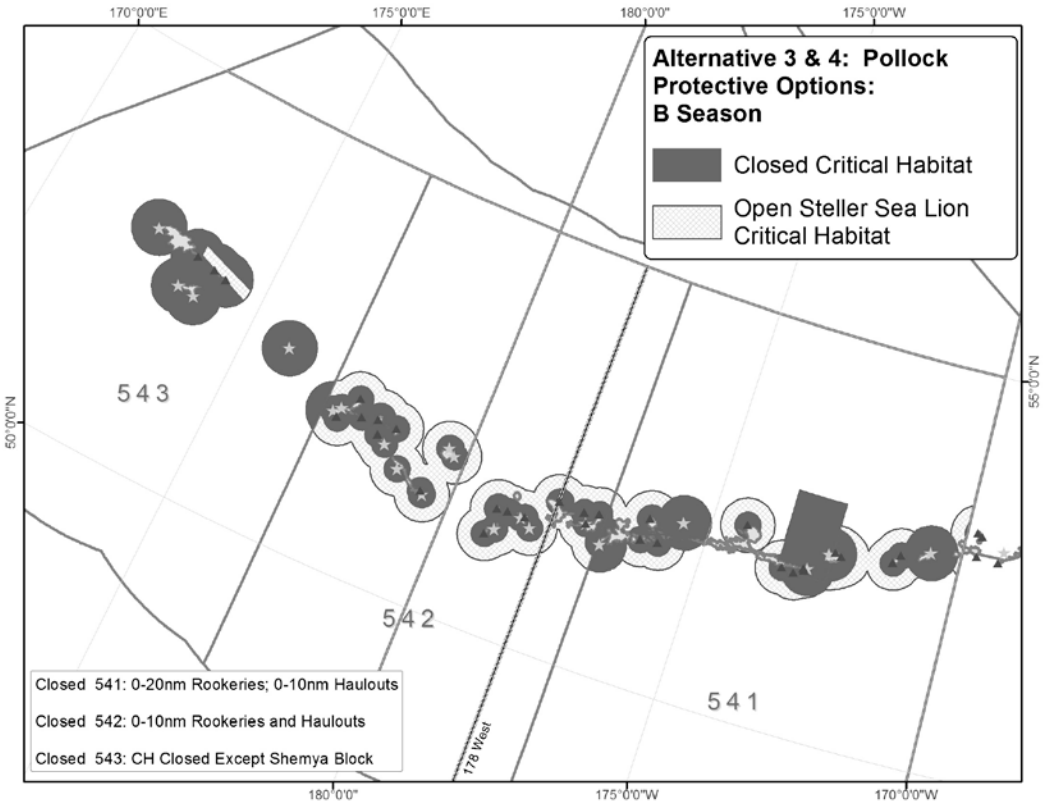


Alternative 1 CH closed to pollock directed fishing



Alternative 3 and Alternative 4

Figure ES- 4 Alternative closures for pollock



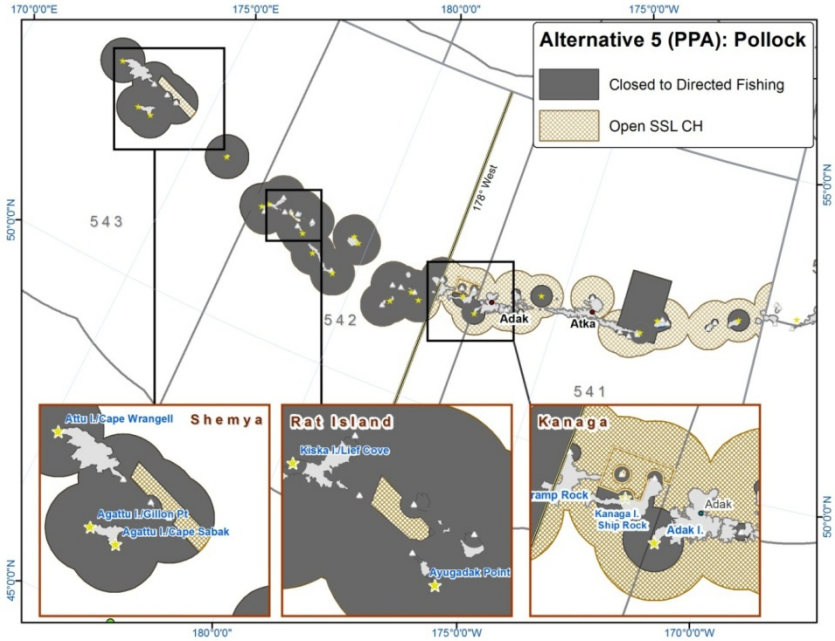


Figure ES- 4 Alternative closures for pollock, Cont.

Summary of the Environmental and Economic Consequences of the Alternatives

A summary of the EIS/RIR/IRFA analysis of the potential impacts of the alternatives and options on the human environment is provided below. Summaries for target species, non-target species, seabirds, habitat, and ecosystem are brief due to little difference in impacts among the alternatives and options or lack information to determine the potential effects of the alternatives on these environmental components. More detailed summaries are provided for marine mammals and socioeconomic impacts as the analysis provided an estimation of impacts among the alternatives and options that could be compared to inform decision-making.

All alternatives for Pacific cod were analyzed as if the Pacific cod TAC was split between Bering Sea and Aleutian Islands. This was done because Council's Scientific and Statistical Committee indicated in December 2012 that it would likely split the Pacific cod TAC in 2014. If the split was not analyzed, the analysis of the potential impacts of the alternative would not reflect future conditions and Alternatives 1 and 4 would not be comparable to Alternatives 2 and 3.

In general, the alternatives differ in the amount of, and locations open to, Atka mackerel, Pacific cod, and pollock fishing. All of the alternatives were designed to minimize potential fishery impacts on Steller sea lions and each alternative greatly restricts fishing compared to no protection measures. Alternative 1 provides the fewest locations for fishing and the least opportunity for harvests of the alternatives, particularly in Area 543 where retention of Atka mackerel and Pacific cod is prohibited. Alternative 1 also prevents a pollock fishery from occurring by closing all critical habitat, which is assumed to be the only location where pollock fishing can occur. Alternatives 2 and 3 provide increasing locations and amounts of harvest for the Atka mackerel, Pacific cod, and pollock fisheries compared to Alternative 1. Alternative 4 provides the most opportunity for Atka mackerel, Pacific cod, and pollock harvests by providing the most locations and largest amounts of Atka mackerel, Pacific cod, and pollock available to the fisheries. Alternative 5, the preliminary preferred alternative is a combination of protection measures in Alternatives 2, 3, and 4. Alternative 5 provides for closures for Atka mackerel similar to Alternative 3, closures for Pacific cod similar to Alternative 4, and closures for pollock similar to Alternatives 3 and 4. Catch limits under Alternative 5 for Atka mackerel and Pacific cod in Area 543 are similar to Alternative 2. Pollock catch limits in Areas 543, 542, and 541 under Alternative 5 are not in any of the other alternatives analyzed. The number and size of locations and amounts of harvest are the main factors that influence the impacts of the fisheries on environmental components with more harvests and more area available for harvest likely to result in more environmental impacts.

One important piece of this EIS analysis is an understanding of the impacts of the measures NMFS implemented with the interim final rule (Alternative 1) relative to the management measures in place prior to the interim final rule (Alternative 4, with two exceptions). This EIS achieves that by both comparing these alternative with each other and with the baseline (generally 2004 to 2010). From this analysis, the reader can understand the impacts of each alternative relative to a constant baseline. In other words, this analysis shows what the predicted impacts of each alternative would have been had it be in place during the baseline period, to the extent possible with available information.

NMFS chose the years 2004 to 2010 as the analytical base years because it was the most recent period reflective of current fishing patterns. Complete catch data, including CDQ catch, is available starting in 2004. Catch data is fundamental to understanding the impacts of the groundfish fisheries on the human environment and supports the analysis of effects on all of the environmental components. The data from this period is sufficient to highlight relative differences among the alternatives and associated options and

to show how these alternatives and options would perform given the variability in catch and fishery location over this period. Each chapter describes in detail how the baseline was used in the analysis.

Target Species and Non-target Species

Table ES- 5 summarizes the effects on target and non-target species by alternative and fishery. None of the alternatives affect the harvest strategy used for the sustainable management of groundfish fisheries. The overall amounts of harvest for Atka mackerel, Pacific cod, and pollock would continue to be annually determined during the harvest specifications process, ensuring overfishing is not likely to occur. The alternatives would allow harvests in different amounts under the overall harvest limits established in the annual harvest specifications.

Alternative 1 (status quo) is the most restrictive to the fishery and Alternative 4 is the least restrictive. The alternatives' changes can be categorized into three categories; season changes, area closures, and catch limits. Season changes will impact when a species is harvested. Area closures will impact where catch occurs and to some extent how much catch can occur. Catch limits impact how much catch can occur. Season changes are not expected to impact overall stock health. Area closures and catch limits will have some impact on stocks. The alternatives will likely result in spatial relocation of fishing effort, however the intensity of the spatial relocation of fishing effort is unknown. The BSAI Groundfish Fishery Management Plan is designed to prevent any negative effects to groundfish stocks. Total harvest is managed to prevent exceeding the ABC; therefore none of the alternatives are expected to impact stock status. Though some changes in amounts of incidental catch of groundfish species are expected under some alternatives, the changes are expected to be minor and not affect management.

There is incidental catch of forage fish, salmon, non-specified species, halibut and crab in the Aleutian Islands and Bering Sea subareas. Salmon, forage fish, and non-specified species are rarely encountered in Aleutian Islands fisheries. The management measures used to control the incidental catch of forage fish, salmon, and non-specified species are not changed by any of the alternatives or options so that overall impacts on these species is expected to be the same under all of the alternatives.

Under all of the alternatives, halibut and crab prohibited species catch (PSC) will continue to occur in the Aleutian Islands, although at a lower rate than the baseline years primarily due to less groundfish harvest. The level of incidental catch in the Aleutian Islands of halibut and crab PSC under Alternatives 1, 2, and 3 is expected to be less than the amount of incidental catch during the baseline years. Alternative 4 is the most similar to the baseline years because of the increased harvest in the Atka mackerel and Pacific cod fisheries. Vessels will still be constrained by the PSC limits in place for their sectors.

Table ES- 5 Summary of effects on target and non-target species

	Stock status	Incidental Catch	Location of catch
Alternative 1 (status quo)			
Atka Mackerel Pacific cod - Trawl Pacific cod – Non-Trawl Pollock Other Target Species Non-Target Species	For all species - No change to stock status from the baseline because management measures in the BSAI Groundfish Fishery Management Plan (FMP) are designed to prevent exceeding ABC; therefore, Alternative 1 is not expected to impact groundfish stock status.	For all species – Decreased incidental catch of the target species and other species from the baseline.	For most species - Less area is open to directed fishing than baseline and all other alternatives. This will likely result in fishing shifting into these open areas in Alternative 1, compared to the baseline
Alternative 2			
Atka Mackerel	Increased total fishing mortality compared to Alternative 1, but not to the extent of Alternatives 3 and 4. Management measures in the BSAI Groundfish FMP are designed to prevent exceeding ABC; therefore, Alternative 2 is not expected to impact Atka mackerel stock status.	Minor amounts of Atka mackerel are encountered as incidental catch in Pacific cod trawl fisheries in the Aleutian Islands (AI). Alternative 2 may allow more Pacific cod harvest to occur in the AI; therefore, a minor increase in incidental catch of Atka mackerel may occur. Allows for more targeted Atka mackerel fishing to occur than Alternative 1. This may increase incidental catch of northern rockfish and Pacific Ocean perch. A minor increase in PSC may also occur, compared to Alternative 1. The increases are expected to be minor and not affect management.	More area is open to directed fishing than under Alternative 1, but less than Alternative 3. This will likely result in fishing shifting into the open areas in Alternative 2, compared to Alternative 1.

Alternative 2 continued	Stock status	Incidental Catch	Location of catch
Pacific cod - Trawl	No change in total fishing mortality is expected. Expect change in the location of where harvest occurs. Management measures in the BSAI Groundfish FMP are designed to prevent exceeding ABC; therefore, Alternative 2 is not expected to impact Pacific cod stock status.	Minor amounts of Pacific cod are encountered as incidental catch in Atka mackerel trawl fisheries. Alternative 2 will likely increase Atka mackerel harvest in the AI; therefore, a minor increase in incidental catch of Pacific cod may occur. Alternative 2 may allow for more Pacific cod harvest to occur in the AI. A minor increase in PSC and incidental groundfish catch may occur. However the increases are expected to be minor and not affect management.	More area is open to directed fishing than under Alternative 1, but less than Alternative 3. This will likely result in fishing shifting into these open areas in Alternative 2, compared to Alternative 1. Area limits established in Alternative 2 for Pacific cod may result in effort shifting into other areas, in particular the Bering Sea. The intensity of this is unknown and largely dependent on the expected AI Pacific cod TAC split.
Pacific cod – Non-Trawl	No change in total fishing mortality is expected. Expect change in the location of where harvest occurs. Management measures in the BSAI Groundfish FMP are designed to prevent exceeding ABC; therefore, Alternative 2 is not expected to impact Pacific cod stock status.	No changes in incidental catch of Pacific cod by other non-trawl fisheries are expected. Other non-trawl fisheries that encounter Pacific cod are not impacted by this alternative. Alternative 2 may allow for more Pacific cod harvest to occur in the AI. Skates and sculpins are the most frequently encountered incidental catch. As a result the incidental catch of these species may increase. However the increases are expected to be minor and not affect management.	More area is open to directed fishing than under Alternative 1, but less than Alternative 3. This will likely result in fishing shifting into these open areas in Alternative 2, compared to Alternative 1. Area limits established in Alternative 2 for Pacific cod may result in effort shifting into other areas, in particular the Bering Sea. The intensity of this is unknown and largely dependent on the expected AI Pacific cod TAC split.

Alternative 2 continued	Stock status	Incidental Catch	Location of catch
Pollock	May increase the total fishing mortality of pollock in the Aleutian Islands compared to Alternative 1. Management measures in the BSAI Groundfish FMP are designed to prevent exceeding ABC; therefore, Alternative 2 is not expected to impact AI pollock stock status.	AI fisheries encounter minor amounts of pollock as incidental catch. Compared to Alternative 1, Alternative 2 would increase Atka mackerel fishing and may increase Pacific cod fishing in the AI. As a result, incidental catch of pollock may increase. Alternative 2 would likely increase the amount of pollock harvested in the AI. Pacific ocean perch (POP) is frequently encountered when fishing for pollock in the AI. Alternative 2 would increase the incidental catch of POP, requiring the POP incidental catch allowance to be increased. Salmon PSC is also expected to increase though management of salmon PSC is not expected to change.	More area is open to directed fishing than under Alternative 1, but less than Alternative 3. There has not been much pollock effort in the AI under status quo or baseline. Fishery is likely to be limited to the areas of critical habitat that open in Alternative 2.
Other Target Species	Alternative 2 does not directly impact other target species. Increases in incidental catch are factored into management. Management measures in the BSAI Groundfish FMP are designed to prevent exceeding ABC; therefore, Alternative 2 is not expected to impact other target species' stock status.	Increases in Atka mackerel and Pacific cod are expected have minor impacts on incidental catch of other target species. The potential increase in pollock directed fishing under Alternative 2 would likely increase incidental catch of POP, but these increases would be accounted for in management of POP. Alternative 2 is not expected to impact other target fisheries.	More area is open to directed fishing than under Alternative 1, but less than Alternative 3. This will likely result in catch shifting into these open areas in Alternative 2, compared to Alternative 1.
Non-Target Species	Management measures in the BSAI Groundfish FMP have limits on PSC; therefore, Alternative 2 is not expected to impact non-target species stock status.	Alternative 2 may increase salmon and halibut PSC. However the change is expected to be minor. Incidental catch of other non-target species, such as forage fish, are small and any change is expected to be minor.	Not applicable

Alternative 3	Stock status	Incidental Catch	Location of catch
Atka mackerel	Increased total fishing mortality compared to Alternative 1, similar to Alternative 2, but not to the extent of Alternative 4. Management measures in the BSAI Groundfish FMP are designed to prevent exceeding ABC; therefore, Alternative 3 is not expected to impact Atka mackerel stock status.	Similar effects to Alternative 2. However, increases in target catch of Atka mackerel will result in minor increases in incidental catch compared to Alternative 2. The increases are expected to be minor and not affect management.	More area is open to directed fishing than under Alternatives 1 and 2, but less than Alternative 4. This will likely result in fishing shifting into these open areas, compared to Alternatives1 and 2.
Pacific cod - Trawl	Similar effects to Alternative 2.	Same as Alternative 2.	Alternative 3 opens more area in Area 543. This may result in movement of fishing into these open areas compared to Alternatives 1 and 2. Similar to Alternative 2, area limits may cause effort to shift into other areas.
Pacific cod – Non-Trawl	There is little difference between Alternative 2; therefore, the effects are the same as Alternative 2.	Same as Alternative 2.	Same as Alternative 2. Similar to Alternative 2, area limits may cause effort to shift into other areas.
Pollock	Similar effects to Alternative 2	Similar effects to Alternative 2	Alternative 3 opens more area. This will likely result in movement into these open areas compared to Alternatives 1 and 2.
Other target Species	Same as Alternative 2	Similar effects to Alternative 2. Minor increases in incidental catch of other target species compared to Alternative 2.	Same as Alternative 2
Non-target Species	Same as Alternative 2	Similar effects to Alternative 2. Minor increases in incidental catch of PSC and non-target species compared to Alternative 2.	Same as Alternative 2
Alternative 4	**Stock status**	**Incidental Catch**	**Location of catch**
Atka mackerel	Same as Alternative 3.	Same as Alternative 3.	Same as Alternative 3.
Pacific cod - Trawl	Similar effects to Alternative 3.	Same as Alternative 2 and 3.	Similar to Alternative 3. Alternative 4 does not have area limits so shifting of fishing activity is less likely to occur.
Pacific cod – Non-Trawl	Same as Alternative 2 and 3.	Same as Alternative 2 and 3.	Same as Alternative 2 and 3. Alternative 4 does not have area limits so shifting of fishing activity is less likely to occur.
Pollock	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3
Other target Species	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3
Non-target Species	Same as Alternative 3	Same as Alternative 3	Same as Alternative 3

Alternative 5	Stock status	Incidental Catch	Location of catch
Atka mackerel	Same as Alternative 3.	Same as Alternative 3.	Same as Alternative 3.
Pacific cod - Trawl	Same as Alternative 4.	Similar to Alternative 4. Possible changes in incidental catch in Area 543 as a result of catch limits.	Similar to Alternative 4. Catch limits in area 543 may result in shifting of fishing activity into areas 541 and 542
Pacific cod – Non-Trawl	Same as Alternative 2, 3, and 4.	Similar to Alternative 4. Possible decrease in incidental catch in Area 543 as a result of catch limits.	Similar to Alternative 4. Catch limits in area 543 may result in shifting of fishing activity into areas 541 and 542
Pollock	Same as Alternative 3 and 4	Similar to Alternative 3 and 4. Area limits for pollock may change incidental catch as a result of catch limits.	Similar to Alternatives 3 and 4. Catch limits by area may result in more spatial dispersion of effort when compared to other alternatives.
Other target Species	Same as Alternative 3 and 4	Similar to Alternative 3 and 4. Area limits for pollock may reduce the overall impact on Pacific Ocean perch incidental catch when compared to the Alternative 3 and 4.	Same as Alternative 2, 3, and 4.
Non-target Species	Same as Alternative 2, 3, and 4.	Similar to Alternatives 3 and 4. Area limits may change incidental catch of non-target species.	Same as Alternative 2, 3, and 4.
Protective options	Protective options on the different alternatives result in similar effects to the alternative. Protective options generally change area closures under the alternative. Therefore the only effect is possible changes in where fish are harvested and a possible decrease in total harvest due to the protective option constraints. This would result in slight decrease to incidental catch of target species and non-target species. It may also cause a decrease in PSC.		

Marine Mammals

The summary of the effects of the alternatives on marine mammals in this executive summary is limited to those components of the alternatives that result in impacts that allow the decision makers to compare the potential effects of the alternatives on marine mammals. Chapter 5 contains detailed analyses of all the features of each alternative, including the catch and closures by fishery. The summary below focuses on those effects of the alternatives that are substantial enough to discern a difference among alternatives, leaving the details of the analysis in Chapter 5. Table ES- 6 through Table ES- 9 summarize and compare the alternatives and their effects on Steller sea lions and other marine mammals by fishery. These results are based on the review of the potential direct and indirect effects of the alternatives and cumulative effects on Steller sea lions and other marine mammals. The incidental take and disturbance effects on Steller sea lions and other marine mammals under the alternatives and options are not expected to result in population-level effects based on analyses of populations and these types of effects during the baseline period. In addition, prey availability for other marine mammals is also not likely to result in population-level effects based on an evaluation in a previous NEPA and ESA analyses of these populations and the fisheries effects on prey. At this point, it is not possible to determine the population-level effects to Steller sea lions from the indirect effects of fishing on prey availability through this NEPA analysis for Alternatives 2, 3, 4, and 5. Alternative 1 was adopted as the RPA in the FMP biop to insure the potential adverse population-level effects were not likely to result in jeopardy.

Table ES- 6 Summary of Atka mackerel fishery alternatives and effects on marine mammals

	Incidental Take	Prey Availability	Disturbance
Alternative 1 Steller sea lions	Steller sea lions are taken by fisheries at an amount well below the potential biological removal (PBR).	Prey availability in the Aleutian Islands is likely not causing population level effects.	Fishing operations are not likely to disturb Steller sea lions to the point of causing population level effects.
Alternative 2 Steller sea lions	Slightly more potential increase for incidental take than Alternative 1.	Potential effects on prey availability are more than Alternative 1.	Disturbance effects are more likely than Alternative 1.
Alternative 3 Steller sea lions	More potential for incidental take than Alternative 2.	Potential effects on prey availability are more than Alternative 2 and are primarily in Area 543.	Disturbance effects are more likely than Alternative 2.
Alternative 3 with Area 543 critical habitat closed	Less potential for increased takes than Alternative 3 alone but more potential than Alternative 2.	Similar to Alternative 2 effects on prey availability.	Less potential for disturbance than Alternative 3 alone but more potential than Alternative 2
Alternative 3 with West of 174.5° E longitude closed	Similar potential for increased takes to Alternative 3 with the critical habitat closed option.	Similar to Alternative 2 effects on prey availability.	Less potential for disturbance than Alternative 3 alone
Alternative 4 Steller sea lions	Steller sea lions potentially taken by fisheries at an amount well below the PBR. Potential for incidental takes are more likely than Alternative 3.	Potential effects on prey availability are potentially more than Alternatives 1–3.	Fishing operations are not likely to disturb Steller sea lions at a level that causes population level effects. Disturbance effects are more likely than Alternatives 1–3.

	Incidental Take	Prey Availability	Disturbance
Alternative 5 Steller sea lions	Steller sea lions potentially taken by fisheries at an amount well below the PBR. Potential for incidental takes more likely than Alternative 3, but less likely than Alternative 4.	Similar effects on prey availability as Alternative 3 with slightly less potential effects in Area 543.	Fishing operations are not likely to disturb Steller sea lions at a level that causes population level effects. Disturbance effects are more likely than Alternatives 1–3, but less likely than Alternative 4.
Alternative 1 Other marine mammals	Marine mammals are taken by fisheries at an amount well below the PBR or in a minor amount compared to population. Takes limited to very small number of ribbon seals.	Overall prey availability is not affected by the groundfish fisheries at a level that is likely to result in population level effects for other marine mammals in the Aleutian Islands.	Fishing operations are not likely to disturb other marine mammals to the point of causing population level effects.
Alternative 2 Other marine mammals	Same potential for incidental take as Alternative 1	Potential adverse effects on prey availability more likely than Alternative 1 primarily for nearshore marine mammals in Areas 542 and 541.	Same potential for disturbance as Alternative 1
Alternative 3 Other marine mammals	Less potential for incidental ribbon seal takes than Alternatives 1 and 2.	Potential adverse effects on prey availability are more likely than Alternatives 1 and 2.	Disturbance of nearshore marine mammals is more likely than Alternatives 1 and 2.
Alternative 3 with Area 543 critical habitat closed	Most potential of the alternatives for increased take of ribbon seals in Area 543.	Similar to Alternative 2 effects on prey availability.	Increased potential for disturbance of other marine mammals that may occur further offshore compared to Alternatives 1, 2, and 3 without this option.
Alternative 3 with West of 174.5° E longitude closed	Less potential for incidental take than Alternative 2 and Alternative 3 and Alternative 3 with critical habitat closed option.	Similar to Alternative 2 effects on prey availability.	Less potential for disturbance of other marine mammals outside of critical habitat (e.g., ribbon seals) compared to Alternative 3 without this option.
Alternative 4 Other marine mammals	Other marine mammals are taken by fisheries at an amount well below the PBR or in a minor amount compared to population. Least potential for ribbon seal incidental takes.	Overall prey availability is not affected by the groundfish fisheries at a level that is likely to result in population level effects for other marine mammals in the Aleutian Islands. Potential adverse effects on prey availability are more likely than Alternatives 1–3.	Fishing operations are not likely to disturb other marine mammals to the point of causing population level effects. Disturbance of nearshore marine mammals is more likely than Alternatives 1–3.
Alternative 5 Other marine mammals	Other marine mammals are taken by fisheries at an amount well below the PBR, or in a minor amount relative to the population. Potential for incidental take of nearshore marine mammals more likely than Alternatives 1–3, but less likely than Alternative 4.	Similar potential effects on prey availability for other marine mammals as Alternative 3 with slightly less potential effect in Area 543 due to TAC limit.	Fishing operations are not likely to disturb other marine mammals at a rate that causes population level effects. Greater potential for disturbance to nearshore marine mammals than Alternatives 1–3, but less likely than Alternative 4.

Table ES- 7 Summary of Pacific cod non-trawl fishery alternatives and effects on marine mammals

	Incidental Take	Prey Availability	Disturbance
Alternative 1 Steller sea lions	Steller sea lions are taken by fisheries at an amount well below the PBR.	Prey availability in the Aleutian Islands is likely not causing population level effects.	Fishing operations are not likely to disturb Steller sea lions to the point of causing population level effects.
Alternative 2 Steller sea lions	More potential for incidental take than Alternative 1.	Effects on prey availability are potentially more than Alternative1.	Disturbance effects are more likely than Alternative 1.
Alternative 2 Option fishing 6 nm seasonal in Area 543 Steller sea lions	Similar potential for incidental take as Alternative 2 without this option.	Less potential for adverse effects on prey availability under this option in Area 543 than under Alternative 2 without this option.	Similar potential for disturbance as Alternative 2 without this option
Alternative 3 Steller sea lions	Similar potential for incidental take as Alternative 2.	Effects on prey availability are potentially more than Alternatives 1 and 2, but less than Alternative 4.	Disturbance effects are more likely than Alternatives 1 and 2.
Alternative 4 Steller sea lions	Steller sea lions potentially taken by fisheries at an amount well below the PBR. Similar potential for incidental take as Alternatives 2 and 3, except less potential than Alternatives 1, 2, and 3 east of Seguam.	Similar effects on prey availability as Alternatives 2 and 3. However, by not distributing catch among the statistical areas as under Alternatives 2 and 3, Alternative 4 may allow disproportionately more harvest of Pacific cod in area where the biomass may not be able to support the removals without resulting in localized depletion	Fishing operations are not likely to disturb Steller sea lions at a level that causes population level effects. Disturbance effects are similar to Alternatives 2 and 3, except less potential than Alternative 1, 2, and 3 east of Seguam.
Alternative 5 Steller sea lions	Steller sea lions potentially taken by fisheries at an amount well below the PBR. Potential for incidental takes more likely than Alternatives 1–3, but slightly less likely than Alternative 4.	Same effect as Alternative 4, except Area 543 catch limit in proportion to estimated Pacific cod abundance reduces overall impact on Pacific cod prey resources in the same manner as Alternative 2.	Fishing operations are not likely to disturb Steller sea lions at a level that causes population level effects. Disturbance effects are more likely than Alternatives 1–3, but slightly less likely than Alternative 4.
Alternative 1 Other marine mammals	Marine mammals are taken by fisheries at an amount well below the PBR or in a minor amount compared to population. Very minimal takes reported.	Overall prey availability is not affected by the groundfish fisheries at a level that is likely to result in population level effects for other marine mammals in the Aleutian Islands.	Fishing operations are not likely to disturb other marine mammals to the point of causing population level effects.
Alternative 2 Other marine mammals	More potential for incidental take than Alternative 1.	Potential adverse effects on prey availability likely more likely than under Alternative 1, primarily for nearshore marine mammals in Areas 542 and 541.	Disturbance of nearshore marine mammals is more likely than Alternative 1.
Alternative 2 Option fishing 6 nm seasonal in Area 543 Other marine mammals	Similar potential for incidental take as Alternative 2 without this option.	Similar potential for adverse effects on prey as Alternative 2 without this option.	Similar potential for disturbance as Alternative 2 without this option.

	Incidental Take	Prey Availability	Disturbance
Alternative 3 Other marine mammals	Similar potential for incidental take as Alternative 2.	Potential adverse effects on prey availability are more likely than Alternatives 1 and 2.	Similar potential for disturbance as Alternative 2
Alternative 4 Other marine mammals	Other marine mammals are taken by fisheries at an amount well below the PBR or in a minor amount compared to population. Similar potential for incidental take as Alternatives 2 and 3, except less potential than Alternatives 1, 2, and 3 east of Seguam.	Overall prey availability is not affected by the groundfish fisheries at a level that is likely to result in population level effects for other marine mammals in the Aleutian Islands. Effects on prey availability similar to Alternatives 2 and 3.	Fishing operations are not likely to disturb other marine mammals to the point of causing population level effects. Disturbance effects are similar to Alternatives 2 and 3, except less potential than Alternative 1, 2, and 3 east of Seguam.
Alternative 5 Other marine mammals	Other marine mammals are taken by fisheries at an amount well below the PBR, or in a minor amount relative to the population. Potential for incidental take of nearshore marine mammals more likely than Alternatives 1–3, but less likely than Alternative 4.	Same potential effect on prey availability as Alternative 4 except Area 543 catch limit in proportion to estimated Pacific cod abundance reduces overall impact on Pacific cod prey resources in the same manner as Alternative 2 in Area 543.	Fishing operations are not likely to disturb other marine mammals at a rate that causes population level effects. Greater potential for disturbance to nearshore marine mammals than Alternatives 1–3, but slightly less likely than Alternative 4.

Table ES- 8 Summary of Pacific cod trawl fishery alternatives and effects on marine mammals

	Incidental Take	Prey Availability	Disturbance
Alternative 1 Steller sea lions	Steller sea lions are taken by fisheries at an amount well below the PBR.	Prey availability in the Aleutian Islands is likely not causing population level effects.	Fishing operations are not likely to disturb Steller sea lions to the point of causing population level effects.
Alternative 2 Steller sea lions	More potential for incidental take than Alternative 1.	More potential for adverse effects on prey availability than Alternative 1.	Disturbance effects are more likely than Alternative 1.
Alternative 2 Protective Option Steller sea lions	More potential for incidental take than Alternative 1 and Alternative 2 without the protective option during the A season.	The protective option reduces the area of critical habitat available in Area 543 during the time of year when Steller sea lions are likely to be present reducing potential effects on prey availability in this location.	Protective option would reduce the potential for disturbance compared to Alternative 2 without the protective option.
Alternative 3 Steller sea lions	Similar potential for incidental take as Alternative 2	More potential for effects on prey availability than Alternatives 1 and 2.	Disturbance effects are similar to Alternative 2.
Alternative 4 Steller sea lions	Steller sea lions potentially taken by fisheries at an amount well below the PBR. More potential for incidental take than Alternative 3.	More potential for adverse effects on prey availability than Alternatives 1–3.	Fishing operations are not likely to disturb Steller sea lions at a level that causes population level effects. Disturbance effects are more likely than Alternatives1–3.

	Incidental Take	Prey Availability	Disturbance
Alternative 5 Steller sea lions	Steller sea lions potentially taken by fisheries at an amount well below the PBR. Potential for incidental takes more likely than Alternative 3, but slightly less likely than Alternative 4.	Same effect as Alternative 4, except Area 543 catch limit in proportion to estimated Pacific cod abundance reduces overall impact on Pacific cod prey resources in the same manner as Alternative 2.	Fishing operations are not likely to disturb Steller sea lions at a level that causes population level effects. Disturbance effects are more likely than Alternatives 1–3, but slightly less likely than Alternative 4.
Alternative 1 Other marine mammals	No reported takes in Aleutian Islands.	Overall prey availability is not affected by the groundfish fisheries at a level that is likely to result in population level effects for other marine mammals in the Aleutian Islands.	Fishing operations are not likely to disturb other marine mammals to the point of causing population level effects.
Alternative 2 Other marine mammals	Same as Alternative 1.	Potential adverse effects on prey availability more likely than under Alternative 1 primarily for nearshore marine mammals in Areas 542 and 541.	Disturbance of nearshore marine mammals (e.g., harbor seals) is more likely than Alternative 1.
Alternative 2 Protective Option Other marine mammals	Same as Alternative 1.	Same as Alternative 2 without the protective option.	Same as Alternative 2 without protective option.
Alternative 3 Other marine mammals	Same as Alternative 1.	Potential adverse effects on prey availability are more likely than Alternatives 1 and 2.	Disturbance of nearshore marine mammals (e.g., harbor seals) is more likely than Alternatives 1 and 2.
Alternative 4 Other marine mammals	Same as Alternative 1.	Overall prey availability is not affected by the groundfish fisheries at a level that is likely to result in population level effects for other marine mammals in the Aleutian Islands. Potential adverse effects on prey availability are more likely than Alternatives 1–3.	Fishing operations are not likely to disturb other marine mammals to the point of causing population level effects. Disturbance of nearshore marine mammals (e.g., harbor seals) is more likely than Alternatives 1–3.
Alternative 5 Other marine mammals	Same as Alternative 1.	Same potential effect on Pacific cod prey availability as Alternative 4, except Area 543 catch limit in proportion to estimated Pacific cod abundance reduces overall impact on Pacific cod prey resources in the same manner as Alternative 2.	Fishing operations are not likely to disturb other marine mammals at a level that causes population level effects. Disturbance effects are more likely than Alternatives 1–3, but slightly less likely than Alternative 4.

Table ES- 9 Summary of Pollock fishery alternatives and effects on marine mammals

	Incidental Take	Prey Availability	Disturbance
Alternative 1 Steller sea lions	Steller sea lions are taken by fisheries at an amount well below the PBR.	Prey availability in the Aleutian Islands is likely not causing population level effects.	Fishing operations are not likely to disturb Steller sea lions to the point of causing population level effects.
Alternative 2 Steller sea lions	Slightly more potential increase for incidental take than Alternative 1.	Less potential for adverse effects on prey availability than Alternative 1 in Area 543. More potential for effects on prey availability than Alternative 1 in Areas 542 and 421.	Disturbance effects are more likely than Alternative 1.
Alternative 2 Kanaga Options Steller sea lions	Larger closures reduce potential for incidental take at this site.	More potential for adverse effects on prey availability in this area than Alternative 2 without this option.	This option would provide a level of protection between Alternatives 1 and 2 in Area 542.
Alternative 2 Protective Option Steller sea lions	More potential for incidental take than Alternative 1 but less than Alternative 2 alone.	Less potential for adverse effects on prey availability in Areas 542 and 541 than Alternative 2 without this option.	This option would reduce the potential for disturbance to Steller sea lions in Area 542 relative to Alternative 3 without the protective option, particularly in winter.
Alternative 3 and 4 Steller sea lions	More potential for incidental take than Alternative 2.	Adverse effects on prey availability are potentially more than Alternatives 1 and 2.	Disturbance effects are more likely than Alternatives 1 and 2.
Alternative 3 and 4 Protective Options Steller sea lions	Steller sea lions potentially taken by fisheries at an amount well below the PBR. Less potential for incidental take than Alternative 2 but more than Alternative 1.	Adverse effects on prey availability are potentially more than Alternatives 1 and 2 but less than Alternatives 3 and 4 without the protective options.	Fishing operations are not likely to disturb Steller sea lions at a level that causes population level effects. Disturbance effects are more likely than Alternatives 1 and 2.
Alternative 5 Steller sea lions	More potential for incidental takes of Steller sea lions in the Aleutian Islands than Alternatives 1 and 2, but less potential for incidental take than Alternatives 3 and 4.	More potential adverse effects on pollock prey resources than Alternatives 1 and 2, but less than Alternatives 3 and 4.	More potential for disturbance to Steller sea lions than Alternatives 1 and 2, but less potential for disturbance than Alternatives 3 and 4.
Alternative 1 Other marine mammals	No reported takes in Aleutian Islands.	Overall prey availability is not affected by the groundfish fisheries at a level that is likely to result in population level effects for other marine mammals in the Aleutian Islands.	Fishing operations are not likely to disturb other marine mammals to the point of causing population level effects.
Alternative 2 Other marine mammals	Slightly more potential for incidental take than Alternative 1 for nearshore marine mammals (harbor seals and Dall's porpoise).	Potential adverse effects on prey availability likely more than Alternative 1, primarily for nearshore marine mammals in Areas 542 and 541.	Disturbance of nearshore marine mammals is more likely than Alternative 1.

	Incidental Take	Prey Availability	Disturbance
Alternative 2 Kanaga Options Other marine mammals	Larger closures reduce potential for incidental take at this site for nearshore marine mammals (harbor seals and Dall's porpoise).	The 6-nm option provides more protection to prey resources for Steller sea lions using this site than without this option. The 10-nm closure provides the most protection because a pollock fishery is not likely to be prosecuted outside of 10 nm from Kanaga Island.	Larger closures reduce potential to disturb nearshore marine mammals at this site.
Alternative 2 Protective Option Other marine mammals	Similar potential for incidental take as Alternative 2 for nearshore marine mammals.	Provides more protection to nearshore prey resources where Alternative 2 would allow fishing inside critical habitat in the A season. Protects all nearshore prey resources in the B season inside 10 nm and allows more dispersion of fishing that may reduce potential for localized depletion.	Similar to Alternative 2 for nearshore marine mammals.
Alternative 3 and 4 Other marine mammals	Other marine mammals are taken by fisheries at an amount well below the PBR or in a minor amount compared to population. More potential for incidental take of nearshore marine mammals than Alternative 2.	Overall prey availability is not affected by the groundfish fisheries at a level that is likely to result in population level effects for other marine mammals in the Aleutian Islands. Potential adverse effects on prey availability are more likely than Alternatives 1–3.	Fishing operations are not likely to disturb other marine mammals to the point of causing population level effects. Disturbance of nearshore marine mammals is more likely than Alternatives 1 and 2.
Alternative 3 and 4 Protective Options Other marine mammals	10 nm closures protect nearshore marine mammals so likely same potential for incidental take as Alternative 2 protective options.	Similar potential effects on prey resources as Alternative 2 in Areas 541 and 542 and same effect on prey resources as Alternative 3 and 4 without the protective options in Area 543.	10 nm closures protect nearshore marine mammals so likely same potential as Alternative 2 protective options.
Alternative 5 Other marine mammals	More potential for incidental takes of other marine mammals that occur in Steller sea lion critical habitat and throughout the Aleutian Islands than Alternatives 1 and 2, but less potential for incidental takes than Alternatives 3 and 4.	More potential adverse effects on pollock prey resources than Alternatives 1 and 2, but less than Alternatives 3 and 4.	More potential for disturbance of other marine mammals that occur in Steller sea lion critical habitat and throughout the Aleutian Islands than Alternatives 1 and 2, but less potential for disturbance than Alternatives 3 and 4.

Seabirds

Four types of effects from interactions between Alaska groundfish fisheries and seabird species likely to occur as the results of the alternatives were analyzed in Chapter 6: seabirds taken by longline gear, seabirds taken by trawl gear, disruption of benthic habitat and prey availability, and disturbance. The impacts on seabirds from each of the alternatives are summarized below in Table ES- 10. The results of these effects are unknown and/or poorly understood in some cases; however, NMFS concludes that the current level of fisheries' effects is not likely having seabird population level effects. Modeling suggests

that even a large increase in incidental takes of short-tailed albatross by interactions with trawl cables would have negligible effects on the recovery of the species, given that other stressors remain constant.

Alternative 1, status quo, is the most conservative for seabird protection in terms of restricting fishing in nearshore areas and passes of the Aleutian Islands. The alternatives all increase the area open to fishing to varying degrees, and therefore increase the risk of potential seabird interactions with fisheries. Alternatives 2 and 3 open the most area to Pacific cod longline fishing, particularly in Area 543 (Alternative 3). Because most seabirds are taken in the longline fisheries, Alternatives 2 and 3 likely pose the greatest risk of increased direct take of seabirds. However, the total amount of increased effort in the Aleutian Islands Pacific cod longline fishery is expected to be kept small with the impending BSAI Pacific cod TAC split. All of the alternatives will likely contribute unknown amounts of additional stress to seabirds from reduced prey availability, disruption of benthic habitat, and disturbance.

Cumulative effects on seabird populations include effects from other fisheries, subsistence hunting and egging, contaminants, predation, introduced species, fisheries management programs, and climate change. Reasonable foreseeable future actions include future changes in fisheries management, seabird conservation efforts by governmental agencies, and subsistence hunting.

Table ES- 10 Summary of effects on seabirds

	Incidental take	Prey availability and disturbance of benthic habitat	Disturbance
Alternative 1			
Pacific cod longline fisheries	Seabird takes with longline gear are at low historical levels and are mitigated by current spatial restrictions and the use of seabird avoidance measures.	Little forage fish is landed in Alaska groundfish fisheries (see Chapter 4 of this document). Potential localized limitations of prey availability are limited in spatial extent compared to larger seabird foraging areas. Disruptions to benthic habitat may be occurring, but are not expected to cause population level effects to seabird prey species or to seabirds.	Disturbance from fishery-related vessel traffic could be occurring at colonies, but is not expected to cause effects at the population level.
Trawl fisheries for Pacific cod, Atka mackerel, and Pollock	Seabird takes (as currently estimated – without estimates for third wire interactions) are at low levels compared to take in longline fisheries and are mitigated to some extent by current spatial restrictions.		
Alternative 2			
Pacific cod longline fisheries	More fishing grounds open to longline fisheries in important seabird use areas could mean additional incidental bycatch. However, the impending BSAI Pacific cod TAC split is expected to keep the overall fishing effort low. Any increased effort and thus increased bycatch are not expected to cause population level effects.	With the opening of additional Atka mackerel, pollock, and Pacific cod fishing grounds, the effect of removal of forage fish on seabird species could be greater from the action alternatives than from the status quo fisheries. A substantial increase in the amount of forage fish, non-specified species, and prohibited species catch is not expected under any of the alternatives, and potential localized limitations of prey availability are limited in spatial extent compared to larger seabird foraging areas, so no population level effects are expected. Disruptions to benthic habitat may occur in newly opened fishing grounds, but are not expected to cause population level effects to seabird prey species or to seabirds.	An increased amount of disturbance could be expected under the action alternatives that open additional fishing grounds adjacent to large seabird colonies, but is not expected to have population level effects.
Trawl fisheries for Pacific cod, Atka mackerel, and Pollock	More fishing grounds open to trawling could mean additional incidental catch, but the amount of increase is not expected to have population level effects. Zador et al. (2008) predict a ten-fold increase of currently permitting incidental take of short-tailed albatross would have little effect on the time course to achieve recovery of the species.		
Alternative 3			
Pacific cod longline fisheries	Similar effects to Alternative 2 are expected under Alternative 3, however there could be more interactions in the additional open areas in 543.	Similar effects to Alternative 2 are expected under Alternative 3.	Similar effects to Alternative 2 are expected under Alternative 3.
Trawl fisheries for Pacific cod, Atka mackerel, and Pollock	Similar effects to Alternative 2 are expected under Alternative 3.		
Alternative 4			
Pacific cod longline fisheries	Similar effects to Alternative 3 are expected under Alternative 4, except that there are some additional fishing grounds closed in 541 under Alternative 4. This could offer additional protection to seabirds including the Seguam Pass short-tailed albatross hotspot.	Similar effects to Alternative 2 are expected under Alternative 4.	Similar effects to Alternative 2 are expected under Alternative 4.
Trawl fisheries for Pacific cod, Atka mackerel, and Pollock	Similar effects to Alternative 2 are expected under Alternative 4, except that the area southeast of Seguam Island would be closed to Atka mackerel trawling and that and others areas of 541 would be open to Pacific cod trawling.		

	Incidental take	Prey availability and disturbance of benthic habitat	Disturbance
Protective options	The protective options close additional longline and trawl fishing grounds nearshore which could reduce the potential interactions with seabirds.		
Alternative 5			
Pacific cod longline fisheries	Similar effects to Alternative 4 are expected under Alternative 5.	Similar effects to Alternative 4 are expected under Alternative 5.	Similar effects to Alternative 4 are expected under Alternative 5.
Trawl fisheries for Pacific cod, Atka mackerel, and Pollock	Similar effects to Alternative 4 are expected under Alternative 5. The small amount of additional open fishing grounds is not expected to affect seabirds at a population level.	Similar effects to Alternative 4 are expected under Alternative 5.	Similar effects to Alternative 4 are expected under Alternative 5.

Table ES- 11 Potential Effects and Seabird Groups

Potential Effect	Which species groups are most likely affected?
Direct take by longline fisheries	Albatrosses, shearwaters, fulmars, gulls, puffins
Direct take by trawl fisheries	Fulmars, gulls, kittiwakes, murres, auklets, Laysan albatross, storm-petrels
Prey availability and disturbance of benthic habitat	Eiders, murrelets, common murres, kittiwakes, cormorants, Arctic tern, puffins
Disturbance	Yellow-billed loon, murres, cormorants, terns, puffins, storm-petrels

Habitat

The EIS for Essential Fish Habitat (EFH) Identification and Conservation found no substantial adverse effects to habitat in the Aleutian Islands due to fishing activities as prosecuted in 2005. This outcome was confirmed in the 2010 5-year EFH Review. Since 2005, habitat protection measures have been implemented in the Aleutian Islands and remain unchanged under all of the alternatives. The restrictive status quo measures greatly reduced fishing effort in the central and western Aleutian Islands. Alternatives 2, 3, 4, and 5 would increase habitat effects over those that are occurring under the status quo (Alternative 1); however, this level of effect is much lower than those present at the time of the 2005 EFH EIS and 2010 5-year EFH Review. The potential effects on an area would be constrained by the amount of TAC available (particularly for Atka mackerel) and by the existing habitat protection measures. It is possible that impacts may increase slightly in those areas reopened to fishing effort, but in context of the entire Aleutian Islands, the effects of Alternatives 2, 3, 4, or 5 on habitat are not likely discernible from Alternative 1. The combination of the direct, indirect, and cumulative effects on habitat complexity for both living and non-living substrates, benthic biodiversity, and habitat suitability are likely to be the same under all alternatives and not discernible from effects during the baseline period for the Aleutian Islands subarea.

Ecosystem

The alternatives would have no discernible effect on climate indicators (temperature, transport and upwelling, changing weather patterns, ocean acidification). Ecosystem interactions in the Aleutian Islands involve complex food web relationships that are dependent on a wide range of environmental conditions and variables. As fishing activities increase from the status quo, the potential for greater change to the ecosystem from the status quo increases. Research efforts and continually advancing modeling methods are contributing to the knowledge of these food web interactions. The lack of data as well as dynamic nature of the Aleutians Islands ecosystem suggest that the impacts of the proposed alternatives on bottom up change in ecosystem productivity, fishing and predation morality, top down changes in predation and fishing, total removals from the ecosystem, and fisheries bycatch are difficult to comprehensively assess and the impact to the ecosystem is unknown under all alternatives.

Research Needs

Research needs identified in the EIS include those that support the management of the groundfish fisheries. Research that supports fisheries management include periodic groundfish surveys and target species tagging studies. The groundfish surveys inform the harvest specifications process by providing trend information on target groundfish species that can be used in modeling to determine acceptable biological catch and overfishing levels. The Aleutian Islands groundfish surveys also provide information that may be used in any future stock assessments for Aleutian Islands Pacific cod. The survey catches are considered in the FMP biop and are applied to the annual catch limits to determine consistency with the Magnuson-Stevens Act National Standard 1 guidelines. Groundfish surveys have been conducted in the past and will continue in the future, as budgets allow. The small quantities of fish taken in the surveys are not likely to have a discernible effect on the environment.

Groundfish tagging studies are used to study local fish abundance and movement. This type of study has been done on Atka mackerel in the Aleutian Islands in relation to Steller sea lion critical habitat closures. An expansion of this research in terms of locations, quantity of fish, and addition of opportunistic prey field studies is recommended to improve information on Atka mackerel abundance and movement. Recovering the tagged fish involves harvest of the target species in commercial quantities. The amounts

of Atka mackerel expected to be harvested inside of critical habitat could be considered substantial and may warrant further analysis for potential effects on Steller sea lions and their critical habitat once the proposed action is identified. Tagging studies also are recommended for Pacific cod in the Aleutian Islands after a pilot study to determine quantities to harvest for sufficient tag recovery.

Fisheries interaction research provides a better understanding of the potential effects of the fisheries on the marine environment, including on Steller sea lions. Several fisheries interaction studies are described in the EIS including modeling Steller sea lion predator-prey interactions, food web modeling, and diet studies. In addition, focal studies are needed of Steller sea lion foraging behavior, Steller sea lion diet, fish abundance, fish movement, oceanography, ocean productivity, and fisheries impacts in contrasting areas of Steller sea lions population trend and in areas where Steller sea lions forage. The focal studies would be conducted in the Aleutian Islands and the Gulf of Alaska to help provide information on how the ecosystems differ in structure, function, and resiliency to fishing and thus provide insight into the drivers of these ecosystem differences. Except for the modeling studies, there are not enough details provided for this EIS to analyze the potential effects of such studies on the human environment.

Economic Impacts

The following summary is based on the analysis in Chapters 8 and is organized by fishing sector.

The analysis of the trawl catcher/processor sector may be found in the following sections and sub-sections:

- 8.2.1 Trawl catcher/processor background
- 8.3 Trawl catcher/processors, Alternatives 1 and 4
- 8.7 Pollock, Alternatives 1, 2, 3, and 4
- 8.8 Atka mackerel, Alternatives 2 and 3
- 8.9 Trawl catcher/processors, Pacific cod Alternatives 2, 3, and Protective Option
- 8.18 Alternative 5 (Preferred preliminary alternative)

The impacts of the alternatives on Atka mackerel production were evaluated in Sections 8.3, 8.8, and 8.18. Table ES- 12 summarizes the estimates of wholesale gross revenues from Atka mackerel fishing from areas remaining open under each alternative ("residual" revenues). Since this sector includes trawl catcher vessels delivering Atka mackerel to catcher/processors acting as motherships, these wholesale estimates include the value of these deliveries. Table ES- 12 shows summary information about annual sector wholesale gross revenues in the baseline years 2004-2010; the table includes estimates of minimum annual, maximum annual, and average annual wholesale gross revenues for each alternative-option combination, estimated both with and without considering the impact of the area limits imposed in Area 543 under Alternative 2.

Alternative 1 and an option to Alternative 3 provide the same Atka mackerel season dates as the fishery had in 2011 and 2012. By allowing for summer fishing, these season dates will likely result in similar fishing behavior and allow vessels to more efficiently harvest their allocations of groundfish in the BSAI than under the baseline. There may be some benefits to ports that support these fisheries, such as Adak and Dutch Harbor, as these vessels are operating in the Aleutian Islands for longer periods of time than they did prior to 2011. Alternatives 2 through 5 seek to relax the B-season end date of November 1 to December 31 for all vessels. Extending the B-season to December 31 may provide the fleet with even more flexibility to temporally spread Atka mackerel fishing and operate more efficiently.

Focusing on the results for the closure and area limits, taken together (the right-hand columns in the table), the average annual revenues for Alternative 1 were $26.9 million, while the average annual revenues for Alternative 4, which approximate those actually earned during the baseline years, were $56 million. These two alternatives provide bookends for the other alternatives. The revenue estimates for the other alternatives were reasonably close together, ranging from $39 million to $44.7 million. Given the uncertainty associated with these point estimates, it may not be possible to discriminate among the alternatives falling within the bookends.

These rankings do not constitute a cost-benefit ranking of the alternatives. The revenue estimates in this table, and in others in the executive summary, are not projections of revenues in future years under the alternatives. They are estimates of revenues that were associated with areas that would have been left open for fishing in the baseline years, if the alternatives had been effective in those years. They are provided as an index of relative impacts.

Table ES- 12 Estimated residual trawl catcher/processor Atka mackerel wholesale gross revenues by alternative and option, with and without closure limits, during the baseline years (millions of real 2012 dollars)

	Closure only			Closure and area limits		
	Minimum	**Average**	**Maximum**	**Minimum**	**Average**	**Maximum**
1	13.8	27.9	43.6	13.8	26.9	43.6
2 (40%)	26.0	40.6	61.8	21.7	39.0	58.9
2 (50%)	26.0	40.6	61.8	23.5	39.8	59.6
2 (65%)	26.0	40.6	61.8	26.0	40.6	61.8
3	26.8	44.7	69.3	26.8	44.7	69.3
3a	26.0	40.9	62.4	26.0	40.9	62.4
3b	26.5	44.6	69.3	26.5	44.6	69.3
4	35.8	56.0	89.1	35.8	56.0	89.1
5	26.8	44.7	69.3	26.3	43.4	65.8

Note: Revenues include estimates of incidental catches (other than Pacific cod). Alternative 5 revenues are assumed equal to Alternative 3 revenues, except for Alternative 5-specific adjustment in Area 543.

Alternatives 2 through 5 include measures to relax the MRA requirements for fishing Atka mackerel in the eastern Bering Sea (the eastern Bering Sea and management Area 541 share a single TAC). A shift from instantaneous calculation to calculation at the end of each offload should make it easier to retain Atka mackerel taken as incidental catches in other targets in the eastern Bering Sea.

The impacts of the alternatives on trawl catcher/processors targeting Pacific cod were discussed in Sections 8.3, 8.9, and 8.18. Table ES- 13 summarizes the wholesale gross revenues accruing to the trawl catcher/processors from their harvests of Pacific cod in the Aleutian Islands. These vessels would also earn wholesale revenues from selling the Pacific cod delivered to them for processing by catcher vessels, however, those revenues are summarized with the catcher vessel shoreside deliveries, and cannot be reported here for confidentiality reasons. Table ES- 13 shows the estimated production from areas remaining open under each alternative (called residual production), and shows those estimates modified by potential constraints associated with the area-sector limits included in the alternatives. When area-sector limits actually exceed historical harvests from the open areas, it is possible that operations could shift from the closed areas to the open areas and increase their harvests from those open areas. Estimates of revenues from this source are speculative, and have not been included here.

Alternative 1 retains the November 1 end date for the trawl Pacific cod C-season. Alternative 2 prohibits directed trawling for Pacific cod after April 30. Alternative 2 should have little impact on the directed fishery, which takes place prior to that date, but may affect Pacific cod MRA discards in other target fisheries. Alternatives 2, 3, and 5 relax the C season end date from November 1 to December 31 in Areas 541 and 542 for Amendment 80 vessels and those trawl vessels fishing CDQ Pacific cod in the Aleutian Islands. Alternatives 2, 4, and 5 relax the C season end date from November 1 to December 31 in Area 543 for Amendment 80 vessels and those trawl vessels fishing CDQ Pacific cod in the Aleutian Islands. This relaxation of the season date would not apply to other vessels or the Bering Sea subarea. Limiting this to Amendment 80 and trawl vessels fishing for CDQ Pacific cod has been proposed to address potential regulatory discards of Pacific cod after November 1, however, regulatory discards have been relatively small in this period. If this season extension does lead to the start of a directed Pacific cod fishery in November and December, it may affect annual Pacific cod reallocations among gear groups.

Focusing on the results for the closure and area limits, taken together, the average annual revenues for Alternative 1 were $8 million, while the average annual revenues for Alternative 4 were $13.3 million. Revenues for Alternative 3 come third at $7.4 million, followed by Alternative 2 at $6.9 million and the protective option for Alternative 2 at $5.0 million. The revenues for Alternatives 1 and 3 are similar (and similar to those for Alternative 2 in the absence of the area-sector limits). As discussed in the text, this reflects an element in Alternatives 2 and 3 that closes critical habitat to fishing east of 174° west longitude. This closes an important Pacific cod fishing ground to the east of Atka North Cape. Given the uncertainty associated with these point estimates, it may not be possible to discriminate among the Alternatives 1, 2, and 3.

Table ES- 13 Estimated residual trawl catcher/processor Pacific cod gross revenues by alternative and option, with and without closure limits (millions of real 2012 dollars)

	Closure only			Closure and area-sector limits		
	Minimum	**Average**	**Maximum**	**Minimum**	**Average**	**Maximum**
1	3.5	8.0	18.2	3.5	8.0	18.2
2	3.0	7.4	14.1	3.0	6.9	14.1
2, P.O.	2.3	5.0	11.2	2.3	5.0	11.2
3	3.4	8.7	16.0	3.4	7.4	14.6
4	6.4	15.1	28.2	6.4	13.3	22.7
5	6.4	15.1	28.2	6.4	13.3	22.7

Notes: Revenues include estimates of value of incidental catches (other than Atka mackerel). Alternative 5 gross revenues have been set equal to the Alternative 4 revenues given the similarity between the measures in these alternatives. The Alternative 5 Area 543 limit does not affect revenues in a way that can be estimated here, since it is not globally binding in the Aleutians.

Alternative 2 prohibits directed fishing using trawl gear after April 30 in Area 543. This should not affect directed trawl Pacific cod fishing; during the baseline years all trawl Pacific cod harvests in the area took place prior to April 30. However, this may affect retention of Pacific cod after April 30 as vessels will be required to discard Pacific cod in excess of the 20 percent MRAs. Alternatives 2, 3, 4, and 5 extend the C-season end date for Amendment 80 trawl vessels and those fishing Pacific cod CDQ, from November 1 to December 31. This has been proposed to address potential regulatory discards after November 1, however, regulatory discards have been small during this period. This change in closing dates under Alternative 4 may affect reallocation of Pacific cod later in the year if a trawl catcher/processor fishery becomes viable at that time.

Table ES- 14 combines the information on trawl catcher/processor revenues associated with areas remaining open for both Atka mackerel and Pacific cod. Taken together, the results suggest that the trawl catcher/processors would benefit the most from Alternative 4 and the least from Alternative 1. The ranking of benefits from the other alternatives, from most attractive to the sector to least attractive, is Alternative 5, Alternative 3, Alternative 2, and Alternative 2 with the protective option. The margin for error in these estimates is large, however.

Table ES- 14 Estimated residual Atka mackerel and Pacific cod revenues for trawl catcher/processors by alternative and option during the baseline years (millions of dollars)

		Atka mackerel average revenue	Pacific cod trawl alternatives					
			1	2	2PO	3	4	5
Pcod average revenue			8.0	6.9	5.0	7.4	13.3	13.3
Atka mackerel alterna-tives	**1**	26.9	34.9					
	2 (40%)	39.0		45.9	44.0			
	2 (50%)	39.8		46.7	44.8			
	2 (65%)	40.6		47.5	45.6			
	3	44.7				52.1		
	3a	40.9				48.3		
	3b	44.6				52		
	4	56.0					69.3	
	5	43.4						56.7

Notes: Shaded area is sum of average Atka mackerel and Pacific cod wholesale revenues for the trawl catcher/processor sector for each combination of alternatives and options. Revenues account for limits as well as closures. Revenues include estimates of value of incidental catches as well as targets. These are not projections of future revenues, but are summaries of revenues coming from areas that would have been left open if the alternatives had been in place during the baseline years 2004-2010.

Alternatives that reduce fishing opportunities for trawl catcher/processors in the Aleutian Islands will prompt redeployment of the vessels, as they try to offset the adverse impacts of the alternatives on their profits. Trawl catcher/processors could shift into rock sole and yellowfin sole fisheries, Bering Sea Pacific ocean perch, and arrowtooth flounder, Kamchatka flounder, Greenland turbot, Alaska plaice, or other flatfish. Amendment 80 vessels could obtain some species for processing by acting as motherships for trawl vessels. Amendment 80 trawl catcher/processors may fish their Pacific cod allocations in the Bering Sea as well as the Aleutian Islands. Industry sources indicate, however, that Bering Sea Pacific cod tend to be smaller and bring a lower price, than Aleutian Islands Pacific cod. AFA trawl catcher/processors and vessels fishing CDQ pacific cod quota, likewise fish against a BSAI-wide allocation, and could shift their operations.

The analysis of the pollock measures in all the alternatives may be found in Section 8.7, and in Section 8.18. Alternatives 2, through 5 include measures to open up areas of critical habitat in the Aleutian Islands to fishing for pollock. This may provide more fishing opportunities for CDQ groups. In addition, the directed fishing allocation in the Aleutian Islands is allocated to the Aleut Corporation, which must assign half of its allocation to AFA vessels. These new opportunities may, therefore, benefit trawl catcher/processors fishing for CDQ groups or for the Aleut Corporation. It is not possible to estimate the additional volumes of fish or revenues that may be generated, given the limited fishing that has taken place in the critical habitat that may be opened. The benefits to trawl catcher/processors will also depend on policy decisions to be made by the CDQ groups and the Aleut Corporation, about how

their allocations should be fished (the Aleut Corporation, for example, could assign its pollock allocation to AFA catcher vessels for delivery to the port at Adak).

Non-trawl catcher/processors

The analysis of the non-trawl catcher/processor sector may be found in the following sections and sub-sections:

- 8.2.2 Non-trawl catcher/processor background
- 8.4 Non-trawl catcher/processors, Alternatives 1 and 4
- 8.10 Non-trawl catcher/processors, Alternatives 2, 3, and Protective Option
- 8.18 Alternative 5 (Preliminary Preferred Alternative)

Table ES- 15 the estimates of wholesale gross revenues from Pacific cod fishing from areas remaining open under each alternative ("residual" revenues). Table ES- 15 shows summary information about annual sector wholesale gross revenues in the baseline years 2004-2010; the table includes estimates of minimum annual, maximum annual, and average annual wholesale gross revenues to the sector for each alternative-option combination, estimated both with and without considering the impact of the area-sector limits imposed in Area 543 and in Areas 541-542 (jointly) under Alternative 2.

Focusing on the results for the closure and area limits, taken together (the right-hand columns in the table), the average annual revenues for Alternative 1 were $3.3 million. The average revenues for the remaining alternatives and options, however, were very similar, ranging from $8.4 to $8.8 million dollars. These differences in average revenues are not enough to make it possible to discriminate between these alternatives with respect to their impact on this sector on this basis.

Table ES- 15 Estimated residual non-trawl catcher/processor wholesale gross revenues by alternative and option, with and without closure limits, during the baseline years (millions of dollars)

	Closure only			Closure and area limits		
Alternative	**Minimum**	**Average**	**Maximum**	**Minimum**	**Average**	**Maximum**
1	1.7	3.3	5.2	1.7	3.3	5.2
2	4.9	10.0	17.3	4.9	8.6	12.0
2 PO	4.9	9.7	17.0	4.9	8.4	11.5
3	5.0	10.5	18.2	5.0	8.8	12.2
4	5.0	10.5	18.2	5.0	8.8	12.2
5	5.0	10.5	18.2	5.0	8.8	12.2

Note: Revenues include estimates of incidental catches. Alternative 5 gross revenues have been set equal to the Alternative 4 revenues given the similarity between the measures in these alternatives. The Alternative 5 Area 543 limit does not affect revenues in a way that can be estimated here, since it is not globally binding in the Aleutians.

This fleet is prohibited from directed fishing for Pacific cod in the Aleutian Islands after November 1 under the status quo, and the season is closed on November 1 under Alternative 2. Alternatives 3, 4, and 5 relax this November 1 season end date and allow directed fishing until the end of the year. The freezer-longline portion of this sector operates under a voluntary cooperative and directed fishing for Pacific cod in the BSAI lasts all year. The relaxation of this season end date would allow some of this fishing to occur after November 1 in the Aleutian Islands. This is unlikely to be of advantage to the pot portion of this sector, as these vessels typically close directed fishing prior to November 1.

This sector has limited opportunity to redeploy into other Pacific cod fisheries in the Aleutian Islands or in the Gulf of Alaska, but has relatively good opportunities to redeploy into Pacific cod fisheries in the Bering Sea. Industry sources indicate that Pacific cod are larger, and that prices are better in the Aleutian Islands than in the Bering Sea, so a shift to the Bering Sea may have adverse revenue impacts, even if the overall harvest remains the same. The action may lead the freezer-longline component of this fleet to target increasing amounts of Greenland turbot in the BSAI.

Trawl catcher vessels

The analysis of the trawl catcher vessel sector may be found in the following sections and sub-sections:

- 8.2.3 Trawl catcher vessel background
- 8.5 Trawl catcher vessels, Alternatives 1 and 4
- 8.11 Trawl catcher vessels Alternatives 2, 3, and Protective Option
- 8.18 Alternative 5 (Preliminary Preferred Alternative)

Table ES- 16 summarizes the estimates of wholesale gross revenues from Pacific cod fishing from areas remaining open under each alternative ("residual" revenues). Table ES- 16 includes gross revenues associated with trawl catcher vessel deliveries to catcher/processors acting as motherships, as well as gross revenues associated with trawl catcher vessel deliveries to shore-based processors and shoreside floating processors. Table ES- 16 shows summary information about annual sector wholesale gross revenues in the baseline years 2004-2010; the table includes estimates of minimum annual, maximum annual, and average annual wholesale gross revenues to the sector for each alternative-option combination, estimated both with and without considering the impact of the area-sector limits imposed in Area 543 and in Areas 541-542 (jointly) under Alternative 2.

Focusing on the results for the closure and area limits, taken together (the right-hand columns in the table), the average annual revenues for the protective option of Alternative 2, the least attractive option for the sector, were $10.4 million, while the average annual revenues for Alternatives 4 and 5, the most attractive, were $16.7 million. Alternatives 1, 2, and 3 had very similar gross revenue estimates ($12.0 million, $12.2 million, and $12.6 million) and it is not possible to discriminate among them on the basis of the wholesale gross revenue criterion.

Table ES- 16 Estimated residual trawl catcher vessel wholesale gross revenues by alternative and option, with and without closure limits, during the baseline years (millions of dollars)

	Closure only			Closure and area limits		
Alternative	**Minimum**	**Average**	**Maximum**	**Minimum**	**Average**	**Maximum**
1	7.0	12.0	18.9	7.0	12.0	18.9
2	5.2	12.3	21.2	5.2	12.2	21.2
2 PO	4.5	10.4	19.1	4.5	10.4	19.1
3	6.3	13.4	21.6	6.3	12.6	21.6
4	12.2	19.9	30.7	12.2	16.7	24.1
5	12.2	19.9	30.7	12.2	16.7	24.1

Note: Revenues include estimates of incidental catches. Alternative 5 gross revenues have been set equal to the Alternative 4 revenues given the similarity between the measures in these alternatives. The Alternative 5 Area 543 limit does not affect revenues in a way that can be estimated here, since it is not globally binding in the Aleutians.

Under all alternatives trawl catcher vessels have three seasons running in aggregate from January 20 through November 1. Alternative 2 prohibits directed fishing using trawl gear after April 30 in Area 543. This should not affect directed trawl Pacific cod fishing; during the baseline years all trawl Pacific cod harvests in the area took place prior to April 30. However, this may affect retention of Pacific cod after April 30 as vessels will be required to discard Pacific cod in excess of the 20 percent MRAs. This would have little impact on trawl catcher vessels.

This sector has limited opportunity to redeploy into other Pacific cod trawl fisheries in the Aleutian Islands or in the Gulf of Alaska, but has relatively good opportunities to redeploy into Pacific cod fisheries in the Bering Sea. Industry sources indicate that Pacific cod are larger, and that prices are better in the Aleutian Islands than in the Bering Sea, so a shift to the Bering Sea may have adverse revenue impacts, even if the overall harvest remains the same.

Non-trawl catcher vessels

The analysis of the non-trawl catcher vessel sector may be found in the following sections and sub-sections:

- 8.2.4 Non-trawl catcher vessel background
- 8.6 Non-trawl catcher vessels, Alternatives 1 and 4
- 8.12 Non-trawl catcher vessels Alternatives 2, 3, and Protective Option
- 8.18 Alternative 5 (Preliminary Preferred Alternative)

While there are not enough observations to report harvest and gross revenue information, even across all management areas in a given year (primarily because of the small numbers of processors), there are enough to report summary information for the whole period 2004 to 2010. During that time a total of 26 vessels and 4 separate processors operated in this sector (NMFS Alaska Region In-season management staff). Over the seven years, these vessels retained 991 metric tons of Pacific cod, for a mean weight of 142 metric tons a year. (Alaska Region report, February 7, 2013)

Estimated average aggregate annual wholesale gross revenues from open areas would have been about $120,000 under Alternative 1, and about $290,000 under Alternative 4. For each of the other alternatives, in almost all years, 100 percent, or almost 100 percent of the baseline catch came from within areas that would have remained open under the alternative, and thus, using the approach discussed here, estimated residual harvests under these alternatives would all have been generally equal to baseline harvests.

The extension of the fishing season until the end of the year would have little impact on these vessels, which typically do not operate in the Aleutian Islands in the late fall months.

This fleet has opportunities to fish in the State GHL fishery and in the Bering Sea. Opportunities in the GOA are limited.

Benefits of protecting Steller sea lions

The analysis of the impacts on the benefits of protecting Steller sea lions may be found in the following sections and sub-sections:

- 8.2.10 Background
- 8.13 Analysis

While there is evidence that people place a positive value on improvements in Steller sea lion population health, uncertainty about the recovery of sea lion hunting in response to a population recovery, and limitations in available research, make it impossible to determine whether sea lion populations will improve, and consequently, whether there would be a positive net impact on subsistence households or households obtaining other types of benefits.

Impacts on other ecosystem resources

The actions under consideration may affect ecosystem resources such as fish stocks, seabirds, marine mammals other than Steller sea lions, habitat, and ecosystem function. The analysis of the impacts on other ecosystem resources may be found in the relevant resource chapters of this EIS, and in Section 8.14 of this chapter. The impacts of the alternatives on these resources are expected to be small, and to have limited, if any, economic impacts.

Impacts on consumers

Impacts on consumers are discussed in Sub-section 8.2.13 (on product markets) and in Section 8.16 (impacts on consumers). Most Atka mackerel products are exported, so alternatives affecting Atka mackerel production should have little impact on United States consumers. Since Pacific cod products are consumed in the United States, as well as exported, the alternatives may have some consumer surplus impacts. However, the alternatives do not affect overall BSAI production of Pacific cod. They may, however, affect the size composition of Pacific cod production, possibly reducing the flow of larger, more highly valued Pacific cod to one market segment, while reducing the flow of smaller, lower valued Pacific cod to others. A more detailed discussion is not possible. Changes in Aleutian Islands pollock production will likely have a relatively small impact on United States consumers. The volumes are small in comparison with overall BSAI pollock production, and much of the Aleutian Islands pollock allocation is currently rolled over to the Bering Sea fisheries.

Safety

The impacts of the alternatives on the safety of fishing operations was discussed in Section 8.17.1. The analysis of safety reached no conclusions about the relative net impact on safety of the alternatives and options. The models that would project how sectors would respond to the alternatives and how these might be related to safety outcomes were not available. Moreover, alternatives may have some elements that increase safety, while other elements decrease it. The analysis was carried out with respect to the following factors that may affect safety (these are not listed in any order that implies a ranking of the magnitude of either the probability of a vessel casualty or the consequences of a vessel casualty.

- Increasing distance westward increases risk to fishing operations. This is due to greater distance to U.S. Coast Guard search and rescue (SAR) resources.
- Increased risk is related to reduced proximity to other fishing vessels that could act as “Good Samaritans” until the arrival of U.S. Coast Guard SAR resources.
- Increasing the number of fishing vessels less than 60-foot length overall increases risk.
- A “race to fish” or other increase in fishing pressure increases risk. In this discussion, fishing pressure is considered in temporal terms.
- Increasing the amount of fishing in “winter” increases risk.

Alternatives 2 through 5 relax fishing restrictions in Area 543 and/or Area 542, thus increasing fishing activity in the far west, and increasing fishing activity in areas where other fishing vessels may not be close by . Since regulations require that the Aleut Corporation allocate half of its pollock allocation to

catcher vessels under 60 feet LOA, the alternatives which increase opportunities for fishing pollock may increase the number of small vessels active in the region. The forthcoming Aleutian Islands-Bering Sea Pacific cod split, in combination with area-sector limits imposed on Pacific cod fishing under some alternatives, may contribute to a race for fish among fleet sectors. Alternatives 2 through 5 extend the Atka mackerel season from November 1 to December 31, and may contribute to increased fishing activity in the winter months. Alternatives 2 through 5 may have a similar effect for non-trawl Pacific cod fishing. Finally, the development of an A-season pollock roe fishery in the Aleutians could further contribute to winter fishing in the region.

Enforcement

Enforcement issues were discussed in Section 8.17.2. Alternative 1, the status quo, effectively precludes directed fisheries for Atka mackerel, Pacific cod, and pollock, in Area 543. Thus, the status quo has decreased enforcement input needs, decreased costs, presented a more straightforward closure regime, and present fewer enforcement difficulties compared to the measures that existed prior to implementation of the 2010 interim final rule. Alternatives 2 through 5, and the Protective Option, would provide additional access to Atka mackerel and Pacific cod fishing as well as new opportunities for pollock fishing in the Aleutian Islands sub-area. Enforcement of protection measures is most cost-effective if an area is completely closed or completely open. Establishing the complex series of open and closed areas associated with Alternatives 2 through 5 would create additional enforcement responsibilities.

Under all Alternatives, NMFS will propose an amendment to the BSAI FMP requiring an increase in VMS polling rates from two per hour to 10 per hour for all trawl vessels holding a Federal Fishing Permit and fishing for groundfish that is deducted or required to be deducted from a Federal groundfish TAC, in the Aleutian Islands subarea. The owner of the trawl vessel must ensure NMFS receives the transmission from the VMS unit at least 10 times per hour. Increasing polling rates will provide NOAA Office of Law Enforcement and the Coast Guard with the additional information needed to monitor potential accidental or intentional trawl vessel incursions into the often small, and irregularly shaped Steller sea lion critical habitat areas. This is estimated to cost an additional $400 a year for catcher vessels and catcher/processors, other than those fishing for Atka mackerel, and an additional $1,200 a year for catcher/processors targeting Atka mackerel. In some cases, vessels may have to replace VMS units in order to ensure NMFS receives transmissions.

In-season management

In-season management is discussed in Sub-section 8.17.3. The Alternatives 2, 3, and 5 generally involve standard NMFS management measures, and generally do not impose new requirements on the Alaska Regional Office of NMFS. Elements of the alternatives will increase management work load as the number of TAC limits to manage are increased under Alternatives 2 and 3. Also the TAC limits are further divided into smaller amounts. When compared to potential fishing effort, some of the projected TAC limits may be too small to open for directed fisheries. This may result in more closures as NMFS management will not be able to mitigate the risk of exceeding the TAC limit. The potential increase in pollock directed fishing as a result of relaxed closures in Alternatives 2, 3, and 5 may result in increased monitoring of the Aleutian Islands pollock TAC. The alternatives will likely require no change in staffing requirements, though increased workload from these alternatives may mean delays in other tasks.

Science

The impacts on the value of scientific information are discussed in Sub-section 8.17.4. Groundfish stock assessments rely on fisheries independent data from biennial trawl surveys, and other sources, but they also rely on fishery dependent data such catch size and composition, and the results of biological

sampling. Alternatives which reduce fishing activity in the Aleutian Islands tend to reduce opportunities to collect fisheries dependent data, while activities that increase fishing activity tend to increase these opportunities. Since research to facilitate fishing activity derives its value from the value of the fishing output, circumstances that require reduced fishing activity and fishery production, may tend to reduce the value of the associated research, while circumstances that permit increased fishing activity and production may tend to increase it. The cost of a loss of fishery dependent scientific information would be (a) the reduction in net benefits associated with potentially more conservative ABC and TAC determinations, and smaller harvests, and (b) a reduction in the amount of information on interactions between fisheries and Steller sea lions and other ecosystem resources.

Alternative 1 has the greatest adverse impact on the collection of fishery dependent scientific information. In general, the Protective Option, and Alternatives 2 through 5, increase fishing activity for Atka mackerel and Pacific cod compared to Alternative 1. The relative increases follow the order in which the options and alternatives have just been listed, with Alternative 4 representing a return to the approximate regulatory conditions prevailing in 2010 before the interim final rule was implemented.

Net benefits

The sum of consumer and producer surpluses includes the producer surpluses accruing to participants in fishing operations, consumers' surplus for consumers of Atka mackerel, Pacific cod, and pollock products, and consumers' surpluses accruing to persons who value Steller sea lion population health. Producers' surpluses are likely to increase as restrictions on fishing are relaxed, but by amounts that cannot be measured. Surpluses accruing to U.S. consumers are unlikely to change much since the Atka mackerel market is an export market and overall BSAI Pollock and Pacific production are unlikely to change much. Limited information on the impact of the actions on Steller sea lion populations, and on the value placed by persons on those population impacts makes this source of surplus impossible to determine. Thus the net efficiency benefits of the alternatives are indeterminate, and the alternatives themselves cannot be ranked using this criterion.

Community Impacts

Community economic impacts

The analysis focused on the following important communities or classes of communities: (1) Adak, (2) Atka, (3) Unalaska, (4) Other Alaskan communities, (5) Puget Sound communities, (6) CDQ communities, and (7) Aleut Corporation shareholders. Community economic impacts are distributional impacts. They are not parts of an overall cost-benefit analysis from a national accounting stance. Changes that may benefit any of the groups defined here may hurt other groups. The analysis of the impacts on the action on communities may be found in the following chapters, sections and sub-sections:

- 8.2.7 CDQ groups background
- 8.2.8 Aleut Corporation background
- 8.2.9 Subsistence background
- 8.2.11 Public finance background
- 8.2.12 Community economic impact background
- 8.7 to 8.12 Fleet specific chapters include community impact discussions
- 8.15 Community economic impact analysis
- 10.0 Community impacts chapter

Adak[1] is the community likely to be most impacted by the Alternatives. Adak's fishing economy is large relative to the community size, and the alternatives can have relatively large impacts on production from nearby fishery resources. The alternatives may affect purchases of goods and services during port visits, may affect economic impacts associated with the delivery of, and local processing of, Pacific cod and pollock, may affect local tax revenues or shared state fishery taxes, and may affect pollock-derived financial resources available to the Aleut Corporation and designated by law for the development of Adak.

It is likely that Alternative 1 ranks lowest with respect to benefits for Adak, except, possibly, for those of the protective option for Alternative 2. Alternative 1 ranks lowest with respect to potential Adak port visists by Atka mackerel trawl catcher/processors. The impacts of Alternative 1 on deliveries of Pacific cod to Adak for processing are likely to be similar to those for Alternatives 2 and 3, but worse than those of Alternative 4. Alternative 1 has no pollock fishing benefits for Adak, as it continues the baseline management regime.

Alternative 2 is likely to be associated with more port visits to Adak, and associated sales of goods and services, than Alternative 1, but less than the baseline. These would be particularly likely among Amendment 80 trawlers fishing for Atka mackerel, non-trawl vessels fishing for Pacific cod, and AFA or other vessels fishing for pollock. Although Alternative 2 trawl catcher vessel gross revenues are similar to those from Alternative 1 (these are used as a proxy for deliveries of product to Adak for processing), its relative impact on Adak is unclear for two reasons. Area 541 revenues are restricted by the closure of critical habitat to the east of Atka North Cape, and relatively open in the western area of Area 541 nearer to Adak. Second, Alternative 2 includes options allowing and prohibiting catcher vessels from delivering to motherships in Area 543. This may either encourage catcher vessels there to deliver to Adak, or, by increasing costs for catcher vessels in Area 543, discourage catcher vessels from operating there. Alternative 2 relaxes restrictions on pollock fishing in critical habitat near Adak, and may provide for more pollock deliveries than Alternative 1. Options in Alternative 2 that may limit fishing in Kanaga Sound may offset part of this impact.

Alternative 3 may be associated with more port visits to Adak than Alternatives 1 and 2, but fewer than Alternative 4, or the baseline years. Deliveries of Pacific cod to Adak under this alternative may be similar to those under Alternatives 1 and 2; the prospect for pollock deliveries is greater than under Alternatives 1 and 2.

Alternative 4, which returns most management regulations to those prevailing in 2010, and opens critical habitat to pollock fishing, will produce the most benefits for Adak, from port visits, Pacific cod and pollock deliveries, tax revenues, and Aleut Corporation support for Adak development.

Alternative 5, the Council's Preliminary Preferred Alternative, is likely to provide benefits comparable to, or more than, Alternative 3, but less than Alternative 4.

Atka was not involved with the Atka mackerel, Pacific cod, or pollock fisheries in the baseline years. However, the Atka Pride plant (owned by a partnership of the Atka Fisherman's Association and Aleutian Pribilof Island Community Development Association (APICDA)) began processing Pacific cod in 2012. APICDA has invested in a new dock to provide deep water vessel access, and is planning an investment in the plant and in worker housing to permit an increase in Pacific cod processing. To the extent that the

[1] In mid-April 2013, as this EIS was being completed, Icicle Seafoods, which operated the processing plant at Adak in 2011-2013, announced that it would close its operation there. Icicle representatives cited several reasons for its decision, including (a) regulatory uncertainty, (b) concern over the Pacific cod stock in the region, and (c) high operating costs at Adak.

measures under consideration limit catcher vessel production of Pacific cod, this action may interfere with community and APICDA efforts to diversify the village economy through increased Pacific cod processing. In this regard, although Alternatives 1, 2, and 3 have broadly similar impacts on gross revenues at the regional level, Alternatives 2 and 3 close Area 541 critical habitat to the east of Atka, and may limit its ability to exploit the popular fishing grounds just to its east (the grounds east of Atka North Cape). Atka may also be affected by changes in shared state fishery taxes. Alternatives 4 and 5 will probably create the most benefits for Atka; benefits from the two alternatives may be comparable.

Unalaska may be impacted by changes in port visits by vessels targeting Atka mackerel, Pacific cod, or pollock, either before or after the visit. The port visits would be associated with purchases of goods and services by visiting vessels. Unalaska may also be impacted by changes in shared state fisheries taxes, or by changes in deliveries of Pacific cod or pollock for processing by vessels active in the Aleutian Islands that are associated with the alternatives. The net effect on Unalaska is unclear because it may depend directly on overall output from Aleutian Islands fisheries, but it may also be affected by redeployment of vessels displaced from Aleutian Islands fisheries into Bering Sea fisheries closer to Unalaska. These impacts could offset each other, and their relative sizes can't be determined in advance.

In general, other Alaskan communities have relatively little involvement in the Aleutian Island Atka mackerel and Pacific cod fisheries, and will likely experience relatively small effects from the alternatives. The Aleut Corporation is required by law to allocate half of its directed fishery allocation of pollock to catcher vessels under 60 feet LOA. Many of the vessels that may be affected are homeported in Sand Point and King Cove. Thus, these ports may be impacted by Alternatives 2, 3, 4, and 5.

Puget Sound provides bases for a disproportionate number of the trawl catcher/processors, non-trawl catcher/processors, and trawl catcher vessels that may be impacted by the alternatives. Impacts in the region will be large compared to those in the much smaller Alaskan communities, but will be relatively small, given the large size of the regional economy.

Residents of CDQ communities may be affected by changes in the royalties received by their CDQ groups for the lease of their Atka mackerel, Pacific cod, or pollock quota, or by profits from its direct use. They may also be affected by changes in community development initiatives associated with CDQ group revenue changes caused by the action. Persons living at Atka may be particularly affected by increased job opportunities and income associated with increased deliveries of Pacific cod.

The impacts on both the Puget Sound region, and on the residents of the CDQ communities have been proxied by the estimates of the relative gross revenues to the different sectors associated with the alternatives. Alternative 4 provides the largest Atka mackerel benefits to the region, while Alternative 1 imposes the greatest costs. It is difficult, on the basis of differences in residual revenues during the baseline years, to discriminate among the other alternatives. Trawl catcher/processors and trawl catcher vessels have the largest Pacific cod gross revenues under Alternatives 4 and 5, and the least under the protective option to Alternative 2. Relative gross revenues under Alternatives 1, 2, and 3 are similar. Non-trawl catcher vessel gross revenues are lowest under Alternative 1, and similar to the baseline under the remaining alternatives. The lack of activity in the pollock fishery in recent years precluded estimates of pollock gross revenues for the alternatives. However, these are likely to be greatest for the alternatives that lift the most restrictions. Thus these are ranked: Alternatives 3 and 4 (most benefits), Alternative 2, and Alternative 1 (no benefits relative to the baseline).

Aleut Corporation shareholders will benefit from increased dividends, or increased corporate charitable donations to shareholders, and are presumed to benefit from the development of an Aleut community at Adak. The potential of the alternatives to contribute to the development of Adak were discussed earlier in this section. This discussion is relevant here as the impact of the alternatives on Adak provide a

reasonable proxy for the potential impact on Aleut Corporation revenues from businesses based in Adak, and for the psychological benefit its shareholders may receive from community development at Adak.

Community Social Impacts

For the purposes of community impact assessment, a two-pronged approach to analyzing the community or regional components of changes associated with the implementation of proposed management measures was utilized. First, tables based on existing quantitative fishery information for the period 2004–2010 (inclusive) were developed to identify patterns of participation, by community, in the various components of the relevant fisheries. However, because of confidentiality restrictions, substantial limitations are placed on the data that can be utilized for these purposes. The second approach involved selecting a subset of Alaska communities shown in the data as most heavily engaged in the relevant fisheries for characterization to describe the range, direction, and order of magnitude of social- and community-level engagement and dependency on those fisheries. A series of profiles were compiled for those communities, which included Adak, Unalaska, and Seattle; Atka was also profiled as a community in the Aleutian Islands subarea that could be affected through potential impacts to subsistence use of Steller sea lions as well as commercial fisheries participation. A number of other Alaska communities are engaged in the potentially affected fisheries in the Aleutian Islands subarea, but none have the range, consistency, and/or level of engagement of the communities profiled, especially in the last few years, although Akutan and King Cove shore-based processors saw at least some level of processing of Pacific cod from the Aleutian Islands subarea in most if not all years over the 2004–2010 baseline period.

In general, it is not possible to quantitatively differentiate potential impacts of the different Steller sea lion protection measures alternatives on an individual community basis. Qualitatively, however, it is possible to anticipate the communities where adverse impacts would most likely take place, along with the nature, direction, and at least rough order of magnitude of those impacts. Adverse impacts would likely be felt at the individual operation level for at least a few vessels in a number of Alaska communities due to increased costs and/or a drop in revenues associated with either changing fishing patterns and/or practices than would have been the case under 2004–2010 baseline conditions. Additionally, recent community and social impact assessments for North Pacific fishery management actions suggest that, as locally operating vessels experience adverse impacts, indirect impacts are also soon felt by at least some local support service providers to the degree that those individual enterprises are dependent upon customers who participate in the specific fishery or fisheries affected (and the relative dependence of those customers on those specifically affected fisheries). Given the scope of overall impacts anticipated to result from any of the management alternatives assessed, however, community-level impacts would likely not be discernible for most of the engaged communities. The three communities where community-level impacts are a greater possibility are Adak, Atka, and Unalaska, with the vulnerability to adverse impacts varying among these communities.

Potential mitigating factors for possible adverse impacts in Atka include lack of current dependence on the potentially affected fisheries, although planned expansion into the Pacific cod fishery could be made more difficult depending on the alternative selected. For Unalaska, potential mitigating factors include virtually no dependence of the local fleet on the potentially affected fisheries and a low level of dependence of shore-based processors on Pacific cod from the Aleutian Island subarea, although support service sector businesses in the community do depend to a larger (but still relatively modest) degree on port calls of catcher vessels and catcher/processors making targeted trips to the potentially affected fisheries in the Aleutian Islands subarea.

Adak was not directly engaged in the Atka mackerel or Pacific cod fisheries through participation of locally owned vessels in 2004–2010, with the exception of one or two locally owned non-trawl catcher vessels each year in 2006–2008. While this is a limited degree of engagement in the fishery in absolute

terms, it is important to recognize that the locally owned Adak catcher vessel fleet is small and nascent in its anticipated growth, due at least in part to Adak, in its current configuration as a civilian community, being a relatively new fishing community. As a result, even the participation of one or two locally owned vessels involves a relatively large proportion of the local fleet and presumably equates to a level of dependency not immediately apparent in the low participation numbers, although the data to quantify the degree of dependency are confidential. Adak-owned catcher vessels are also limited in their alternatives to fishing in the Aleutian Islands subarea, due to their size and range, so participation in the Aleutian Islands subarea fisheries is doubly important.

Adak did have a substantial degree of engagement in the Atka mackerel fishery, the Pacific cod fishery in the Aleutian Islands subarea, and/or the Aleutian Islands pollock fishery in two other ways during 2004–2010: (1) through shore-based processing of Pacific cod and pollock and (2) as a port of embarkation and disembarkation for catcher/processors and catcher vessels immediately before and immediately after trips targeting Atka mackerel, Pacific cod in the Aleutian Islands subarea, and/or Aleutian Islands pollock. As a port of embarkation and disembarkation, Adak receives a substantial amount of economic activity that multiplies locally for a range of goods and services present in the small community. Combined with other social and economic realities, the community's participation in these three fisheries as a shore-based processing location and as port of call is of key importance.

In general, with the exception of Adak, adverse community-level impacts are not likely to be significant for any of the involved communities and the sustained participation of these fishing communities in the potentially affected fisheries would not be put at risk by any of the proposed Steller sea lion protection measure alternatives being considered. For some individual operations, however, adverse impacts may be felt at the operational level, based on level of dependency on Atka mackerel and/or Pacific cod in the Aleutian Islands subarea, although especially in the case of Pacific cod, potential impacts would ultimately depend on the ability of a given operation to successfully redirect fishing efforts into other areas not affected by the proposed alternatives.

Based on the analysis presented in Chapter 8, as well as information presented in the community impacts analysis, the sustained participation in the directly affected fisheries is potentially at risk for Adak. This is due to its unique combination of multiple types of engagement, as well as its degree of dependence, vulnerability, and lack of resilience resulting from its particular history, geography, and limited range of other specific fishery and general economic sector engagement options. The risk to sustained participation is multi-faceted and includes risks to Adak's efforts to build and retain a locally owned catcher vessel fleet; its ability to retain stable, continuously operating local shore-based processing[2]; its ability to remain an important port for catcher vessel and catcher/processor support activities, including fuel services; and its ability to generate sufficient fishing-specific revenues to justify continued or allow new municipal and private sector (especially Aleut Corporation) investments in infrastructure to foster commercial fisheries development, among other factors.

Potential community-level beneficial impacts could accrue from the implementation of Steller sea lion protection measures through changes to Steller sea lion subsistence-related activities, a redistribution of fishing effort between communities, or changes that may allow more opportunity to harvest the CDQ and Aleut Corporation Aleutian Islands pollock allocations as a result of implementation of the proposed action or alternatives when compared to baseline conditions. In terms of potential impacts to Steller sea

[2] NOTE: As this document was in its final hours of preparation, Icicle Seafoods announced plans to close its shore-based processing operation in Adak. The closure of this plant, particularly if there is no successor operation in the near future, will likely result in a broad and deep economic and social impacts for the community of Adak that are not reflected in the current community impacts analysis in Chapter 10. No other information was available at the time this EIS went to press.

lion subsistence activities, it is not possible to distinguish degrees of impact among the action alternatives, either to order them or to determine whether such impacts would rise to a level of significance. There is the potential for redistribution of fishing effort through a decrease in Adak's engagement in the Pacific cod fishery in the Aleutian Islands subarea and a corresponding increase in Unalaska's engagement in the same fishery if the center of gravity of that fishery were to shift eastward with, for example, widespread closures in the westernmost districts in the Aleutian Islands subarea. In terms of community dependency, this would not necessarily be a zero-sum situation, as what could be a relatively large shift (loss) from the perspective of the Adak local fishing economy could be a relatively small shift (gain) from the perspective of the much larger and more diversified Unalaska local fishing economy. In terms of beneficial impacts to CDQ groups and the Aleut Corporation, Alternatives 2, 3, 4, and 5 include provisions that may allow more opportunity than Alternative 1 to harvest the CDQ and Aleut Corporation pollock allocations. While the level of impact in terms of revenue increases to the involved CDQ groups and the Aleut Corporation that would accompany the proposed harvest opportunity increases is unknown, these impacts would be beneficial. Similarly, these increased harvest opportunities would likely translate into beneficial impacts for the community of Adak in terms of increased shore-based processing activity, support service demand, and increased municipal revenues, and could serve to help foster the establishment and growth of a small vessel fleet in the community.

Cumulative impacts would be more likely for the communities of Adak, Atka, and Unalaska than for other communities. Cumulative impacts potentially associated with Adak and Unalaska are based largely on existing (or attempted) participation in the potentially affected fisheries, while those associated with Atka would be based largely on preclusion issues. Cumulative impacts would likely be more substantial in Adak than the other potentially affected communities.

Initial Regulatory Flexibility Analysis

An Initial Regulatory Flexibility Analysis (IRFA) was prepared for this proposed action including the reasons and objectives for the action, a description of the number of small entities to which this action would apply, and the significant alternatives to the action.

After an examination of gross revenues and cooperative affiliations for individual directly regulated entities, NMFS estimates that there are two small catcher/processors, and eight small catcher vessels. These numbers may overstate the actual numbers of small entities, if NMFS is unaware of relevant affiliations between entities. In addition, six CDQ groups are directly regulated small entities. The Aleut Corporation receives all of the pollock directed fishing allocation in Areas 541, 542, and 543. The Aleut Corporation is an Alaska Native Corporation and exceeds the Small Business Administration criteria at 13 CFR 121.201 for a small entity based on its annual reported gross revenues of approximately $159 million.

While the analysis noted the utility of expanding electronic logbook requirements in the BSAI trawl limited access sector, to enhance management, this requirement is not included in the action. This action will require an increase in VMS polling rates for trawl vessels holding a Federal Fishing Permit and fishing for groundfish that is deducted, or required to be deducted, from a Federal groundfish TAC in the Aleutian Islands subarea, from 2 times per hour to 10 times per hour. NMFS has estimated the additional cost of this as $400/year for most trawl catcher vessels and catcher/processors, but $1,200/year for trawl catcher/processors targeting Atka mackerel (these are all large entities). Some operations may be required to replace existing VMS units to meet new transmission reliability standards. This analysis did not reveal any Federal rules that duplicate, overlap, or conflict with the proposed action.

The pollock elements of Alternative 5 may be more restrictive to directly regulated small entities than those of Alternatives 3 and 4 because, while Alternative 5 is based on Alternatives 3 and 4, it also includes management area specific A-season catch limits, and increases critical habitat closures in Area 542. Because of a lack of information on recent harvests, NMFS cannot predict that these two restrictions would reduce the volume of fish production. Both restrictions are considered to be more protective of Steller sea lions in the western Aleutian Islands, where the populations are in greatest difficulty.

The Atka mackerel elements of Alternative 5 are more restrictive than those of Alternative 4, and of Alternative 3. While Alternative 5 is based on Alternative 3, it includes additional fishing area near Buldir Island (potentially beneficial to small entities), but also overall limit Atka mackerel catch in Area 543, which could reduce catches in some years. While Alternative 5 may be more restrictive than Alternative 3, the additional restrictions are associated with production in Area 543, the area where Steller sea lion populations are in the greatest difficulty. Alternative 5 is more restrictive than Alternative 4, but Alternative 4 was found in the previous Biological Opinion to result in jeopardy or adverse modification of critical habitat.

The Pacific cod elements of Alternative 5 are based on those of Alternative 4, with the added restriction of a catch limit for Pacific cod in Area 543 that limits area catch in proportion to the annual sock assessment. Alternative 5 provides more protection for Steller sea lions in Area 543, where the populations are in the greatest difficulty.

Areas of Controversy

Areas of controversy regarding the Steller sea lion protection measures include differences of opinion on the interpretation of scientific information and on the application of law in fisheries management. In the application of law, the challenge is managing the fisheries to comply with several statutes, including the Magnuson-Stevens Act and the ESA. The application of the ESA to Alaska groundfish fisheries management can be controversial when extensive fishery restrictions are required. NMFS uses a weight-of-evidence approach to determine if a plausible pathway exists between the effects of the action and the condition of an ESA-listed species or its critical habitat to determine if mitigation may be warranted. Several scoping comments stated that the reviews of the FMP biop constitute new information that compel NMFS to immediately reinitiate consultation and to implement Steller sea lion protection measures that were in place before 2011. At the end of the scoping period, NMFS carefully reviewed the FMP biop reviews (Bernard et al. 2011), (Stokes 2012), (Stewart 2012), and (Bowen 2012), and scoping comments; and considered these in the development of this EIS and will consider this information in any future ESA consultation.

Regarding scientific information, there are several issues related to Steller sea lion biology and potential fisheries interaction for which information is scarce or conflicting. When information is limited or contradictory, NMFS has to evaluate the information that is available and make a determination consistent with its statutory requirements. Under the ESA, NMFS is required to insure the Federal action is not likely to result in jeopardy or adverse modification of habitat, and in situations where data are uncertain or unavailable the benefit of the doubt must be given to the ESA-listed species.

Under NEPA, when information is unavailable, but the agency determines that information is essential to a reasoned choice among alternatives, and the overall costs of obtaining it are not exorbitant, the agency shall include the information in an EIS (40 CFR 1502.22). This draft EIS (DEIS) contains the information essential to a reasoned choice among alternatives in that it provides information on how the alternative minimize potential fishery impacts on Steller sea lions and how the alternatives are more or less constraining for the fisheries.

This DEIS also identifies where information is lacking and discusses the relevance of the unavailable information, the existing credible scientific evidence relevant to adverse impacts on Steller sea lions, and an evaluation of such impacts based upon scientific approaches. As described in Chapter 5, NMFS does not have the information to precisely ascribe the amount to which human and natural factors are contributing to the decline in Steller sea lions in the Central and Western Aleutian Islands. Moreover, insufficient information exists to quantify Steller sea lion population effects with various levels of fishing. The cost of obtaining sufficient information to fill in the current unknowns, given the unprecedented amount of research ($241 million from FY92 to FY11) directed toward understanding the causes of the Steller sea lions' decline and lack of recovery, seems out of reach of NMFS—especially considering the present fiscal times. This DEIS also identifies future research, including modeling Steller sea lion predator-prey interactions, food web modeling, and diet studies, focal studies of Steller sea lion foraging behavior, Steller sea lion diet, fish abundance, fish movement, oceanography, ocean productivity, and fisheries impacts in contrasting areas of Steller sea lions population trend and in areas where Steller sea lions forage. This work will enable NMFS to better understand the interactions between fisheries and Steller sea lions.

In developing this EIS for Steller sea lion protection measures, NMFS will consider the following areas of controversy and uncertainty shown in Table ES- 17 as they relate to the analysis of the impacts of the alternatives on the human environment.

Table ES- 17 Areas of controversy and uncertainty for Steller Sea Lions and potential fishery interactions

Issues	Sections
Multispecies vs single species modeling	3.1, 7.5, and 7.7
Nutritional stress in Steller sea lions, in general, and fishery-induced nutritional stress, in particular	5.2.2
Poor Diet (aka: Junk Food) hypothesis	5.2.2
Effects of killer whale predation	5.1.1
Reductions in Steller sea lion fitness caused by disease or contaminants	5.1.1
Changes in the ecosystem carrying capacity	5.1.1, 5.2.2, and 7.3
Fisheries' effects on Steller sea lion prey, including overlap between fisheries harvesting and Steller sea lion foraging, including importance of Pacific cod in the diet of Steller sea lions	5.2.2
Estimates and inferences about Steller sea lion vital rates (reproduction and survival)	5.1.1
ESA delisting and downlisting criteria (aka: recovery criteria) for Steller sea lions	5.1.1 and 5.3
Steller sea lion population structure and associated viability inferences	5.1.1
Steller sea lion foraging ratios	5.2.2

Issues to be Resolved

The primary unresolved issue is whether any of the alternatives in the EIS, besides Alternative 1, meets NMFS' mandate to insure the groundfish fisheries in the Aleutian Islands are not likely to jeopardize Steller sea lions or adversely modify critical habitat. This is an issue that cannot be resolved by this EIS alone. This EIS presents the environmental impacts of the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among the alternatives. However, it is the consultation process under the ESA that determines whether a specific suite of management measures is not likely to jeopardize an ESA-listed species or adversely modify critical habitat. NMFS determined in the FMP biop that the status quo alternative in this EIS insures the management of the groundfish fisheries in the Aleutian Islands is not likely to jeopardize Steller sea lions or adversely modify their critical habitat. To understand whether the preferred alternative recommended from this EIS process insures the management of the Aleutian Islands groundfish fisheries is not likely to jeopardize Steller sea lions, NMFS will conduct an ESA consultation on the proposed action.

The ESA consultation on the proposed action will be led by the NMFS Protected Resources Division (PRD). To help resolve this issue, PRD is scheduled to provide an evaluation of the preliminary preferred alternative before the Council takes final action in October 2013. The purpose of the preliminary evaluation is to assist the Council in making a choice among the alternatives and recommending a preferred alternative with a greater chance of insuring the proposed action is not likely to jeopardize Steller sea lions. This preliminary evaluation will not contain the final conclusions of the ESA consultation; however, it is intended to inform the Council about aspects of the preliminary preferred alternative that may not be adequate to insure the proposed action is not likely to jeopardize Steller sea lions. Therefore, the selection of the proposed action is an iterative process based on the analysis in this EIS, consideration of public comments, and agency analysis through the ongoing ESA consultation process.

If new information becomes available through the consultation process, NMFS will evaluate the need to prepare a supplemental DEIS. NMFS would supplement the DEIS if –

1. the agency makes substantial changes in the proposed action that are relevant to environmental concerns, or

2. significant new circumstances or information exist relevant to environmental concerns and bearing on the proposed action or its impacts (40 CFR 1502.9(c)(1)).

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