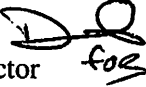


MEMORANDUM

TO: Council, SSC and AP Members

FROM: Chris Oliver 
Executive Director

DATE: May 17, 2013

SUBJECT: Protected Resources Report

ESTIMATED TIME 4 HOURS All B Items
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ACTION REQUIRED

Receive report on Protected Resources issues and take action as necessary.

BACKGROUND

Steller sea lions

The NMFS Alaska Region released the Draft EIS/RIR/IRFA on the Steller Sea Lion Protection Measures for Groundfish Fisheries in the Bering Sea and Aleutian Islands Management Area on May 15, 2013. This is available as a two-volume set with 1,281 pages, is available for download at the NFMS AK Region site (<http://www.alaskafisheries.noaa.gov/sustainablefisheries/sslpm/eis/default.htm>).

The Draft EIS analyzes and ranks the impacts to the human environment of five Steller sea lion protection measures alternatives: **Alternative 1** is the status quo, no action alternative, **Alternatives 2-4** are the alternatives that were in the Preliminary Draft EIS, and **Alternative 5** is the **Preliminary Preferred Alternative (PPA)**, composed of elements from Alternatives 2-4. NMFS is soliciting public comment on the Draft EIS until July 16, 2013. Comments can be submitted by mail or fax, or on the web at www.regulations.gov. Enter docket number "NOAA-NMFS-2012-0013" in the search bar.

At this meeting, staff from Protected Resources Division (PRD) will highlight areas where the PPA appears to be less protective for Steller sea lions than the regime analyzed in 2010, and where the measures may not adhere to the performance standards for Steller sea lion protection measures provided in Chapter 1 of the DEIS. PRD will identify elements of the PPA that the Council may wish to consider modifying at final action for analysis in a new Biological Opinion.

Harbor Seals

On May 17, 2013 NMFS released a 90 day finding on a petition to list Iliamna Lake harbor seals under the ESA. The Center for Biological Diversity submitted a petition to list the harbor seals in Iliamna Lake on November 19, 2012. The petitioners asserted that the harbor seals found in Iliamna Lake constitute their own Distinct Population Segment (DPS), rather than part of the Bristol Bay stock. They further assert that the seals in Iliamna Lake face threats from (1) Habitat modification and disturbance associated with the Pebble Project and climate change, (2) Disease and natural predation, (3) other natural and anthropogenic factors, and (4) inadequacy of existing regulatory mechanisms for addressing greenhouse gas emissions, climate change, ocean acidification, and the Pebble Project.

NMFS has determined that the petition to list Iliamna Lake harbor seals presents substantial scientific or commercial information indicating that the petition action may be warranted. NMFS is, therefore, initiating a status review of the harbor seals in Iliamna Lake to determine if listing under the ESA is warranted. NMFS is soliciting scientific and commercial information regarding this species. Information and comments must be submitted by July 16, 2013.

Humpback whale

On April 10 2013, the Hawai'i Fishermen's Alliance for Conservation and Tradition (HFACT), on behalf of several other organizations and more than 600 individual petitioners, submitted a petition to NMFS to classify the North Pacific population of humpback whale (*Megaptera novaeangliae*) as a Distinct Population Segment (DPS) under the ESA, and to delist the North Pacific DPS of humpback whale.

The humpback whale was designated an endangered species throughout its range in 1970. On August 12, 2009, NMFS initiated a new status review of humpback whales to ensure the listing classification of the species is accurate. That review has not been completed. The HFACT petition asserts that the best available scientific information indicates that the North Pacific humpback whale population satisfies criteria to be designated its own DPS; specifically, genetic, spatial, and morphological information indicate that the North Pacific population is separate from the southern hemisphere population, but the complexity of the North Pacific population precludes further division of the population into additional DPSs. NMFS currently recognizes three separate populations in the North Pacific: (1) California/Oregon/Washington winters in coastal Central America and Mexico, (2) Central North Pacific winters in the Hawaiian Islands, and (3) Western North Pacific stock winters near Japan.

The petition further asserts that once the North Pacific population is identified as a single DPS, it satisfies criteria to be delisted under the ESA. A 90 day finding is due from NMFS in mid-July 2013. The petition from HFACT is available from Steve MacLean upon request.

Bearded seal

The Alaska Oil and Gas Association is suing NMFS over the decision to list certain populations of Arctic bearded seals as threatened under the U.S. ESA. The trade association asserts that there is no scientific evidence linking climate change to adverse effects on the seals, and that data indicate the populations currently appear to be healthy.



**UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration**

*National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668*

AGENDA B-7
Supplemental
JUNE 2013

May 28, 2013

Eric Olson, Chairman
North Pacific Fishery Management Council
605 W. 4th Avenue, Suite 306
Anchorage, AK 99501-2252

Dear Chairman Olson:

This letter is in regards to our process to complete both an Environmental Impact Statement (EIS) and a Biological Opinion (BiOp) for Steller sea lion protection measures for groundfish fisheries in the Bering Sea and Aleutian Islands Management Area. In this letter, we respond to the North Pacific Fishery Management Council's (Council's) comments on the preliminary draft EIS contained in the Council's April 2013 motion. We greatly appreciate all the efforts of the Council and its Steller Sea Lion Mitigation Committee (SSLMC) and Scientific and Statistical Committee (SSC) to facilitate preparation of the draft EIS and the BiOp.

Responses to Council Comments

At its April 2013 meeting, the Council reviewed the preliminary draft EIS and recommended a preliminary preferred alternative (PPA) to include in the draft EIS. The National Marine Fisheries Service (NMFS) completed the draft EIS, including the analysis of the Council's recommended PPA, and released the draft EIS for public review on May 14, 2013. The Council also included a number of recommendations for the draft EIS and new BiOp in its April 2013 motion that we respond to below.

1. Comments made by the SSC on the preliminary draft EIS and the proposed BiOp analytical methods should be fully addressed in the draft EIS and associated Regulatory Impact Review (RIR), as well as the BiOp.

Response: We carefully considered the comments provided by the Council and SSC, and we addressed those comments to the maximum extent practicable in the draft EIS and RIR. Section 8.21 of the RIR is a point-by-point response to the SSC comments. The SSC's comments on the EIS resulted in editing of the EIS chapters, particularly Chapters 5 and 6. In October 2013, we plan to provide a point-by-point response to the SSC's April recommendations for the EIS.

2. The Council needs to have all of the relevant information available for review and comment prior to making a final decision on a preferred alternative. The Council asserted that all of the relevant information was not available in the preliminary draft EIS and that it was premature to release a draft EIS for public review.



Response: We revised the content of the draft EIS to ensure a complete document for public review, within the court-ordered schedule, including an analysis of the Council's recommended PPA. The draft EIS provides decision makers and the public with an evaluation of the predicted effects of the alternatives on the human environment. The analysis in the draft EIS is designed to allow decision makers to compare and contrast the potential effects of the alternatives on the human environment, including Steller Sea lions.

3. The Council's motion asserted that the analytical methods and metrics used to evaluate the environmental effects of the alternatives in the draft EIS must be consistent with the metrics used in the BiOp to evaluate the effects of the eventual preferred alternative on the continued existence of the western Distinct Population Segment (WDPS) of Steller sea lions and the conservation of designated critical habitat. The Council also asserted that these metrics must be available for review by the Council, its SSC, and the public throughout the process to make informed decisions that comply with National Environmental Policy Act (NEPA) and other relevant law.

Response: The analysis in an EIS is intended show the potential effects of the alternatives on the human environment, allowing the decision maker to be able to compare and contrast these potential effects. The analysis in a BiOp is to insure that the proposed action is not likely to jeopardize the continued existence of ESA-listed species or result in the destruction or adverse modification of critical habitat designated for those species (result in JAM). The EIS and BiOp are on somewhat different schedules due to the court-ordered time frame for completing the EIS and our ongoing work to incorporate the feedback from the external reviews of the 2010 BiOp into subsequent ESA section 7 consultations on the groundfish fisheries. The 2014 BiOp will be completed in time to coincide with completion of the final EIS. NEPA requires NMFS to use the best available information, and the draft EIS incorporates the latest information regarding potential interaction between Steller sea lions and groundfish fisheries. If additional information emerges from the section 7 consultation we can include that in the final EIS. If new information becomes available through the ESA consultation process, we will evaluate the need to prepare a supplemental draft EIS.

4. The Council's April 2013 motion stated that the preliminary draft EIS continues to rely on the findings and conclusions of the 2010 BiOp and does not adequately address the findings and recommendations of the reviews conducted by the Center for Independent Experts and the Scientific Review Panel convened by States of Alaska and Washington. The Council's motion stated that it is essential for NMFS to provide a response to each controversial issue identified by the external reviews to understand the analysis of the environmental effects of the proposed alternatives and to comply with NEPA.

Response: The draft EIS includes, as appropriate, the findings on the factors affecting Steller sea lions in the two external reviews conducted on the 2010 BiOp. The draft EIS does not include a point-by-point response to the reviews because some of the issues identified in these reviews were specifically related to the ESA analysis and would not directly inform the NEPA analysis in the draft EIS. The issues identified in the external reviews that were related to the NEPA analysis are identified and discussed in the draft EIS, primarily in Chapter 5.

NMFS is committed to new analyses to address the critiques of the 2010 BiOp. We are conducting responsive analyses, as shown in the enclosed analytical approach; the results of these analyses will be incorporated into the 2014 BiOp. While we were able to complete and review some studies in response to the external reviews that informed the draft EIS analysis, other analyses important for the ESA process remain under development.

5. The Council's motion also expressed concern about using information that became available after the December 14, 2012 cutoff date for new information stated in the preliminary draft EIS, and the reliance on unpublished and incomplete studies for critical chapters of the preliminary draft EIS, stating that the use of these studies is inconsistent with the agency's scientific integrity policy.

Response: We used the best available scientific and fishery information to develop the draft EIS, including relevant information that became available after December 14, 2012. Based on comments received from the SSLMC and the Council on the preliminary draft EIS, we clarified the explanation of the information used for the draft EIS in Chapter 1 to identify December 14, 2012, as the cutoff date for the fisheries catch data used to perform the spatial and temporal analysis of catch under all of the alternatives. Any new information that informed the analysis was incorporated into the draft EIS until the completion of the draft document in early May 2013, including analysis of the PPA, which was not possible until after the April Council meeting.

NOAA's scientific integrity policy establishes an expectation that we use unbiased science and are transparent in our decision making. We are committed to providing the highest caliber of objective scientific advice to support fishery management decisions. Our goal is to use, and make public, the best available scientific information. We used agency studies and data that are essential to understanding the impacts of the alternatives. Not considering or using agency data for decision making would greatly limit the amount of information available to the public on many important issues. The public, and independent scientific reviewers, have the opportunity to review and comment on the scientific information and analysis in the draft EIS. All information used in the draft EIS followed the process established under the Information Quality Act for release of analyses and the supporting information, including reviews of Alaska Fisheries Science Center information and reports by the program-level and Center directors. Draft documents cited in the draft EIS are available upon request.

ESA Consultation on the Proposed Action

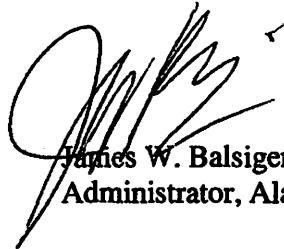
To meet the Court-ordered schedule for completion of the EIS and to fulfill our intent to implement any new protection measures for the Alaska groundfish fisheries by 2015, we have started the ESA section 7 consultation. We will complete the 2014 BiOp prior to publishing a proposed rule to implement the preferred alternative.

NMFS's Protected Resources Division analyzed the Council's PPA to provide initial feedback to the Council on elements of the PPA that may be problematic for insuring that the eventual proposed action is not likely to jeopardize the continued existence of the WDPS of Steller sea lions or adversely modify critical habitat. We developed this assessment with the best information available at this time. We identified areas where the Council may wish to modify

the proposed action to increase protection to Steller sea lions. The initial analysis is supplemental along with the analytical approach for the anticipated 2014 BiOp that was presented to the Council's SSC in April 2013. The analytical approach describes how we will incorporate feedback from the external reviews of the 2010 BiOp and the quantitative and qualitative analyses that we will conduct to evaluate the effect of the preferred alternative in the 2014 BiOp. Due to extensive data gaps, the 2014 BiOp's jeopardy and adverse modification risk assessment will comprise several qualitative analyses. Thus, we are not able to provide quantitative metrics or thresholds for selecting a preferred alternative that NMFS can insure is not likely to result in JAM. However, we continue to recommend the Council refer to the performance standards described in Chapter 1 of the draft EIS (which we previously presented to the SSLMC) for guidance about measures needed to protect Steller sea lions and critical habitat from potential effects of fishing.

We look forward to continuing to work in partnership with the Council as we work toward understanding potential fishery effects on Steller sea lions and implementing measures to meet our ESA obligations. We appreciate your comments and support as we work together to meet the court ordered schedule to complete the EIS and implement revised Steller sea lion protection measures in the Aleutian Islands subarea Atka mackerel, Pacific cod, and pollock fisheries.

Sincerely,



James W. Balsiger, Ph.D.
Administrator, Alaska Region

Enclosures

Analytical Approach for 2014 Groundfish BiOp
Compiled by the National Marine Fisheries Service Alaska Region Protected Resources
Division
May 2013

In its review of the preliminary Draft Environmental Impact Statement for Steller Sea Lion Protection Measures (EIS) at its April 2013 meeting, the North Pacific Fishery Management Council (Council) recommended a preliminary preferred alternative that is different from the status quo fishery management regime. To assess the potential impact of that preferred alternative, the National Marine Fisheries Service (NMFS) will reinitiate consultation under Section 7 of the Endangered Species Act (ESA) and will prepare a biological opinion analyzing the effects of the preferred alternative on the western distinct population segment (WDPS) of Steller sea lions and designated critical habitat.

In November 2010, NMFS completed a biological opinion on the effects of the Alaska groundfish fisheries on ESA-listed species (FMP BiOp). In the FMP BiOp, NMFS applied the demographic recovery criteria from the 2008 Steller Sea Lion Recovery Plan (NMFS 2008). Given continued, strong declines in Steller sea lions in the western Aleutian Islands (AI) and in the adjacent central AI, NMFS determined that the Alaska groundfish fisheries were likely to jeopardize the continued existence of the WDPS of Steller sea lions and adversely modify designated critical habitat. To insure the groundfish fisheries were not likely to jeopardize the continued existence of the WDPS of Steller sea lions, NMFS implemented changes to the Atka mackerel and Pacific cod fisheries in the AI in 2011.

The FMP BiOp has been reviewed by the courts for legal sufficiency and by external scientists for technical accuracy and rigor. The U.S. District Court for the District of Alaska upheld the FMP BiOp, but required the agency to prepare an EIS and complete it by March, 2014. The timeline is intended to allow Council and public participation in developing and recommending a preferred alternative.

The external scientific reviews were critical of many aspects of the FMP BiOp and highlighted concerns about the evidence that NMFS relied on to support the FMP BiOp's conclusions. NMFS has evaluated the external reviews and will incorporate the results into subsequent biological opinions, including the biological opinion to be developed on the preferred alternative in the Steller Sea Lion Protection Measures EIS.

NMFS and the U.S. Fish and Wildlife Service have developed analytical frameworks for ESA consultations to ensure consistency in the administration of section 7 and to produce consultations that are objective, transparent, and in accordance with the intent of Congress. While a general framework exists (Figure 1), analytical methods vary by consultation according to the species, nature of the action and potential risks, and the available data. Accordingly, to produce a biological opinion that is transparent, objective, evidence-based, and compliant with applicable law (the ESA, the Administrative Procedure Act, and the Data Quality Act) NMFS designed the following analytical approach based on a review of the general Section 7 analytical framework, prior groundfish fishery biological opinions, reviews conducted by the National Research Council, external reviews of the FMP BiOp, and risk assessment and structured

decision making literature. This approach was presented to the Scientific and Statistical Committee of the North Pacific Fishery Management Council at its April 2013 meeting.

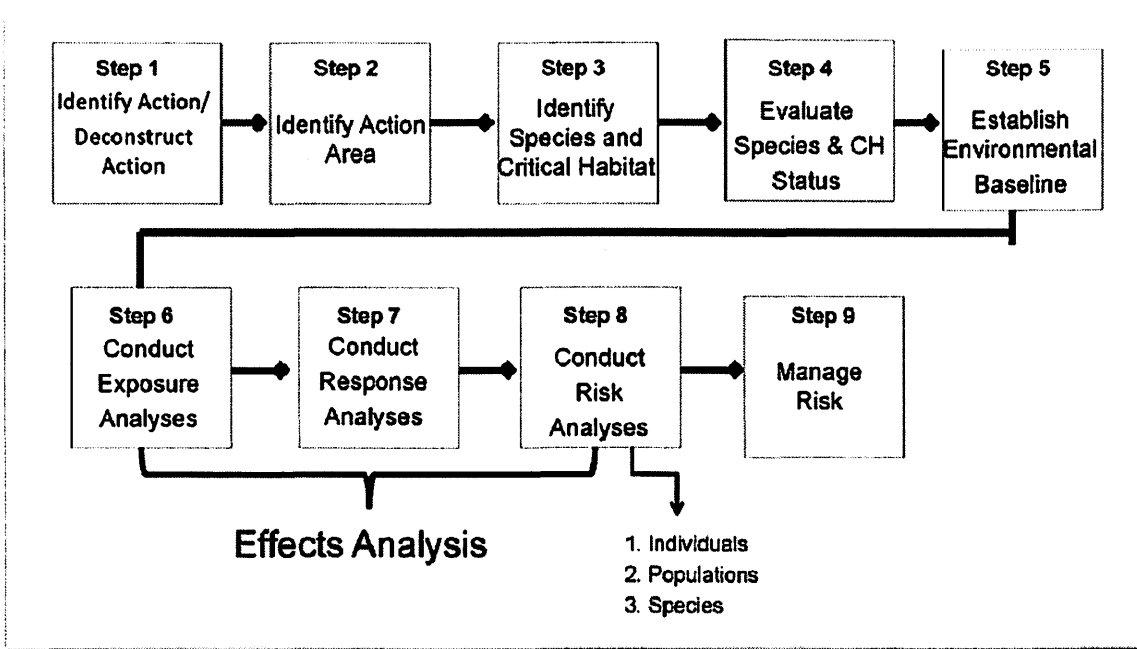


Figure 1. Overview of the general ESA section 7 consultation risk assessment framework.

Analytical Approach for the Anticipated 2014 Biological Opinion

The analytical approach will begin with a review of information that has become available since completion of the FMS BiOp. Following that review, the 2014 biological opinion will review the current status of the WDPS of Steller sea lions and designated critical habitat, establish an environmental baseline, assess the effects that the action may be expected to have on the WDPS of Steller sea lions and critical habitat exposed to the action, and finally assess the risks to the WDPS and critical habitat.

The following paragraphs outline the details of the analytical approach.

New Information Available Since Completion of the November 2010 FMP Biop for the Anticipated 2014 Biop

The following relevant new information is available since the completion of the FMP Biop¹:

1. Draft Steller Sea Lion Protection Measures EIS (NMFS 2013)

Updated information on Steller sea lions, fishery target species, the AI ecosystem, and retrospective and prospective fishery catch distribution

¹ Other recent scientific publications on Steller sea lions and their environment are also available since the FMP BiOp and relevant studies will be included in the new biological opinion.

2. Atka mackerel, Pacific cod, Pollock, and Ecosystem Stock Assessment and Fishery Evaluation Reports (Lowe et al. 2012, Thompson and Lauth 2012, Barbeaux et al. 2012, Zador. 2012).
3. 2010 and 2012 Groundfish Trawl Survey Data²
4. 2011 and 2012 Marine Mammal Stock Assessment Reports (Allen and Angliss 2011 and 2012)
5. States of Washington and Alaska Commissioned Review of the FMP Biop (Bernard et al. 2011)
6. Center for Independent Experts (CIE) Review of the FMP Biop (Stokes 2012, Bowen 2012, Stewart 2012)
7. 2010 through 2012 Steller sea lion survey data (Fritz and Gellat 2010, DeMaster 2011 and 2012)
8. Updated Steller sea lion at-sea habitat use and movement based on updated telemetry information (Lander et al. 2011, Fadely and Lander 2012, Fadely et al. 2013)
9. Updated Steller sea lion food habits information (Sinclair et al. Draft³)
10. Updated Steller sea lion trend information (Fritz et al. a Draft, Johnson and Fritz Draft)
11. Steller sea lion survival estimates from branding (Fritz et al. b Draft)

Analyses Expected for 2014 Biop

1. Species Status

When making a jeopardy assessment, NMFS evaluates the status of a species to identify its risk of extinction (or probability of persistence) at the time of consultation even if a proposed action did not occur. Thus, the status of a species provides the point of reference for the jeopardy analysis in the consultation. The status of designated critical habitat is also evaluated at this step to establish the basis for comparison when the effects of the action are evaluated at a later step in the analysis.

- The focus species of the 2014 BiOp will be the WDPS of Steller sea lions and designated critical habitat.
- The demographic recovery criteria specified for the WDPS in the Steller Sea Lion Recovery Plan (NMFS 2008) will continue to provide NMFS a frame of reference to evaluate the recovery status of the WDPS. These criteria include the sub-region criteria

² Available from: http://www.afsc.noaa.gov/RACE/groundfish/survey_data/default.htm

³ Documents cited as "Draft" are available from NMFS upon request and NMFS expects that they will have been approved through the Alaska Fisheries Science Center's internal review process prior to their use in the 2014 BiOp.

intended to preserve the maintenance of sea lion populations across the range of the WDPS.

- Many population viability analyses (PVAs) have been produced for the WDPS of Steller sea lions. The last formal PVA included Steller sea lion survey data through 2006 (Boyd 2010). In this BiOp, NMFS intends to produce updated estimates of population persistence for the WDPS as a whole and for the sub-regions identified in the Steller Sea Lion Recovery Plan (NMFS 2008) by including survey data collected through 2012. These population trajectories will provide a contemporary assessment of the population status in order to examine the anticipated effects of the proposed action.

NMFS's National Marine Mammal Lab (NMML) will project data from a simulated population dataset based on WDPS non-pup and pup survey data (from 1990-2012). The methods used to develop the dataset are described in a new manuscript that is referenced in the draft EIS as Johnson and Fritz (in prep) and referenced here as Johnson and Fritz (Draft)⁴. NMML will report the updated trend information using methods as described in Johnson and Fritz (in prep). For the population forecast, NMML will partition the quasi-extinction threshold specified in the 2008 Recovery Plan ($N = 4,743$) across all 35 rookeries in the WDPS to set a quasi-extinction threshold for each sub-region (as delineated in NMFS 2008). NMML will then project the expanded trend information forward in time to estimate the probability of quasi-extinction over various time frames; noting that uncertainty increases with increasing projection time.

The available data on Steller sea lion vital rates are spatially and temporally patchy. When reporting vital rate information, NMFS will make a concerted effort to distinguish empirical data from inferential studies and information gaps. NMFS expects that the bulk of the updated information on birth and survival rates is presented in the draft EIS. NMFS will summarize the current understanding and interpretations about birth and survival rates of Steller sea lions in the AI.

- In response to the CIE reviews of the FMP BiOp, NMML is conducting analyses to determine the conditions under which pup/non-pup ratios are useful in making inferences regarding Steller sea lion birth rates.

NMML will address this issue in two ways:

- a) The ratio of pups/non-pups will be calculated for each year 1990-2012 and by region using the time series models that were recently constructed to assess trends in abundance (Johnson and Fritz Draft). This will provide annual estimates of the pup/non-pup ratio over the 22-year span by sub-region for the WDPS in Alaska.
- b) A simulation will be conducted to determine the conditions under which pup/non-pup ratios are useful in making inferences regarding Steller sea lion birth rates by sampling simulated populations with known demographics. Population time series (numbers at age by sex and in 2-3 adjoining sub-regions) with known underlying changes in survival, birth

⁴ Now available as a draft from NMFS upon request.

rate, and trend will be constructed. Populations in each sub-region will be sampled (simulated aerial surveys using literature values of proportions of different age/sex classes hauled out) to construct corresponding time series of pup and non-pup counts. Pup/non-pup ratios from the time series of counts will be calculated to determine how well they track known changes in birth rate given changes in other population parameters (e.g., rates and age/sex classes of movement, juvenile survival, adult survival, trends, proportions hauled out). NMML can use empirical data from vital rate work in the eastern Aleutians, central and eastern Gulf, as well as existing 1970s birth rate data for some of the inputs. However, this will be a purely simulated population with an objective of simply evaluating the utility of the ratio as a proxy for birth rate.

- NMFS will summarize the available telemetry information and make a general conclusion about the current understanding and inferences about at-sea habitat use of Steller sea lions by area, season, and life stage. This will inform development of a conceptual model that will be used to analyze the effects of the proposed action.
- In addition to updating information on at-sea habitat use and movements of Steller sea lions with the information listed above, NMFS is reviewing the agency's interpretation of the Platforms of Opportunities sighting database information in prior BiOps over time (POP). Based on this review, NMFS will discuss the agency's current interpretation of the POP data for inferring at-sea habitat use of sea lions and how that fits with the conclusions inferred from the telemetry information and how that affects the conceptual model for the effects analysis.
- The prevailing condition of designated critical habitat is an important frame of reference for the adverse modification analysis. The status of designated marine critical habitat is the relevant focal habitat for this proposed action. Important Steller sea lion prey species are essential features of designated marine critical habitat. It has been virtually impossible to assess the status of prey resources in critical habitat since its designation. NMFS is hampered by an absence of data on the proportion of biomass inside and outside of critical habitat, the density of prey patches inside critical habitat, and the composition of prey patches inside critical habitat. NMFS is reviewing the best available information to determine how best to assess and characterize the current condition of critical habitat so that the anticipated effects of the proposed action can be assessed. Potential information sources include fishery catch and effort data from inside critical habitat, summer trawl survey data, results from Fishery Interaction Team studies, and limited winter Echo-Integrated trawl surveys (data for one year in late winter exist). Where data are unavailable, NMFS may infer biomass distribution based on the prey species life history information (seasonal migration, depth information, and oceanographic fronts and eddies).
- NMFS is developing methods to spatially extrapolate catch in critical habitat by using groundfish observer data for years prior to 2003 (when vessel monitoring system (VMS) data were not available). NMFS intends to calibrate this new method with the catch in area database.

- NMFS will conclude this section with a summary of the status of sea lions and designated critical habitat, against which the estimated effects of the proposed action will be evaluated.

2. Environmental Baseline

The environmental baseline assesses the condition of individuals and populations of listed species in an Action Area, given their exposure to prior and contemporaneous human activities and natural phenomena in the area. The environmental baseline identifies the antecedent physiological and fitness conditions of the individuals in the action area as well as the ecology of the populations those individuals represent before NMFS considers stressors produced by the proposed action. Thus, the environmental baseline will contain similar information to the species status section, but will be specific to populations, critical habitat, and effects in the Action Area. For this consultation the Action Area is the U.S. Exclusive Economic Zone of the Bering Sea/Aleutian Islands, plus state waters that will be affected by the State parallel groundfish fisheries.

- NMFS will describe the factors likely affecting the status of Steller sea lion populations in the Action Area. NMFS will differentiate factors known to be affecting sea lions versus those hypothesized to be affecting sea lions in the Action Area. Factors identified include climate and oceanic conditions, variation in sea lion prey species, predators, disease, direct take in fisheries, subsistence harvest, other shooting, entanglement in marine debris, fishery removals of prey species, contaminants, and research disturbance (for which NMFS has authorized take). The Steller Sea Lion Recovery Plan contains a thorough threats assessment. NMFS will not replicate that work in the BiOp but rather carry over those threats and build forward with information on threats available since the 2008 Steller Sea Lion Recovery Plan.
- NMFS will also describe the natural and anthropogenic effects on Steller sea lion critical habitat in the Action Area (there is overlap with the bullet above).
- NMFS will conclude this section with a summary of the Environmental Baseline to which the anticipated effects of the proposed action will be added.

3. Effects of the Action

a. Assess the Species Exposure to the Proposed Action

Listed species are exposed to the effects of an action when their spatial and temporal distributions overlap. In the exposure analysis we identify the spatial and temporal co-occurrence between stressors caused by the action and listed species as well as direct and indirect exposure pathways.

- In the 2000 FMP BiOp (NMFS 2000), NMFS used the following “seven questions” to establish potential overlap between prey species targeted by the fishery and Steller sea lions:

Seven questions were posed for each FMP managed fish species in the fishery management areas. If question 1 was answered “No,” then the answers to questions two through seven were also “No,” so the concern level was nil, thus scoring a “zero” total. Steller sea lions did not eat

the targeted fish species and no grounds for a competitive interaction existed. If question one was “Yes”, it was scored one point; remaining questions two through six scored one point for a “Yes” and zero points for a “No.” If question seven was yes, it scored two points to underscore concern for potential effects of localized depletion.

1. Do Steller sea lions forage on the target fish species?
2. Do Steller sea lions forage on the target fish species at a rate of at least 10% occurrence?
3. If yes to Number two, does the size of Steller sea lion prey overlap with the size caught by commercial fisheries?
4. If yes to Number two, does the fishery overlap spatially with the area used by Steller sea lions to forage on this species?
5. If yes to Number two, does the fishery operate at the same time Steller sea lions are foraging on the fish species?
6. If yes to Number two, does the fishery operate at the same depth range that Steller sea lions are using to forage on the fish species?
7. If yes to one through six, does that fishery operate in a spatially or temporally compressed manner in Steller sea lion critical habitat?

From this analysis, NMFS determined that the groundfish fisheries were likely to compete with Steller sea lions for Atka mackerel, Pacific cod, and pollock (NMFS 2000). Given the best available information today, NMFS maintains that the fisheries are likely to compete with Steller sea lions for fish and thus the focus of the 2014 BiOp will be on the fisheries for these three species. In contemporary analyses to examine overlap between fisheries and Steller sea lions, we also consider the daily and seasonal movements of fish, including vertical migrations which may make the same fish susceptible to the fishery or predation by sea lions at different depths. We also consider competition between sea lions and fisheries to be more probable when the fish stocks are depleted relative to previously observed levels of biomass.

- One critique of the 2010 FMP BiOp was the use of frequency of occurrence (FO) of prey hard parts (bones and otoliths) in opportunistically collected sea lion scats to infer sea lion diet habits. Upon review, NMFS maintains that FO remains the prevailing scientific standard by which newer experimental methods in diet analyses are judged. Bowen (2012) recommended that NMFS use alternative methods to analyze Steller sea lion diet and referred to two general categories of research (fatty acids, prey genetics) and two specific research studies (Tollit 2003, 2007) for consideration. An objective review of the conclusions reached in those studies confirms that FO remains among the best tools currently available when appropriately applied to wild diets, and that other methods and correction factors remain developmental. Further, (Tollit et. al 2006) cites the NMML evaluation of the wild diet of SSLs as an example of appropriate application of the FO metric. Moreover, Bowen and Iverson (2012) determined FO to be reasonably accurate for inferring diet of wild marine mammals when number correction factors are applied. Bowen and Iverson (2012) conclude that the analysis of hard parts recovered from feces and the chemical and statistical analysis of fatty acids of predator and prey are informative of diets in pinnipeds. Other emerging methods are promising and NMFS is committed to supporting their development. However,

these methods are not currently standalone options for detailing Steller sea lion prey consumption patterns at the scale described in the FMP BiOp. NMFS will elaborate on this topic in the 2014 BiOp.

- NMFS will attempt a refined analysis to increase the resolution of the extent of spatial and temporal overlap between the Atka mackerel, Pacific cod, and pollock fisheries and foraging adult female and juvenile Steller sea lions. NMFS will assess the available data and determine the finest scale at which spatial and temporal overlap can be assessed. Data sources, assumptions, and uncertainty will be explicitly stated. This analysis will incorporate the best available data on size of prey consumed by sea lions.
- Since the implementation of the global harvest control rules in the BSAI and GOA FMPS, biological opinions on the effects of the Alaska groundfish fisheries on Steller sea lions and results of the risk assessment conducted by the National Research Council (2003) unanimously conclude that the broad-scale fishery prey depletion hypothesis is not supported by available data but that Steller sea lions may be affected by localized depletion of prey species. While fish populations appear to recover to pre-fishery biomass levels each year, the seasonal and monthly effect of fishery depletions on Steller sea lions is not known (NRC 2003). Analyses of available biomass to forage requirements for a recovered sea lion population consistently reveal a substantial surplus in available prey biomass on an annual basis (NMFS 2010). Thus, the effects analysis in the 2014 BiOp will focus primarily, but not exclusively, on the effects of the fisheries on the local availability of Steller sea lion prey species in designated critical habitat.
- NMFS is developing conceptual models in the form of diagrams to depict influences on essential features of Steller sea lion critical habitat by area and season to frame the exposure analysis for the 2014 BiOp.

b. Assess the species' expected response to exposure to localized depletion of prey in designated critical habitat

- NMFS will build on the exposure and response schematics from the FMP BiOp. FMP BiOp Figure 4.25 shows the response pathways for the effects of fishing, in the form of competition for prey, on Steller sea lions. In that schematic, two indirect pathways for harm to exposed sea lions are: (1) the potential for reduced survival due to increased foraging effort resulting in increased predation risk; and (2) the potential for reduced survival, birth rate, and growth through acute or chronic nutritional stress.
- NMFS is developing a conceptual model depicting the exposure pathway via the Steller sea lion life cycle to reveal vulnerable life-stages and seasons. As always, vulnerable life stages to local prey depletion in critical habitat are assumed to be adult females nursing and tending pups in summer, adult females in a simultaneous state of lactation and gestation in winter and spring, and juvenile animals year-round.
- NMFS will explore scenarios of time lags over which nutritional stress responses would be expected to affect sea lion vital rates and observed growth rates based on the conceptual model of the response pathway.

c. Assess the species' risk

In the biological opinion, NMFS must consider the risk of the fisheries to Steller sea lions and their designated critical habitat. Risk assessment considers both the probability of harm and the severity of the consequence.

To “jeopardize the continued existence of” means to engage in an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers or distribution of that species (51 FR 19926). The best available science and latest conceptual models suggest that the current risk posed to Steller sea lions by fisheries is depletion of prey at a scale important to foraging adult female and juvenile Steller sea lions.

On a basic level, the potential harm to Steller sea lions as a result of insufficient availability of prey is hypothesized to include (among others) (NMFS 2008 and NMFS 2010):

- (a) a reduction in sea lion survival due to a change in foraging behavior that results in increased exposure to predation
- (b) a reduction in juvenile sea lion survival due to nutritional stress that manifests as starvation (acute nutritional stress response) or disease (one of several potential chronic nutritional stress responses)
- (c) a reduction in reproduction due to insufficient energy intake by adult females during winter when in state of simultaneous lactation and gestation (chronic nutritional stress response).

Thus, the current understanding is that indirect effects of the fisheries that manifest as local depletion of Steller sea lion prey resources may reduce the reproduction and numbers of the species. In the risk assessment, NMFS must evaluate the likelihood that the proposed action will result in or contribute to localized depletion of prey in important sea lion foraging habitat. NMFS must then evaluate the severity (consequence) of the expected response of the impacts to the individuals and populations on the likelihood of survival and recovery of the WDPS.

The regulatory definition of critical habitat is codified at 50 CFR 424.02(d). Critical habitat means “(1) the specific areas within the geographical area currently occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features (i) essential to the conservation of the species and (ii) that may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by a species at the time it is listed upon a determination by the Secretary that such areas are essential for the conservation of the species.”

More specifically, Steller sea lion critical habitat is defined as the physical and biological habitat features that support reproduction, foraging, rest and refuge and are essential to the conservation of the Steller sea lion (58 FR 45269).

To estimate the effects of the proposed action on designated critical habitat NMFS will:⁵

1. Assess the status of essential features in critical habitat across designated critical habitat.
2. Assess the status of essential features in critical habitat in the BSAI (Action Area).
3. Assess how the proposed action is likely to affect designated critical habitat in the action area (including activities that occur outside of critical habitat that affect the status of the features inside critical habitat).

- As mentioned in the status of the species section, data are not available to directly measure prey biomass inside Steller sea lion critical habitat. Also, NMFS does not have the information to determine with precision the density of prey required to ensure successful foraging. NMFS will attempt to fill in these data and information gaps by estimating critical habitat biomass availability and harvest rates in the 2014 BiOp, though NMFS expects to continue to be confronted with wide data gaps for assessing fishery effects on local prey biomass.
- In lieu of direct measurements, several studies have correlated fishery harvest rates with Steller sea lion trends to understand if fisheries negatively affect foraging success of Steller sea lions. The external reviews of the 2010 FMP BiOp were critical of NMFS's treatment and interpretation of fishery correlation analyses. The majority of reviewers asserted that NMFS should be able to determine the effect of fisheries on Steller sea lion populations by regressing harvest against sea lion trends. During the formal consultation that resulted in the 2010 BiOp, NMFS concluded that the spatial scale of the fishery correlation studies were too coarse and statistical power was too low to detect an effect of fishery harvests on Steller sea lion trends. In response to the external reviews, NMFS will undertake an examination and critical review of the studies included in Bernard et al. (2011) and research whether these studies are useful for determining fishery competition effects.
- NMFS will begin with a careful review of the methods used in the literature cited by Bernard et al. (2011). From a cursory review, it appears that the majority of the papers listed used a similar approach. This approach can be characterized by fitting a linear model to the survey counts using some metric of fish abundance or catch as a predictive covariate. However, NMFS hypothesizes that this method does not have sufficient power to make a determination of presence or absence of a fish harvest effect on Steller sea lion population levels. If prey removal primarily acts on survival and/or birth rate, the effects are unlikely to be seen in the current year or any subsequent fixed time lags. Changes in demographic parameters are unlikely to be severe enough to cause detectable changes in survey counts within any specific time lag. They are more likely to manifest themselves through gradual changes in survey counts as age structure changes. To illustrate this point, NMFS will perform a simulation (similar to a PVA) to test whether external

⁵ Approach summarized from the November 7, 2005 Memorandum from the NMFS Assistant Administrator (Hogarth) to Regional Administrators and the Office of Protected Resources.

drivers of survival can be detected with the regression analysis used in the Bernard et al. (2011) literature. Using a matrix model, NMFS will simulate an age-structured population in which survival and birth rate can be functions of a simulated external covariate (e.g., fishing harvest or prey availability). After simulation, the regression analysis will be performed to determine the power of this analysis with respect to detecting influence of the covariate.

- Numerous experts have concluded that, given the complexity of the marine ecosystems off Alaska and the multiple factors likely affecting the dynamics of apex predators including Steller sea lions, the only way to understand the impact of fisheries on Steller sea lions is to conduct a large scale, adaptive management experiment with replicated open and closed areas. Such an approach has not been implemented. A simulation study by Punt and Faye (2006) demonstrated that uncontrollable factors (movement of sea lions among treatment areas, different trends at rookeries irrespective of fishing, and demographic stochasticity) of the marine environment have a major impact on the power of the experiments. Their simulated experiments did not resolve the question of whether the cause for the decline in Steller sea lions was due to fishing-related factors.
- Also, over the past 20 years, most biological opinions on the groundfish fisheries and the Steller Sea Lion Recovery Plan (NMFS 2008) state the need to expand groundfish surveys to understand the proportion of biomass inside and outside of Steller sea lion critical habitat in summer and winter to understand how fisheries may affect the conservation value of Steller sea lion critical habitat. Such a monitoring protocol has never been implemented.
- Despite these information gaps, NMFS must endeavor to understand the effects of the fisheries on Steller sea lions and their designated critical habitat. Based on the language of the ESA, its legislative history, and court decisions interpreting the ESA, NMFS must give the benefit of the doubt to the listed species when the data are equivocal. The 2014 BiOp will endeavor to distill the available scientific and commercial data to the extent possible to evaluate whether the fisheries are likely to jeopardize the continued existence of Steller sea lions or adversely modify their designated critical habitat.
- Recent case law has affirmed that the Services are to rely on the ordinary definition of “likely” when applying ESA standards (*Safari Club International, et al. v. Kenneth Lee Salazar, et al.*, March 1, 2013). Therefore, NMFS will continue to rely on the ordinary definition of likely, notwithstanding external reviewers’ criticism of NMFS’s use of “likely” in the 2010 BiOp.
- Unlike BiOps in the late 1990s and early 2000s, the risk analysis in the 2014 BiOp has the benefit of 15 years of management measures intended to disperse the groundfish fisheries in time and space to protect prey availability for Steller sea lions. Over the past 22 years, NMFS’s understanding of the potential consequences of the fisheries on Steller sea lions has evolved. Through this consultation, NMFS aims to clarify the current understanding of Steller sea lion biology and ecology and the consequences of the fisheries on Stellers sea lions. While much remains unknown, NMFS has narrowed down

the potential effects and areas of particular concern over the past two decades. Extensive research on Steller sea lions and their habitats has filled some key information gaps.

NMFS will present a chronology of the understanding of the effects of the groundfish fisheries on the population viability of the WDPS. NMFS will summarize the history of fishery management measures implemented to protect sea lions by answering the following questions in an iterative fashion until we reach the current observations and hypotheses:

1. What was observed?
 2. What was hypothesized?
 3. What was changed?
- } Adaptive management cycle

NMFS will provide a timeline of changes made to the Alaska groundfish fisheries to protect Steller sea lions and will analyze the effect of those changes on the spatial and temporal distribution of groundfish catch.

NMFS will undertake an analysis to investigate the efficacy of closing areas to fishing. This analysis aims to estimate the probability of sea lion decline at a trend rookery or haulout given a closure from 0-3 nm, 3-10 nm, and 10-20 nm. For example, NMFS will investigate whether a closure from 3-10 nm appears to be more effective than a closure from 0-3 nm from rookery and haulout sites. First NMFS will frame the questions and then evaluate whether data are available to answer these questions. The availability of data will determine whether this analysis can be completed.

- NMFS will conduct a weight of evidence analysis to determine whether it can insure that the proposed action is not likely to reduce the conservation value of designated critical habitat by appreciably increasing the likelihood of localized depletion of Steller sea lion prey. NMFS will present available evidence that is consistent with the hypothesis that the fisheries, as proposed, reduce the survival and recovery of Steller sea lions and adversely modify designated critical habitat. NMFS will also present available evidence consistent with the hypothesis that fisheries do not reduce the survival and recovery of Steller sea lions or adversely modify designated critical habitat. NMFS will conclude which hypothesis is more probable given the evidence.
- If the evidence shows that NMFS cannot insure that its action is not likely to jeopardize the continued existence of endangered Steller sea lions or adversely modify critical habitat, then NMFS will present performance measures and metrics to further address the stressors of concern. These recommendations will flow from the preceding evidence and conclusions from the analyses in the 2014 BiOp.

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Initial Feedback on the Preliminary Preferred Alternative in the Steller Sea Lion Protection Measures EIS for the Groundfish Fisheries of the Bering Sea and Aleutian Islands

By

NMFS Alaska Region Protected Resources Division

May 28, 2013

Background

At its April, 2013 meeting, the North Pacific Fishery Management Council (Council) selected a preliminary preferred alternative (PPA, Alternative 5) composed of elements from the alternatives in the preliminary draft Environmental Impact Statement (EIS) for the Steller Sea Lion Protection Measures for Groundfish Fisheries in the Bering Sea and Aleutian Islands (BSAI) Management Area. The NMFS Alaska Region Sustainable Fisheries Division (SFD) analyzed the effects of the Council's PPA and included the alternative in the draft EIS as Alternative 5. In May 2013, the NMFS Alaska Region Protected Resources Division (PRD) reviewed the draft EIS' analysis of the effects of Alternative 5 on prey availability for Steller sea lions as a preliminary step for the required consultation under Section 7 of the Endangered Species Act (ESA). PRD reviewed the effects analysis in the draft EIS to provide early input to SFD and the Council to assist them with insuring that the proposed action is not likely to jeopardize the continued existence of Steller sea lions or adversely modify critical habitat as required under section 7(a) of the ESA.

In a formal ESA section 7 consultation on the Fisheries Management Plan (FMP) for the BSAI groundfish fisheries in 2010, NMFS concluded that it could not insure that the action, as proposed, was not likely to jeopardize the continued existence of the western distinct population segment of Steller sea lions (WDPS) or adversely modify critical habitat. In that FMP-level consultation NMFS highlighted concerns about the continued strong decline of the WDPS in the western Aleutian Islands (AI) and the lack of recovery in the adjacent central AI. The population trends in these two sub-regions signaled that the WDPS was not recovering in a manner consistent with the abatement of threats to the continued existence of the WDPS per the demographic recovery criteria in the 2008 Steller Sea Lion Recovery Plan. NMFS determined that additional protection from potential competition with the fisheries for prey was necessary given the continued decline of sea lions and the concentrated fishing activity in the sea lion's critical habitat in these sub-regions. NMFS implemented the Reasonable and Prudent Alternative (RPA) from the 2010 FMP Biological Opinion (FMP BiOp) via an interim final rule in January 2011.

The FMP BiOp and interim final rule were subjected to external peer review and legal scrutiny. The U.S. District Court for the District of Alaska (Court) upheld the FMP BiOp and interim final rule but required NMFS to prepare an EIS on the effects of the sea lion protection measures on the human environment. While its legal sufficiency was upheld, external reviews of the FMP BiOp by the states of Alaska and Washington and by the Center for Independent Experts (CIE) highlighted concerns with the underlying science and assumptions relied on by NMFS in reaching the conclusions. NMFS, working in conjunction with the Council, prepared a draft EIS on alternative fishery protection measures in the AI and released this draft on May 14, 2013 for public comment. NMFS is also reviewing the science in the FMP BiOp and conducting new analyses in response to the external critiques of the FMP BiOp. NMFS is reinitiating formal ESA section 7 consultation on the effects of the proposed action. PRD is evaluating the PPA and will formally consult on the preferred alternative. The Council is scheduled to recommend a preferred alternative in October 2013. NMFS intends to complete a project-level BiOp on the revised Steller sea lion protection measures (the proposed action) concurrent with the completion of the EIS on the timeline approved by the Court.

PRD anticipates several new analyses will be useful for evaluating whether the proposed action complies with section 7 of the ESA. Most of these analyses resulted from feedback received on the FMP BiOp including the feedback from the CIE review. The details of these new analyses are described in the attached analytical approach for the project-level BiOp. PRD presented the analytical approach to the Council's Scientific and Statistical Committee at its April 2013 meeting. As described in the analytical approach, PRD will undertake a step-wise approach to evaluating the efficacy of the proposed action and insure that the action is not likely to jeopardize the continued existence of the WDPS or adversely modify critical habitat.

Due to the schedule required by the Court for the EIS, the outcome of the formal consultation will not be known when the Council recommends a preferred alternative in October 2013. Therefore, PRD performed an initial, simplified analysis of the PPA to provide early input to the Council at its June 2013 meeting. PRD understands the need for transparency and timely communication to help SFD and the Council comply with the ESA. PRD is striving to identify as early as possible any issues associated with the PPA that may be of concern when we develop the new BiOp. PRD identified elements of the PPA where the Council and SFD may wish to consider additional or alternate protections for the WDPS and critical habitat to front-load protection into the proposed action.

Sea lion and fishery areas in the Central and Western Aleutian Islands

The western and central AI are divided into various areas for sea lion and fishery management purposes. Fishery management area 543 corresponds with the Steller sea lion western AI sub-region. Fishery management areas 542 and 541 comprise the Steller sea lion central AI sub-region (see draft EIS Figure 5-1). Table 1 shows which major sea lion rookery and haulout sites occur in each fishery management area. This information is important when considering fishery management measures, including seasonal provisions.

Table 1. Sea lion Sites in the Aleutian Islands Fishery Management Areas 543, 542, 541 (modified from FMP Biop Table 3.31). This table shows sites designated as critical habitat in 50 CFR 226.202 and sites that have been used since the designation of critical habitat. Critical habitat includes an aquatic zone that extends 20 nm seaward in from the baseline or basepoint of each major rookery and major haulout in Alaska that is west of 144 deg. W. longitude. The site type and season fields indicate the usage of the site as analyzed by the National Marine Mammal Lab (NMML) in 2006. In this table summer reflects usage meeting the thresholds (>200 non-pups in summer and >100 non-pups in winter from 1990 -2005) in May through October and winter reflects usage in November through April.

	543			542			541		
	Site Type ¹	Season ²		Site Type ¹	Season ²		Site Type ¹	Season ²	
Rookeries	Attu Island/ Cape Wrangell	R	All	Ulak Island/ Hasgox Pt.	R	All	Adak Island	R	All
	Attu Island/ Cape Sabak	R	All	Amchitka Island/ East Cape	H/R	All	Seguam Island/Saddleridge Pt.	R	All
	Agattu Island/ Gillion Pt.	R	All	Kiska Island/ Cape St. Stephen	R	All	Kasatochi Island	R	All
	Buldir	R	All	Kiska Island/ Lief Cove	R	All	Agligadak Island	H/R	S
				Semisopochnoi/ Petrel Pt.	H/R	All	Yunaska Island	R	All
				Ayugadak Point	R	S			
				Amchitka Island/ Column Rocks	R	S			
				Semisopochnoi Island/ Pochnoi	H/R	All			
				Tag Island	R	All			
				Gramp Rock	R	All			
Haulouts	Attu Island/ Chirikof Pt.	H	S	Kavalga Island	H	W*	Amlia Island/ East	H	All
	Alaid Island	H	All	Unalga & Dinkum Rocks	H	W	Great Sitkin Island	H	N
	Shemya Island	H	S	Kiska Island/ Sobaka & Vega	H	N	Seguam Island/ Turf Point	H	All
				Tanaga Island/ Bumpy Point	H	N	Seguam Island/ Finch Point	H	W*
				Segula Island	H	W	Little Tanaga Strait	H	All
				Kiska Island/ Sirius Point	H	N	Anagaksik Island	H	N
				Tanadak Island (Kiska)	H	N	Atka Island/ N. Cape	H	All
				Little Sitkin Island	H	W	Amlia Island/ Sviech. Harbor	H	All
				Ugidak Island	H	N	Sagigik Island	H	N
				Bobrof Island	H	W	Tanadak Island (Amlia)	H	N
				Kanaga Island/ Ship Rock	R/H	All	Amukta Island & Rocks	H	N
				Kanaga Island/ North Cape	H	W	Chagulak Island	H	W
				Rat Island/ Krysi Point	RPA	All			
				Amchitka Island/ Cape Ivakin	RPA	N			

*The seasonal site use has been revised relative to the information in the FMP BiOp Table 3.31 due to updated count information. In March, 2012 NMML sighted 632 animals at Seguam Island/Finch Point and 103 animals at Kavalga Island.

¹ RPA = haulout not designated as critical habitat, but listed as an important site for management purposes in 1999; R/H = functional rookery that is a listed critical habitat haulout; H/R = functional haulout that is listed as a critical habitat rookery; R = rookery critical habitat; H = haulout critical habitat

² S = summer; W = winter, N = neither

Approach

The draft EIS evaluates the anticipated effects of the fisheries on Steller sea lions in three main categories—incidental take, prey availability, and disturbance. The only category identified as a potentially high threat to the WDPS in the 2008 Steller Sea Lion Recovery Plan was competition with fisheries for prey. Given the protections in place for Steller sea lions, incidental take in fisheries and disturbance from vessel traffic were rated as low threats to the recovery of the WDPS. Thus, PRD focused on the effects of the PPA on prey availability. Although some stakeholders and external reviewers have questioned whether sufficient information exists to conclude that fisheries have the potential to cause or contribute to nutritional stress in WDPS sea lions, based on the best available information PRD continues to regard prey removal as the principal potential stressor that fisheries may exert on the WDPS.

PRD compared the elements of the status quo fishery management regime (Alternative 1 - the RPA from the FMP BiOp and current pollock fisheries management) for Pacific cod, Atka mackerel, and pollock in the BSAI with elements of Alternative 4 (essentially the regime that NMFS determined did not insure adequate protection to the WDPS and critical habitat in 2010) and Alternative 5 (the PPA). PRD identified elements that were similar among the three alternatives, elements of Alternative 1 that were more protective than Alternative 4, and elements of Alternative 5 that were assumed to be more or less protective than Alternative 4. This step revealed the relative protection to sea lion prey availability under the various alternatives and working assumptions in the draft EIS.

PRD reviewed the PPA for consistency with the performance standards for Steller sea lion protection measures in Chapter 1 of the draft EIS (see appendix), which were adopted from the 2010 FMP BiOp. PRD also considered the importance of prey species in the WDPS diet by season as described in Chapter 5 of the draft EIS. PRD was also mindful of the key data gaps highlighted in the attached analytical approach. Steller sea lion prey species are an essential feature of Steller sea lion marine critical habitat. In assessing the effects of the fisheries on critical habitat in a BiOp we consider the base status of critical habitat and then the status of critical habitat given exposure to the effects of the proposed action. Our best understanding of the base status of marine critical habitat, including the abundance and distribution of prey, derives from summer trawl survey data. NMFS' scientists continue to caution that these data do not inform us as to the distribution of fish biomass in the winter when the fisheries for two sea lion prey species (Pacific cod and pollock) are most active. PRD will apply the best available data on fish biomass, including information that can be gleaned from fishery-dependent data in the winter; however, we anticipate that we will remain confronted with a lack of data to quantify the effects of expected fishery removals from critical habitat. With this in mind, as a general matter, PRD recommends a cautious approach to fishing for Steller sea lion prey species in critical habitat.

Given the limited amount of time available between the release of the draft EIS and the June Council meeting and the presentation of the data in the draft EIS, PRD evaluated the elements for the individual fisheries (Atka mackerel, Pacific cod non-trawl, Pacific cod trawl, and pollock) for this initial analysis. A more comprehensive analysis with the elements and their anticipated effects aggregated across fisheries will be done for the new BiOp.

Results

The following pages provide PRD's initial analysis for each fishery.

Table 2. Atka mackerel (modified from draft EIS Table 2-19).

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 (status quo)	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
	No more than 10% of the group's allocation harvested from critical habitat, distribute evenly between seasons.						
	TAC ≤ 47% of ABC.				BS subarea closed to directed fishing.		
4 (pre-2011)	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.	Critical habitat harvest limit 60% of TAC, distribute evenly between seasons.	West of 178°W, critical habitat closed 0-3 nm from haulouts and 0-10 nm from rookeries.	Critical habitat harvest limit 60% of TAC west of 178° W long, distribute evenly between seasons.	Critical habitat closed to directed fishing.	Same as Alternative 1
	Critical habitat closed east of 178°W. long.						
	50:50 seasonal apportionment including CDQ.						
Rollover from A to B season.							
5 (PPA)	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.	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.	Same as Alternative 4	Critical habitat closed except 12-20 nm portion southeast of Seguam Island. Bering Sea subarea closed	TAC for combined Area 541/BS subarea Amend. 80 coop and CDQ in BS: Revise MRA calculation for Atka mackerel as an incidental species.
	50:50 seasonal apportionment including CDQ.						
	Rollover from A to B season fished outside of critical habitat.						

Green colored cells are elements of the status quo measures that are assumed to be more protective than the other two alternatives. White cells are essentially assumed equivalent among alternatives. Red cells are assumed to be less protective than pre-2011 elements, and yellow cells are assumed to be more protective than pre-2011 elements.

Atka mackerel

The elements of the alternatives for Atka mackerel are shown in Table 2. The draft EIS notes that Alternative 5 would open more area to Atka mackerel fishing in Steller sea lion critical habitat in area 543 than in 542 or 541 (draft EIS page 174). Draft EIS Table 5-156 shows that under the PPA 76% of the critical habitat would be closed to fishing in area 543, and 92% and 97% of the critical habitat would be closed in areas 542 and 541 respectively. However, under the PPA, 60% of the TAC could be caught in the small open areas of critical habitat in area 542 and there would be no limit on the amount of the area 541 TAC that could be harvested from the Seguam foraging area in area 541. Thus, the amount of catch that could be harvested from critical habitat would be an equal percentage of the respective area TACs in areas 543 and 542.

Seasons: The PPA extends the status quo B season from November 1st through December 31st. This may result in the temporal dispersion of catch, though there is no assurance that this would be the effect since nothing would preclude harvesting the TAC in a shorter period of time, and as noted in Chapter 5 of the draft EIS, this provision may increase the potential for fisheries competition in the winter when adult female sea lions that are pregnant and nursing a pup have the highest bioenergetic requirements.

Seasonal apportionment of TAC: identical among all three alternatives.

Rollover: identical among the three alternatives except that any A season rollover would be taken outside of critical habitat in the B season under the PPA. The requirement to catch any amount of rolled over A season TAC outside of critical habitat is assumed to be more protective than the rollover provisions prior to 2011 and the rollover provision in area 542 under the status quo.

Area 543:

Closures: The PPA would open all of area 543 to fishing for Atka mackerel except from 0-3 nm around haulouts and 0-10 nm from rookeries. This is a big change relative to the status quo, which prohibits retention of Atka mackerel in area 543, and a minor change relative to the pre-2011 measures. The sole difference in area closures relative to the pre-2011 measures is the reduced area closure around Buldir Island under the PPA. Two facts may mitigate opening this additional area, however—the lack of historic fishing in this area (draft EIS page 5-156) and the low usage of this site by Steller sea lions in recent years. Thus, opening this additional area around Buldir Island does not appear to be a significant lessening of protection relative to the pre-2011 measures.

Catch limit: Limiting TAC to 65% of ABC could result in a slight reduction of harvest in area 543 relative to the baseline TACs which averaged 69% of ABC from 2004 to 2010 under the pre-2011 measures as shown in the draft EIS table 5-114.

Assuming 60% of the TAC could be taken in critical habitat, the PPA is estimated to increase catch in critical habitat in area 543 by an average of 6,130 mt relative to pre-2011 measures (See draft EIS Table 5-114). Table 5-86 in the draft EIS shows the amount of the area 543 catch that was caught in critical habitat historically and the amount expected to be caught in critical habitat under each of the alternatives. It shows that the PPA would allow as much catch to be taken from critical habitat as Alternative 4, the pre-2011 fishery management measures.

Area 542:

Closures: The PPA would close critical habitat in area 542 that was open under the pre-2011 measures and would increase 0-10 nm closures to 0-20 nm closures year-round at five rookeries (Ayugadak Point, Achitka/Column Rocks, Amchitka Island/East Cape, Semisopchnoi/Petrel and

Semisopochnoi/Pochnoi) and four haulouts (Amchitka Island/Cape Ivakin, Rat Island, Little Sitkin Island, and Segula Island) from 178° E to 180°. According to the draft EIS table 5-115, an average of 39% (11,773 mt) and a maximum of 54% (14,350 mt) of the area 542 Atka mackerel catch from 2004 through 2010 was estimated to have been caught in the area from 178° E to 180° that would be closed under the PPA. This area that would be closed to Atka mackerel fishing relative to the pre-2011 measures, includes sites around Amchitka Island where NMFS' Fisheries Interaction Team (FIT) studies show a high rate of Atka mackerel movement from inside the trawl exclusion areas to outside the exclusion areas and low Atka mackerel biomass relative to other sites (e.g. Seguam Island)¹. These closures are consistent with the performance standards to conserve prey where tagging studies indicate high movement of fish from inside to outside trawl exclusion zones.

All other critical habitat closures under the PPA are the same as the pre-2011 measures. Thus, the PPA would close all critical habitat around four haulouts (Tanaga Island/Bumpy Point, Bobrof Island, Kanaga Island/North Cape, and Kanaga Island/Ship Rock) east of 178° W to the boarder of area 541. This closure would protect critical habitat around Kanaga Island/Ship Rock, which is now functioning as a rookery and is used by sea lions year-round. These protections are consistent with the performance standards to maintain groundfish fishing closures around currently designated rookeries and establish new groundfish fishing closures around emerging rookeries.

As with the pre-2011 measures, critical habitat would be closed to Atka mackerel fishing out to 3 nm from the following haulouts in area 542 under the PPA: Kavalga Island, Unalga & Dinkum Rocks, Kiska Island/Sobaka & Vega, Kiska Island/Sirius Point, Tanadak Island, and Ugidak Island. As shown in Table 1, only Kavalga Island and Unalga & Dinkum Rocks have been used by a large number of sea lions in winter in recent years. The remaining five rookeries in area 542 would be closed to fishing for Atka mackerel out to 10 nm (Ulak Island, Kiska Island/Cape St. Stephen, Kiska Island/Lief Cove, Tag Island, and Gramp Rock).

Catch and participation: The harvest limit in the open area of critical habitat in area 542 would be increased from 10% under the status quo to 60% of TAC under the PPA. The TAC in area 542 reverts back to the pre-2011 measures under the PPA. Under the status quo, the area 542 TAC is constrained to a maximum of 47% of ABC. There would be no TAC constraint in area 542 under the PPA.

Area 541:

Closures: The PPA would open critical habitat area in area 541 that was closed under the pre-2011 measures and status quo (all of critical habitat has been closed in area 541 since 1992). The PPA would open a portion of critical habitat from 12 to 20 nm to the southeast of Seguam Island. Seguam Island is a designated rookery that is also used as a haulout year-round. Research on Atka mackerel abundance and movement indicates a small amount of movement of Atka mackerel from inside the trawl exclusion zones to outside the exclusion areas, which suggests the trawl exclusion zones may be effective at conserving prey for Steller sea lions around the Seguam Island rookery. The FIT research also indicates a large biomass of Atka mackerel inside the trawl exclusion zone around Seguam Island, which may help mitigate the potential for local depletion of Atka mackerel. However the PPA would not limit the amount of the area 541 TAC that could

¹ Ortiz, I. and E. Logerwell. Draft. Evaluating the efficacy of trawl exclusion zones for Steller sea lion foraging on Atka mackerel. II. Site-specific estimates to evaluate availability of Atka mackerel production for sea lion consumption. Available from: www.alaskafisheries.noaa.gov/protectedresources/stellers/esa/biop/draft/trawlexclusionzones.pdf

be harvested from this critical habitat open area, which is a big change relative to the pre-2011 fishery management regime which did not allow fishing inside critical habitat in area 541.

Conclusions

Based on the above analysis of information provided in the draft EIS, it is apparent that the PPA for Atka mackerel is very similar to the pre-2011 fishery management regime in area 543, more protective than the pre-2011 measures in area 542, and less protective than the pre-2011 measures in area 541. NMFS determined that it could not insure that the pre-2011 management regime was not likely to jeopardize the continued existence of the WDPS or adversely modify critical habitat.

Area 543 is the geographic extent of the Steller sea lion's western AI sub-region. Of the six sub-regions in the range of the WDPS in Alaska, NMFS is most concerned about the continued strong declines of sea lion pups and non-pups in the western AI sub-region. Table 5-86 in the draft EIS shows that the amount of catch that may be taken in critical habitat in area 543 is equivalent to the pre-2011 management regime. Additionally, draft EIS Table 5-114 shows that the PPA is estimated to increase catch in critical habitat relative to the pre-2011 management regime. In area 543, the PPA would limit TAC to a maximum of 65% of the ABC. PRD used the values in draft EIS Table 5-100 to calculate the TAC as a percentage of the ABC. The average TAC percentage of ABC was 69% from 2004 through 2010, thus the 65% TAC limit under the PPA would result in a slight overall reduction in total Atka mackerel catch in area 543 relative to the pre-2011 fishery. The Council could set TAC at an amount much smaller than 65% of ABC under the PPA which would decrease the potential effects on prey availability for sea lions, however the PPA provides no assurance that the TAC would be set lower than 65% of ABC, or how frequently TAC would be less than 65% under the PPA, and thus for the new BiOp PRD will have to assume that TAC would be set at 65%.

Of the three prey species taken by the groundfish fisheries, Atka mackerel occurs in the highest proportion of sea lion scats and is the only species taken by the groundfish fisheries that occurs in more than 10% of sea lion scats in both summer and winter in the western and central AI. Thus, at this early consultation phase, the amount of Atka mackerel that could be removed from Steller sea lion critical habitat in Area 543 is PRD's biggest concern with the PPA. PRD recommends that the Council consider the elements in Alternatives 1 or 2 for Atka mackerel in area 543.

Table 3. Pacific Cod Non Trawl (modified from draft EIS Table 2-20).

Alternative	Seasons	Area 543		Area 542		Area 541	
		closures	Catch and participation limits	closures	Catch and participation limits	closures	Catch and participation limits
1 (status quo)	Hook-and-Line: A season: 1/1-6/10 B season: 9/10-12/31	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			Prohibit directed fishing after Nov. 1.			
	Seasonal apportionments based on BSAI-wide TACs under Amend 85.						
4 (pre-2011)	Same as Alternative 1	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 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

* The only difference for Pacific cod non-trawl under the PPA relative to the pre-2011 measures is that the Pacific cod TAC would be specified separately for the AI and EBS and the amount of the AI Pacific cod TAC that could be harvested in area 543 will be limited based on the annual stock assessment. Note the distinction in this analysis relative to the draft EIS. In this analysis, PRD compared the PPA relative to measures in place prior to 2011, whereas Alternative 4 in the draft EIS would also assume a split in the BS and AI Pacific cod TAC. However, that split was not in place prior to 2011 so we have assumed that split to be more protective for sea lions relative to fishery management prior to 2011.

Table 4. Pacific cod trawl (modified from draft EIS Table 2-21).

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.		Sequam Foraging Area closed.	
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	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.	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.					Sequam Foraging Area closed.	
5 (PPA)	Same as Alternative 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

* The only difference for Pacific cod trawl under the PPA relative to the pre-2011 measures is that the Pacific cod TAC would be specified separately for the AI and EBS and the amount of the AI Pacific cod TAC that can be harvested in area 543 will be limited based on the annual stock assessment. Note the distinction in this analysis relative to the draft EIS. In this analysis, PRD compared the PPA relative to measures in place prior to 2011, whereas Alternative 4 in the draft EIS would also assume a split in the BS and AI Pacific cod TAC. However, that split was not in place prior to 2011 so we have assumed that split to be more protective for sea lions relative to fishery management prior to 2011.

Pacific Cod Non-trawl

The elements of the alternatives for Pacific cod non-trawl gear are shown in Table 3. The Pacific cod non-trawl sectors are allocated 60.8% of the BSAI Pacific cod TAC (draft EIS Table 2-1). The hook-and-line catcher/processor sector receives the largest TAC allocation of all Pacific cod sectors; they are allocated 48.7% of the BSAI Pacific cod TAC. The draft EIS concluded that the rate of removal of Pacific cod with hook-and-line and pot gear is not as likely to cause localized depletions of Pacific cod due to the slower rate of removal relative to removals with pot and trawl gear (page 5-99). The draft EIS page 5-157 notes that Alternatives 4 and 5 are the least restrictive on the harvest of Pacific cod in the AI and present the greatest potential for impacts on Pacific cod prey resources for Steller sea lions. Pacific cod are a primary prey species for Steller sea lions in winter (November through April) in the western and central AI.

Seasons: same among all three alternatives.

Area 543: The PPA would revert from no retention of Pacific cod inside or outside critical habitat under the status quo to allowing the full AI TAC (as adjusted for proportion of biomass estimated to be in area 543 in the annual stock assessment) to be taken inside critical habitat. The PPA would allow fishing for Pacific cod in the parallel fisheries to occur up to the beach at haulouts (Attu Island/Chirikof Point, Alaid Island and Shemya Island) to within 3 nm from 3 rookeries (Attu/Cape Wrangell, Agattu Island/Gillon Point, and Agattu Island/Cape Sabak) and 10 nm from Buldir Island. The only difference in the PPA relative to the pre-2011 measures is the intention to split the EBS and AI TAC, which is more protective than pre-2011 measures. Managing Pacific cod as a single BSAI stock may have allowed a disproportionate amount of the Pacific cod harvest to be taken from the AI relative to the estimated available biomass. Global harvest control rules in the BSAI FMP would remain in effect under the PPA, and fishing would be prohibited if the AI Pacific cod stock is estimated to be below $B_{20\%}$.

Given the bathymetry in the AI, most of the accessible habitat to non-trawl gear occurs within critical habitat. The draft EIS Table 5-64 shows that almost all (96% in 2010) Pacific cod non-trawl harvest in area 543 was harvested from critical habitat and the PPA would return Pacific cod to this management structure.

Area 542: Nearly 100% of Pacific cod would be harvested from critical habitat in area 542 under the PPA according to Draft EIS Table 5-42; the greatest percentage of this would be taken from 3-10 nm.

Area 541: The majority of Pacific cod non-trawl catch would be taken from critical habitat in area 541 (76% in 2010 according to draft EIS Table 5-75), though not as high a percentage as occurs in critical habitat in area 543 and 542.

Conclusions

The intention to split the EBS and AI Pacific cod TAC is assumed to be more protective than the pre-2011 fishery management measures, which did not limit the amount of the BSAI Pacific cod TAC that could be harvested in the AI. Moreover, PRD recognizes that non-trawl gear sectors are allocated a greater percentage of the overall Pacific cod TAC. Since non-trawl gear removes Pacific cod at a slower rate than trawl gear, PRD recognizes the potential for localized depletion to be mitigated somewhat due to the non trawl sector allocations.

To protect the conservation value of critical habitat in the western AI where sea lions are in decline, PRD recommends modifying the proposed action to increase protection of critical habitat from potential effects of Pacific cod fishing with non-trawl gear, especially in winter (November

through April) when the available data suggest Pacific cod is an important component of the sea lion diet. PRD also recommends maintaining a minimum critical habitat closure of 3 nm around all identified rookeries and haulouts in the western and central AI. The maintenance of closures around designated and emerging rookeries is one of the performance standards provided in Chapter 1 of the draft EIS. If the Council deems this nearshore area critical to the execution of the AI Pacific cod fishery, PRD recommends that the Council consider offsetting potential impacts from increased encroachment into critical habitat relative to the status quo regime with more protective measures in other fisheries in area 543.

Pacific cod Trawl

The elements of the alternatives for Pacific cod trawl gear are shown in Table 4. Pacific cod trawl sectors are allocated a total of 37.8% of the BSAI Pacific cod TAC. The draft EIS mentions the Council's intentions to split the BS and AI P cod TACs for the 2014 fishing year. The sector-specific TAC allocations are set at the BSAI level and therefore a sector's entire BSAI allocation could be harvested within the AI as long as the AI TAC is not exceeded.

Seasons: The A and B seasons are identical among the three alternatives in Table 4. The PPA would extend the C season by two months (from November 1 through December 31) for Amendment 80 vessels and CDQ. This may result in the temporal dispersion of catch, though there is no assurance that this would be the effect since nothing would preclude harvesting the TAC in a shorter period of time, and as noted in Chapter 5 of the draft EIS, this provision may increase the potential for fisheries competition in the winter when adult female sea lions that are pregnant and nursing a pup have the highest bioenergetic requirements.

Seasonal apportionments: Same among all three alternatives.

Area 543: The PPA would revert from no-retention inside or outside critical habitat under the status quo to allowing the full TAC (as adjusted for the proportion of biomass estimated to be in area 543 in annual stock assessment) to be taken inside of critical habitat. The only difference in the PPA relative to the pre-2011 measures is the intention to split the EBS and AI TAC, which is more protective than pre-2011 measures. Managing Pacific cod as single BSAI stock may have allowed for a disproportionate amount of harvest to be taken from the AI relative to the Pacific cod biomass in the AI. The BSAI FMP global harvest control rules would remain in effect under the PPA, and fishing would be prohibited if spawning female biomass is estimated to be below $B_{20\%}$.

Table 5-117 in the draft EIS shows the area 543 Pacific cod catch limits had the PPA been in effect during the baseline period, the catch that historically occurred in critical habitat area that would be open under the PPA, and catch that historically occurred in critical habitat area that would be closed under the PPA. Table 5-117 shows that the Pacific cod trawl sector would have been constrained by the 543 area limit in 2008 through 2010; it would not have been constrained by this limit in area 543 from 2004 through 2007. Table 5-117 in the draft EIS also shows that almost none of the Pacific cod trawl catch was from areas of critical habitat that would be closed under the PPA in area 543. The PPA would have been more effective at reducing Pacific cod trawl harvest in critical habitat in areas 542 and 541 from 2004 through 2008 when a greater proportion of the BSAI Pacific cod TAC was harvested in areas 542 and 541 compared to 543.

Area 542: The area closures for Pacific cod trawl in area 542 under the PPA are the same as the pre-2011 measures with the additional protection on Pacific cod harvest in the AI through an AI-specific TAC.

Area 541: The area closures for Pacific cod trawl in area 541 under the PPA are the same as the pre-2011 measures with the additional protection on Pacific cod harvest in the AI through an AI-specific TAC.

Conclusions

The intention to split the EBS and AI Pacific cod TAC is assumed to be more protective than the pre-2011 fishery management measures, which did not limit the amount of the BSAI Pacific cod TAC that could be harvested in the AI. Moreover, there have not been limits on the amount of the Pacific cod TAC that can be taken from inside critical habitat. NMFS recognizes that removal rates of Pacific cod with trawl gear are much higher than removal rates with non-trawl gear, and thus the potential for localized depletion of Pacific cod is assumed to be higher with trawl gear than for non-trawl gear. PRD recommends that the Council consider offsetting effects of trawling for Pacific cod in Steller sea lion critical habitat, especially in winter (November through April) by precluding other fisheries for Steller sea lion prey species in the same times and areas.

Table 5. Pollock (modified from draft EIS Table 2-22).

Alternative	Seasons	Area-wide Catch and Participation limits	Area 543	Area 542	Additional participation limits	Area 541
			Closures and catch limit	Closures and catch limit		Closures and catch limit
1 (status quo)	A season: 1/20-6/10.	Only CDQ and vessels registered with the Aleut Corporation in directed fishery. 50% of Aleut Corp. directed fishery allocation to vessels < 60 ft.	Critical habitat closed to directed fishing.	Critical habitat closed to directed fishing.	None	Critical habitat closed to directed fishing.
	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.				
5 (PPA)	Same as Alternative 1	Same as Alternative 1	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 Islands Area outside 3 nm from Tanadak, Segula, and Krysi Point, and 10 nm from Little Sitkin and Ayugudak	Same as Alternative 1	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.

* For pollock, Alternative 1 is the same as the pre-2011 fishery management regime. Green colored cells are elements of the status quo measures that are assumed to be more protective than the PPA. White cells are essentially assumed equivalent between alternatives. Red cells are assumed to be less protective than pre-2011 elements, and yellow cells are assumed to be more protective than pre-2011 elements.

Pollock

The elements of the alternatives for pollock are shown in Table 5. The seasons and area-wide catch and participation limits would be the same as under the status-quo. The PPA would maintain the closure for pollock fishing from November 1 through noon, Alaska local time January 20. The A season pollock apportionment would be limited to 40% of the AI pollock ABC.

Area 543: The PPA would open a portion of the area outside of 3 nm from all three sites designated as haulouts in area 543 to pollock with pelagic trawl gear. While this is less protective than the status quo, the maximum catch amount in the A season would be limited to 5% of ABC. Overall the A season apportionment would be limited to a maximum of 40% of the AI pollock ABC, so it would not be permissible to reach the maximum area apportionments in all three areas (area 543 limit = 5%, area 542 limit = 15%, area 541 limit = 30%). Of the three haulouts, PRD's best available information (Table 1) indicates that only Alaid is used year-round; the other two haulouts are used only in the summer months. The four sites designated as rookeries in area 543 would continue to be closed to pollock fishing from 0-20 nm year-round. For comparison, PRD notes that several sites designated as haulouts in the GOA and EBS are open from 3-10 nm to pollock trawling.

Area 542: The PPA would open a portion of critical habitat to trawling for pollock in area 542. The A season catch limit would be 15 percent of the AI pollock ABC. West of 178° W: The PPA would open a portion of critical habitat outside of 3nm from Tanadak Island, Segula Island, and Krysi Point. Of these haulouts, Krysi Point and Segula are used in the winter (November through April) when pollock are an important part of the sea lion diet in the central AI. Both of these sites would be closed to Atka mackerel fishing under the PPA. Tanadak Island is the only site that would be open to pollock trawling in a portion of critical habitat outside of 3 nm that is also proposed to be open to Atka mackerel trawling. The best available data indicate that sea lions do not use Tanadak Island to a great extent (Table 1).

The PPA would also open a portion of critical habitat outside of 10 nm from one rookery (Ayugadak Point) and one haulout (Little Sitkin Island) to pollock trawling in the western portion of area 542. The rookery is used by sea lions in the summer and pollock are an important component of the sea lion diet in winter in the central AI. The Little Sitkin Island haulout is used by sea lions in the winter. Ayugadak Point and Little Sitkin Island would be closed to trawling for Atka mackerel under the PPA.

East of 178° W in area 542: The PPA would open critical habitat to pollock trawling 3 – 20 nm from three haulouts (Tanaga Island/Bumpy Point, Bobrof Island, and Kanaga Island/North Cape). There are three haulouts (see previous sentence) and one rookery (Kanaga Island/Ship Rock) east of 178° W in area 542. Thus, under the PPA all of these sites would be open outside of 3 nm to pollock trawling. This includes Kanaga Island/Ship Rock rookery which was open to the Atka mackerel fishery under the pre-2011 fishery management measures, but which would be closed to Atka mackerel under the PPA. An important difference, however, is that Atka mackerel are important in the sea lion diet in summer and winter in the central AI and pollock is important in the sea lion diet in winter. However, the PPA would allow pollock fishing outside of 3 nm from all sea lion winter sites in this one-degree of latitude in the eastern portion of area 542.

Area 541: The PPA would open critical habitat to trawling for pollock from 10 to 20 nm from rookeries and from 3 to 20 nm from haulouts. As with the status-quo, fishing would be prohibited in the Seguam Foraging area. The A season catch limit would be 30% of the AI pollock ABC.

Conclusions

The PPA would open area of critical habitat to pollock fishing that was closed under status quo. Alternative 5 for pollock is more protective than Alternatives 2 through 4, but less protective than status quo (draft EIS page 158). The A season catch limits are more restrictive from east to west, consistent with the performance standards to provide more protection to Steller sea lions where more decline is evident.

PRD needs to examine the effects of the PPA in aggregate to understand where impacts may be cumulative across fisheries. The extent to which the PPA for pollock would be assumed to affect critical habitat may depend on the extent to which the other fisheries affect prey availability in critical habitat in various areas.

Summary

PRD's initial evaluation of the PPA reveals some areas where the Council may wish to consider modifications to the proposed action to protect the conservation value of critical habitat. PRD will analyze the proposed modifications to the Steller sea lion protection measures for the Atka mackerel, pollock, and Pacific cod fisheries under section 7 of the ESA. Because the results of the full analysis for the new BiOp will not be known when the Council is scheduled to take final action in October 2013, PRD undertook this initial analysis to provide input to the Council on areas of the PPA that may be problematic in a section 7 consultation given the information available to date.

From the initial review of the PPA, PRD has identified the following concerns with the PPA (in order with one being the highest concern):

1. Provisions for Atka mackerel fishing in area 543 including potential for critical habitat catch amounts as occurred under the pre-2011 fishery management regime.
2. Provisions for Pacific cod non-trawl fishing in area 543 including potential critical habitat catch amounts, proximity to haulouts, and extended season dates.
3. Provisions for Pacific cod trawl fishing in area 543 including potential critical habitat catch amounts, critical habitat catch rates, and extended season dates.
4. Provisions for Pacific cod non-trawl and trawl fishing in area 542 including proximity of non-trawl fisheries to haulouts, potential critical habitat catch amounts, trawl critical habitat catch rates, and extended season dates.
5. Cumulative effects of opening area 543 critical habitat to Atka mackerel, Pacific cod, and pollock fishing.
6. Additional fishing inside critical habitat in Area 541 relative to pre-2011 fishing measures.

Through this initial analysis, PRD has focused on some measures of the effects of prey availability for sea lions in the draft EIS more than others. For example, PRD relied more on the amount of catch estimated to be displaced under the PPA relative to the baseline to understand the net effect off the proposed measures than on the amount of critical habitat area closed under the PPA. This is especially true for Atka mackerel fisheries since Atka mackerel habitat and aggregations are patchily distributed in the AI. The spatial patterns of the Atka mackerel fishery reflect the distribution and behavior of the species. The fishery is highly localized and focuses on

the same locations each year.² Thus, PRD does not rely much on the percent of critical habitat closed to fishing for Atka mackerel under each of the alternatives to inform prey availability and potential competition between sea lions and Atka mackerel fisheries. Because Pacific cod are more widely distributed and believed to make seasonal migrations, the percent area closed may be a more informative metric for Pacific cod conservation measures.

Ideally, we would evaluate the amount of biomass available in an area by month against sea lion foraging requirements. We would then estimate how much catch was likely to be removed and determine whether sufficient forage was available on a spatial and temporal scale relevant to foraging sea lions. Because biomass data are not available at this fine scale, PRD relies on the data from the available FIT studies and the estimated amount of catch from within 3, 10, and 20 nm of important sea lion sites to estimate the conservation value of various protection measures. Also, in the absence of other direct indicators or data, PRD tends to focus on sea lion abundance and trends at various sites as signals for the presence of potential ecological limitations to population maintenance and growth.

Depending on the signals in the fishery and sea lion data, in previous section 7 consultations NMFS has used amount of harvest displaced from an area of critical habitat, the percent of critical habitat closed from 0-3, 3-10 and 10-20 nm of important sea lion sites, the projected change in the WDPS population growth rate given various measures, and the projected change in the amount of fish spawning stock biomass given various levels of fishing mortality for Steller sea lion prey species as metrics for the adequacy of the protection measures. These metrics have typically flowed from the preceding analyses in the section 7 consultations.

Thus, while there is not a formula for the Council or its Steller sea lion mitigation committee to use at this stage to develop conservation measures certain to avoid JAM, there are metrics that NMFS has consistently used to infer the conservation value of proposed fishery mitigation measures. At a minimum, PRD suggests that the protection measures proposed for the central and western AI through this EIS process be consistent with the qualitative performance standards described in Chapter 1 of the draft EIS.

² McDermott, S.F. 2010. Introduction to a Special Section: Atka Mackerel Distribution, Life History, Ecology, and Management. *Marine and Coastal Fisheries: Dynamics, Management, and Ecosystem Science* 2:304-305.

Appendix

Draft EIS Section 1.10.3: Steller Sea Lion Protection Measures Objective and Performance Standards

In this EIS, we evaluate the alternatives considering the following objective and performance standards. NMFS developed the objective and performance standards to insure the Alaska groundfish fisheries are not likely to result in jeopardy. NMFS based these metrics on traditional methods used to mitigate potential effects of fishery removals of important Steller sea lion prey species. NMFS has consistently implemented fishery mitigation measures with the goal of conserving the overall and local availability of prey for Steller sea lions.

The objective of the Steller sea lion protection measures is to:

conserve the overall forage availability for Steller sea lions and the value of critical habitat by limiting harvest of important prey species at times and in the areas where Steller sea lions forage; focused on sub-regions where the combined sea lion and fishery signals indicate the likelihood of a compromised prey field.

Performance standards outline the important considerations for developing management strategies to mitigate potential adverse impacts of the fisheries on Steller sea lions. The following performance standards reflect concepts that NMFS has traditionally applied to mitigate potential impacts of the groundfish fisheries on Steller sea lions and their critical habitat and have been upheld in court. These performance standards guided the development and analysis of the alternatives in this EIS. To protect Steller sea lions and their critical habitat, fishery management measures should:

- Be commensurate with rate of population declines with more stringent measures in sub-regions, as described in the Steller sea lion Revised Recovery Plan (NMFS 2008), with greater population declines.
- Conserve the conservation value of designated critical habitat around rookeries and haulouts and in foraging areas.
- Disperse fishery removals at times and in areas to prevent local depletion of the prey field.
- Consider distributional effects of time and area closures that are not combined with reductions in total allowable catch such that fishery removals are not concentrated at another time or in another area that may be deleterious to foraging Steller sea lions.
- Conserve prey availability inside areas closed to directed fishing for Atka mackerel where Atka mackerel tagging studies indicate high movement of fish from inside to outside closure areas (e.g., Amchitka North in Area 542).
- Consider fishery removals in State of Alaska waters.
- Maintain or establish 3 nm groundfish fishing closures around rookeries in the AI subarea.

This list of performance standards is similar to those listed in the FMP biop, but not all the performance standards that were listed in the FMP biop (NMFS 2010a) are considered for this proposed action based on concerns raised by the independent reviews of the FMP biop (Stokes 2012), (Bowen 2012), (Stewart 2012), and (Bernard et al. 2011). No additional new information was identified during scoping on this EIS that would lead to different performance standards. The performance standard related to the conservation of offshore foraging resources outside of critical habitat will be further examined in any subsequent ESA consultation on this proposed action. The FMP biop included a performance standard related to estimating foraging biomass ratios, which is

not included in this EIS. Foraging biomass ratios and fisheries effects on Steller sea lions are controversial issues that are further discussed in section 1.9.

NMFS has determined that considering these performance standards is necessary to modify the groundfish fisheries in a manner that would insure the groundfish fisheries' impacts are not likely to jeopardize Steller sea lions and adversely modify their designated critical habitat. These performance measures allow for the focused application of revised Steller sea lion protection measures, particular to area, fishery, and Steller sea lion behavior. The proposed action is focused in the location where Steller sea lions are experiencing the greatest rate of population decline and where the groundfish fisheries may adversely affect Steller sea lions or adversely modify their designated critical habitat.

United States Senate

WASHINGTON, DC 20510

AGENDA B-7
Supplemental
JUNE 2013

May 10, 2013

Dr. Kathryn Sullivan
Acting Administrator
National Oceanic and Atmospheric Administration
U.S. Department of Commerce
1401 Constitution Avenue, N.W., Room 5128
Washington, D.C. 20230

Dear Dr. Sullivan:

We are writing to urge the National Oceanic and Atmospheric Administration (NOAA) to take appropriate steps to ensure a transparent and scientifically robust process for developing an Environmental Impact Statement (EIS) and Biological Opinion (BiOp) for the Western Distinct Population Segment of Steller Sea Lions (SSL). We encourage NOAA cooperate with the North Pacific Fishery Management Council (Council) in this process and address issues raised in its April 5, 2013 motion regarding the Preliminary Draft Environmental Impact Statement (PDEIS).

In its motion, the Council noted that the PDEIS was based largely on the findings and conclusions of the 2010 BiOp but does not adequately address the findings and recommendations of scientific peer reviews conducted by the Center for Independent Experts and the independent review panel convened by the states of Alaska and Washington. These reviews were highly critical of the analysis and conclusions of the 2010 BiOp and the Council stated the PDEIS “fails to succinctly incorporate or respond to their findings and recommendations.” We have raised similar concerns with NOAA previously and believe the agency should incorporate those findings into its scientific analysis of factors affecting the SSL.

We share the Council’s concerns that the PDEIS omitted the criteria and methodologies that guide the determinations of “jeopardy and adverse modification” under the Endangered Species Act. Those criteria and methodologies are central to identifying the environmental effects of alternatives in the EIS. Without this information, neither the Council nor the public can determine whether the alternatives are reasonable.

Lastly, the Council said the agency relies on unpublished studies and studies conducted or completed after the deadline announced by NMFS for submission of scientific information. Many of these reports are “in preparation” and have not undergone a thorough scientific peer review. This, they note, is inconsistent with NOAA’s scientific

Dr. Kathryn Sullivan
May 10, 2013
Page 2

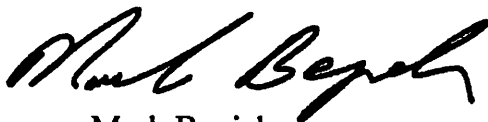
integrity policy and risks a repeat of criticisms leveled by the independent scientific reviewers.

NOAA relies on its reputation as an honest broker of scientific information. In light of the concerns raised by the independent reviewers, we urge you to work cooperatively with the Council regarding their recommendations about preparation of the final EIS and Biological Opinion.

Lastly, we request NOAA provide responses to these questions in a timely fashion prior to the Council's June meeting.

Thank you for consideration of these requests.

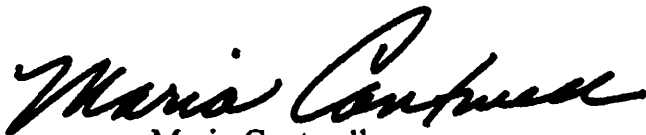
Sincerely,



Mark Begich
United States Senator



Lisa Murkowski
United States Senator



Maria Cantwell
United States Senator



Patty Murray
United States Senator

Errata Sheet for Steller Sea Lion Documents for the June 2013 Meeting of the North Pacific Fishery Management Council

Title: Initial Feedback on the Preliminary Preferred Alternative in the Steller Sea Lion Protection Measures EIS for the Groundfish Fisheries of the Bering Sea and Aleutian Islands

By: NMFS Alaska Region Protected Resources Division

Date: May 28, 2013

Errors Identified:

1. Page 6, paragraph 1, sentence 3:

Replace "Draft EIS Table 5-156..." with "Draft EIS Table 5-79..."

2. Replace page 6, paragraph 6 with:

Catch Limit: Limiting TAC to 65% of the ABC could result in a slight reduction of harvest in area 543 relative to the baseline TACs which averaged 69% of ABC from 2004 to 2010 under the pre-2011 measures as **calculated from the values** in the draft EIS table 5-114.

3. On pages 9 and 10 in the third sentence in the footnote after the asterisk,

Replace "...would also assumes a split..." with "...would also assume a split..."

Title: Analytical Approach for 2014 Groundfish BiOp

By: NMFS Alaska Region Protected Resources Division

Date: May 2013

Errors Identified:

1. Replace the second sentence in the first paragraph after the seven questions on page 7, with:

Given the best available information today, NMFS maintains that the fisheries ~~are likely to~~ **may** compete with Steller sea lions for fish and thus the focus of the 2014 BiOp will be on the fisheries for these three species.