



Revisions to the Steller Sea Lion Protection Measures for the Aleutian Islands Atka Mackerel and Pacific Cod Fisheries

Council Review Draft Environmental Assessment/Regulatory Impact Review

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Abstract: This environmental assessment/regulatory impact review (EA/RIR) provides decision-makers and the public with an evaluation of the environmental, social, and economic effects of alternatives to the Steller sea lion protections measures for the Aleutian Islands Atka mackerel and Pacific cod fisheries. The western distinct population segment (WDPS) of Steller sea lion is listed as endangered under the Endangered Species Act, and the species population in the Aleutian Islands is declining. Atka mackerel and Pacific cod are principal prey species for Steller sea lions in the Aleutian Islands. This proposed action would revise management of the Atka mackerel and Pacific cod fisheries to ensure the effects of these fisheries are not likely to result in jeopardy of extinction or adverse modification or destruction of critical habitat for the WDPS of Steller sea lions. This document addresses the requirements of the National Environmental Policy Act and Executive Order 12866.

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Executive Summary

In April 2006, National Marine Fisheries Service (NMFS) Alaska Region, Sustainable Fisheries Division (SFD, action agency), reinitiated Endangered Species Act (ESA) Section 7 consultation with NMFS Alaska Region, Protected Resources Division (PRD, consulting agency), on the potential effects of the Alaska groundfish fisheries on ESA-listed species and their designated critical habitat. Consultation was reinitiated in consideration of new scientific information and changes to the fisheries since the last biological opinion on the groundfish fisheries was supplemented in 2003. After reviewing all ESA-listed species within NMFS's jurisdiction that may be affected by the Alaska groundfish fisheries and after consulting with PRD, SFD determined that the Alaska groundfish fisheries were likely to adversely affect Steller sea lions and their designated critical habitat, humpback whales, and sperm whales; therefore, formal consultation was required. In formal Section 7 consultations, PRD reviews the status information for the species and designated habitat, environmental baseline information, and the potential effects of the action on the species and develops a biological opinion. If the biological opinion concludes that the action is likely to jeopardize the continued existence or adversely destroy or modify designated critical habitat (JAM) for an ESA-listed species, the opinion would include a reasonable and prudent alternative (RPA) that must be implemented to avoid JAM.

In July 2010, PRD completed a draft biological opinion on the Alaska groundfish fisheries (FMP biop). The FMP biop found that additional changes to the Pacific cod and Atka mackerel fisheries in the Aleutian Islands are necessary to avoid the likelihood of JAM for the western distinct population segment (WDPS) of Steller sea lions and their designated critical habitat. The RPA to mitigate the effects of the groundfish fisheries on the WDPS of Steller sea lions is specific to the Atka mackerel and Pacific cod fisheries in Areas 543, 542, and 541 of the Aleutian Islands.

The proposed action is based on the RPA contained in the FMP biop. The RPA is focused on the locations in the Aleutian Islands with declining population growth rates, which may be due to declining survival or decreasing birth rates. The features of the RPA were developed considering the evidence of potential impacts of the groundfish fisheries on Steller sea lions, including Steller sea lion foraging behavior, fish removals, prey energetic density, and available prey biomass. Based on the information in the FMP biop, the action is focused in the location where Steller sea lions are experiencing the greatest population growth rate decline and where the groundfish fisheries are likely to be adversely impacting the animals.

Purpose and Need

The purpose of this action is to implement revisions to the management of Aleutian Islands Atka mackerel and Pacific cod fisheries to ensure these fisheries are not likely to cause JAM for the WDPS of Steller sea lions and their critical habitat in consideration of existing fishery management programs. Consideration of the existing fishery management programs will ensure that any revisions implemented would provide the most efficient and effective solutions to meeting the requirements of the ESA. If more than one alternative accomplishes the primary purpose of this action, a secondary objective of the action would be to modify the fisheries in a way that minimizes the economic and social costs that will be imposed on the commercial fishing industry and associated coastal communities.

The need for this federal action stems from several sources. First, NMFS has a responsibility to ensure that fishing activities authorized under the groundfish fishery management plans (FMPs) and implementing regulations are not likely to jeopardize the continued existence of any ESA-listed species or

adversely modify or destroy its critical habitat. Second, in order for the Pacific cod and Atka mackerel fisheries to commence on January 1, 2010, NMFS must implement revisions to the fisheries that avoid the likelihood of JAM. The commencement of a new fishing year and implementation of new harvest specifications must be done in compliance with the ESA. Without any action by NMFS, the Aleutian Islands Pacific cod and Atka mackerel fisheries prosecuted under the current Steller sea lion protection measures are likely to result in JAM, as determined by the FMP biop.

Finally, this action also is needed to meet the North Pacific Fishery Management Council's (Council's) objective in its groundfish FMPs to maintain or adjust current protection measures as appropriate to avoid jeopardy of extinction or adverse modification to critical habitat for ESA-listed Steller sea lions. New information about potential interaction between Steller sea lions and the groundfish fisheries and new trend information have been taken into account in the draft FMP biop allowing for adaptive management of the groundfish fisheries.

Alternatives

The alternatives for the proposed action are described in detail in Chapter 2.

Alternative 1: Status quo

Under this alternative, no changes would be made to the current groundfish fisheries management in the Aleutian Islands as implemented by 50 CFR part 679. This includes the continuing implementation of the Steller sea lion protection measures, Amendment 80, habitat protection and conservation areas, and the Atka mackerel Harvest Limit Area (HLA) management programs.

Alternative 2: Enhanced Conservation Approach

This alternative would use management measures for the Aleutian Islands Atka mackerel and Pacific cod fisheries to remove most of the potential adverse effects on Steller sea lions and their critical habitat. Alternative 2 would provide protection measures for Steller sea lions and their critical habitat no less stringent than currently implemented and provide additional measures at least as protective as the RPA in the FMP biop. The protection is greater in the areas where population growth has been the most negative (Areas 543 and 542 compared to Area 541). The enhanced conservation approach would facilitate NMFS's implementation by simplifying the area closures and seasonal management measures in Area 542 and 541 compared to critical habitat zone specific measures described in Alternative 3. Except for the changes described below, the current Steller sea lion protection measures (e.g., Pacific cod trawl season dates, no Atka mackerel directed fishing in critical habitat in Area 541) would remain unchanged.

Alternative 2 would—

In Areas 542 and 543:

- Prohibit retention of Atka mackerel and Pacific cod by federally permitted vessels, including those operating in State waters 0–3 nm.
- Establish TACs for Atka mackerel sufficient to support incidental discarded catch that may occur in other targeted groundfish fisheries (e.g., Pacific ocean perch).
- Eliminate the Atka mackerel platoon management system in the HLA (Area 543 and western portion of Area 542).
- Close waters from 0–3 nm around Kanaga Island/Ship Rock to directed fishing for groundfish by federally permitted vessels.

In Area 541 and the Bering Sea:

- Close critical habitat in Area 541 to directed fishing for Pacific cod by federally permitted vessels.
- Change the Bering Sea/Area 541 Atka mackerel seasons to January 20 through June 10 for the A season and June 10 through November 1 for the B season.
- Prohibit Pacific cod directed fishing in Area 541 November 1 through December 31. (This extends the current trawl season restriction to the nontrawl fishery.)

Under this alternative, the TAC for Atka mackerel in Areas 543 and 542 would be set at a level sufficient to support incidental catch in other directed groundfish fisheries (e.g., Pacific ocean perch). Pacific cod in Areas 543 and 542 would be placed on prohibited species status and closed to directed fishing. Currently, Pacific cod is managed under a single TAC for the BSAI so no area specific TAC to support incidental catch can be specified. Any retention of Atka mackerel or Pacific cod would be prohibited to remove any incentive to retain these species by operators of vessels targeting other groundfish species. Because no directed fishery for Atka mackerel would be allowed in Areas 543 and 542, the HLA program would be removed from the regulations. Unless otherwise restricted by the State, vessels not federally permitted may participate in the State-managed Pacific cod fisheries in waters 0–3 nm in those areas closed to directed fishing for Pacific cod by federally permitted vessels.

Alternative 3: RPA Specific Approach

Alternative 3 is a more specific application of fishery restrictions based on the management of the fisheries and the Steller sea lion foraging behavior, population trends, and the potential competition between the Atka mackerel and Pacific cod fisheries and Steller sea lions. This alternative is the same as the RPA described in the 2010 FMP biop, providing only the level of fishery restrictions necessary to ensure that JAM is not likely to occur for Steller sea lions and their designated critical habitat. Development of Alternative 3 considered current management of vessels under Amendment 80, historical harvest activities, and gear specific area closures and seasonal apportionments to disperse fishing over area and time. Unless otherwise specified in the alternative, all current Steller sea lion protection measures would continue to be implemented in the Aleutian Islands (e.g., Pacific cod seasonal apportionments; and pollock, Pacific cod, and Atka mackerel closures around rookeries and haulouts and in the Seguam foraging areas). Restrictions in State waters from 0–3 nm apply to federally permitted vessels. State-managed Pacific cod fisheries for vessels not federally permitted may occur in waters 0–3 nm unless otherwise restricted by the State.

Alternative 3 would—

In Area 543:

- Prohibit retention of Atka mackerel and Pacific cod.
- Establish a TAC for Atka mackerel sufficient to support the incidental discarded catch that may occur in other targeted groundfish fisheries (e.g., Pacific ocean perch).
- Eliminate the Atka mackerel platoon management system in the HLA.

In Area 542:

Groundfish

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

Pacific cod

- Close 0–10 nm zone of critical habitat to directed fishing by federally permitted vessels using nontrawl gear year round. Close critical habitat 10–20 nm to directed fishing for Pacific cod using nontrawl gear by federally permitted vessels January 1 through June 10.
- Close 0–20 nm zone of critical habitat year round to directed fishing by federally permitted vessels using trawl gear.
- Prohibit Pacific cod fishing November 1 through December 31 in Area 542. (This extends this trawl gear restriction to nontrawl gear.)

Atka mackerel

- Set TAC for Area 542 to no more than 47 percent of acceptable biological catch (ABC).
- Close 0–20 nm critical habitat to directed fishing by federally permitted vessels year round.
- Change the Atka mackerel seasons to January 20 through June 10 for the A season and June 10 through November 1 for the B season.
- Eliminate the Atka mackerel platoon management system in the HLA.

In Area 541 and the Bering Sea:

Pacific cod

- Close 0–10 nm of critical habitat to directed fishing for Pacific cod by all federally permitted vessels year round.
- Limit the amount of catch that can be taken in the 10–20 nm area of critical habitat based on gear type used:
 - Close critical habitat 10–20 nm to directed fishing for Pacific cod using nontrawl gear by federally permitted vessels January 1 through June 10.
 - Close critical habitat 10–20 nm to directed fishing by for Pacific cod using trawl gear by federally permitted vessels June 10 through November 1.
- Prohibit Pacific cod fishing November 1 through December 31 in Area 541. (This extends this trawl gear restriction to nontrawl gear.)

Atka mackerel

- Change the Bering Sea/Area 541 Atka mackerel seasons to January 20 through June 10 for the A season and June 10 through November 1 for the B season.

Comparison of Alternatives

		Alternative 1				Alternative 2		Alternative 3	
		Atka mackerel	Pacific cod		Atka mackerel	Pacific cod	Atka mackerel	Pacific cod	
			trawl	nontrawl					
Area 543	Inside CH	HLA Fishery	After HLA, mostly 10 nm closures	Mostly 3 nm closures			No retention	No retention	
	Outside CH	Directed fishing Jan 20–April 15, Sept. 1–Nov. 1	3 seasons inside and outside CH, Jan. 20–April 1, April 1–June 10, June 10–Nov. 1	Hook-and-line and pot 2 seasons, jig 3 seasons inside and outside CH			No retention	No retention	
	0–10 miles		Western 542, After HLA, mostly 10 nm closures	3 nm closures			No directed fishing	No directed fishing	
Area 542	10–20 miles	HLA Fishery	Eastern 542, 3–10 nm closures,	Open to directed fishing			No directed fishing	No directed fishing with trawl gear. No directed fishing with nontrawl gear Jan. 1 to June 10	
	Outside CH	Directed fishing Jan. 20–April 15, Sept. 1–Nov. 1	3 seasons inside and outside CH, Jan. 20–April 1, April 1–June 10, June 10–Nov. 1	Hook-and-line and pot 2 seasons, through Dec. 31, jig 3 seasons inside and outside CH			Set Area 542 TAC to 47% of ABC. Extend seasons to Jan. 20–June 10 and June 10–Nov. 1.	No directed fishing Nov. 1–Dec. 31	
	0–10 miles		0–3 nm and 0–10 nm closures	3 nm closures west of Seguan, closed east of Seguan.				Closed to directed fishing	
Area 541	10–20 miles	No directed fishing	Open except 0–20 nm at Agligadak	Open to directed fishing west of Seguan, closed east of Seguan			No directed fishing	No directed fishing with trawl gear from June 10 to Nov. 1. No directed fishing with nontrawl gear Jan. 1 to June 10.	
	Outside CH	Directed fishing Jan. 20–April 15, Sept. 1–Nov. 1	3 seasons inside and outside CH, Jan. 20–April 1, April 1–June 10, June 10–Nov. 1	Hook-and-line and pot 2 seasons, jig 3 seasons through Dec. 31, inside and outside CH			Extend Area 541/BS seasons Jan. 20–June 10 and June 10–Nov. 1	No nontrawl directed fishing Nov. 1–Dec. 31.	

CH = critical habitat

Summary of the Environmental Consequences of the Alternatives

Target Species

The impacts of the alternatives on target species are described in detail in Chapter 3. Under all alternatives, the stock biomass of all target species is expected to be above their MSST. The probability that overfishing would occur is low for all of the stocks. The expected changes that would result from harvest at the levels proposed are not substantial enough to expect that the genetic diversity or reproductive success of these stocks would change. None of the alternatives would allow overfishing of the spawning stock. Therefore, the genetic integrity and reproductive potential of the stocks should be preserved.

The alternatives are not expected to: (1) jeopardize the capacity of the stock to produce maximum sustainable yield on a continuing basis; (2) alter the genetic sub-population structure such that it jeopardizes the ability of the stock to sustain itself at or above the minimum stock size threshold or experience overfishing; (3) decrease reproductive success in a way that jeopardizes the ability of the stock to sustain itself at or above the minimum stock size threshold; (4) alter harvest levels or distribution of harvest such that prey availability would jeopardize the ability of the stock to sustain itself at or above the minimum stock size threshold or experience overfishing, and (5) disturb habitat at a level that would alter spawning or rearing success such that it would jeopardize the ability of the stock to sustain itself at or above the minimum stock size threshold or prevent overfishing. For these reasons, impacts to target species stocks, species, or species groups, are predicted to be insignificant for all target fish evaluated under Alternatives 1, 2, and 3.

Nontarget Species

The impacts of the alternatives on nontarget species are described in detail in Chapter 4.

Marine Mammals

The impacts of the alternatives on marine mammals are described in detail in Chapter 5. The groundfish fisheries may impact marine mammals through incidental take, reductions in prey availability and disturbance. Of the marine mammals and alternatives analyzed, only Steller sea lions are likely to experience significant adverse impacts from the Aleutian Islands Pacific cod and Atka mackerel fisheries under Alternative 1 through the reduction of prey availability. The impacts of Alternatives 2 and 3 on marine mammals are not likely to result in adverse population level effects, and therefore were determined to be insignificant.

Seabirds

The impacts of the alternatives on seabirds are described in detail in Chapter 6. Many seabird species use the marine habitat of the Aleutian Islands, including several species of conservation concern. Some species are taken by hook-and-line gear, some are occasionally taken by cable or vessel strikes or become entangled in trawl nets, and some species depend on benthic habitat that is disrupted by pelagic and non-pelagic trawling. However, the Alaska Fisheries Science Center estimates that seabird takes are few and infrequent in relation to seabird population total estimates. The spatial and temporal effects of non-pelagic trawling on benthic habitat are not yet well understood, although undisturbed areas seem to produce more clam species on which eider species are dependent than disturbed areas. Although the Alternatives 2 and 3 may affect seabirds, all effects (both positive and negative) would be insignificant.

Habitat

The impacts of the alternatives on habitat are described in detail in Chapter 7. Previous analyses of the Alaska groundfish fisheries found no substantial adverse effects to habitat in the Aleutian Islands due to fishing activities; Alternatives 2 and 3 would remove a substantial portion of any localized effects that were occurring under the status quo alternative. The potential effects on an area to which fishing may shift would be constrained by the amount of TAC available (particularly for Atka mackerel) and by the existing habitat conservation and protection measures. It is possible that impacts may increase slightly in other areas due to displaced fishing effort, but in context of the entire Aleutian Islands and Bering Sea, the effects of either Alternatives 2 or 3 on habitat are beneficial in the Aleutian Islands subarea, but not substantially so. Alternative 3 would result in more potential for bottom habitat impacts in Areas 542 and 541 as more fishing would be allowed under this alternative compared to Alternative 2. For these reasons, effects to habitat complexity for both living and non-living substrates, benthic biodiversity, and habitat suitability are predicted to be insignificant for all habitat types evaluated under Alternatives 2 and 3.

Ecosystem

The impacts of the alternatives on the ecosystem are described in detail in Chapter 8.

Social and Economic

The socioeconomic impacts of the alternatives are described in detail in Chapter 10.

Atka mackerel and Pacific cod harvests from Federal fisheries in the Aleutian Islands have had an average wholesale value of about \$84 million in recent years. In 2009, they were targeted by 8 trawl catcher/processors, 7 hook-and-line catcher/processors, 3 pot catcher/processors, and 28 catcher vessels. In recent years catcher vessels have used trawl, jig, hook-and-line, and pot gears.

Alternative 2 prohibits retention of Atka mackerel and Pacific cod in Areas 542 and 543 and prohibits directed fishing for Pacific cod in 0 nm to 10 nm of critical habitat in Area 541. Alternative 3 prohibits retention of Atka mackerel and Pacific cod in Area 543, prohibits directed fishing for these species inside most critical habitat in Areas 542 and 541, and limits the Atka mackerel TAC in Area 542 to no more than 47 percent of the ABC. There are a number of other elements to the alternatives, however these are the main components.

Four fleets were defined for the analysis: the Amendment 80 fleet of trawler catcher/processors, fixed gear (hook-and-line and pot) catcher processors, catcher vessels (including vessels using jig, pot, hook-and-line, and trawl gear), and vessels fishing in the state waters fishery.

The potential costs to industry are the producers' surplus and factor rents that may be lost because of the restrictive measures in the Aleutian Islands. The information that would make it possible to estimate the value of the lost producers' surplus and factor rents is not available. It is possible to approximate the annual gross revenues that would be lost in the directly regulated fisheries.

In general the alternatives will reduce Atka mackerel and Pacific cod harvests. The industry is likely to respond to the restrictions in the Aleutian Islands by redeploying its fleets in an effort to minimize the losses the restrictions will impose. The Amendment 80 fleet may spend more time fishing for rock sole and yellowfin sole in the Bering Sea, and may fish more Pacific cod in the Bering Sea. It is not clear how effectively it may fish for Pacific cod in the Bering Sea. Halibut bycatch is higher there, the fleet doesn't

have a history of Bering Sea Pacific cod fishing, and only a few of the vessels focused on Pacific cod in the Aleutian Islands. The fixed gear catcher/processors and catcher vessels catch Pacific cod, not Atka mackerel in the Aleutian Islands, and may switch to fishing Pacific cod in the Bering Sea.

Despite likely redeployment, the industry will incur losses. The size of these losses cannot currently be estimated. However, it is possible to estimate the approximate reduction in gross revenues in the Aleutian Islands:

- The Amendment 80 Atka mackerel reductions in gross revenues are estimated to be in the neighborhood of \$47 million under Alternative 2, and of \$34 million a year under Alternative 3.
- The Amendment 80 Pacific cod reductions in gross revenues are estimated to be in the neighborhood of \$7 million to \$19 million under Alternative 2, and \$4 million to \$11 million under Alternative 3.
- The fixed gear catcher/processor reductions in gross revenues are estimated to be in the neighborhood of \$13 million to \$23 million a year under Alternative 2 and \$4 million to \$12 million a year under Alternative 3.
- The catcher vessel reductions in gross revenues are estimated to be in the neighborhood of \$12 million to \$13 million a year under Alternative 2 and \$8 million to \$9 million a year under Alternative 3.
- Aggregate reductions in gross revenues are estimated to be in the neighborhood of \$79 million to \$102 million a year under Alternative 2, and \$50 million to \$66 million a year under Alternative 3.
- The state waters Aleutian Island Pacific cod fishery may not be affected in the short run, but may be in the long run, if proposed FFP regulatory changes interact with the Steller sea lion protection measures to discourage fishing operations from entering the State fishery.

These estimates for forgone revenues overstate the industry's net losses. First, gross revenues ignore fishing costs; the actual net loss in the Aleutians, caused by the restrictions, will be less than the gross loss. Second, a reduction in Atka mackerel production may lead to increased prices for the remaining Atka mackerel harvest. Third, industry will respond to these changes by taking steps to reduce its losses. These may involve redeployment of vessels to fisheries in the Bering Sea. Other steps, such as efforts to reduce trawl halibut bycatch in the Bering Sea, are also possible.

The three different federal fishery fleets are estimated to employ about 700 to 900 persons. Estimates of indirect and induced employment associated with these fleets are not available. Estimates of direct, indirect, and induced incomes are not available. Changes in these, associated with the action alternatives, have not been estimated.

Neither the RPA nor the EA project that the action will necessarily lead to an increase in the rate of population growth of Steller sea lion populations although the Biological Opinion implies that this would be one reasonable outcome. Although survey estimates of the public's willingness to pay for improved Steller sea lion population trajectories are discussed, the large element of uncertainty about the impact of the proposed action on Steller sea lion population trajectories, makes it impossible to apply the survey results to this action.

Benefits or costs may accrue from this action because of impacts on other elements of the ecosystem (aside from Steller sea lions) such as other marine mammals, seabirds, fish stock impacts, habitat impacts, and ecosystem impacts. Impacts from these sources are likely to be small in relation to impacts to the industry or the values accruing from sea lion stock health. Benefits and costs may accrue to fish consumers. These also appear likely to be small relative to other impacts. Much of the harvest is

exported, and Pacific cod, rock sole, and yellowfin sole production changes may be small in comparison with current consumption and normal variations in production. Management costs appear to be effectively zero. Enforcement issues will be evaluated in a future draft. A shift in the fleet's center of gravity to the east, brings it closer to USCG search and rescue resources and to potential "good Samaritan" assistance. Reduced profits may reduce investments in safety, and a reduction in the distance between fishing vessels may encourage a derby fishery mentality.

A part of this action that closes waters within three miles of Kanaga Island to groundfish fishing should have small costs to industry. Elimination of the HLA will have little impact, given other measures to restrict fishing in the HLA areas. The emergence of cooperatives under Amendment 80 provides an alternative way of slowing harvest.

Because the impact of this action on the Steller sea lion population trajectory cannot be estimated, it is impossible to determine whether or not this action will have a net benefit in terms of cost-benefit accounting measures. This action is necessary, however, to ensure the effects of the groundfish fisheries are not likely to result in jeopardy of extinction or adverse modification or destruction of critical habitat, as required by the Endangered Species Act (NMFS 2010).