



United States Department of the Interior

FISH AND WILDLIFE SERVICE

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In reply, refer to:
AFWFO Log no. 2003-204

Dr. James W. Balsiger
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National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802

Subject: Programmatic Biological Opinion on the effects of the Fishery Management Plans (FMPs) for the Gulf of Alaska (GOA) and Bering Sea/Aleutian Islands (BSAI) groundfish fisheries on the endangered short-tailed albatross (*Phoebastria albatrus*) and threatened Steller's eider (*Polysticta stelleri*)

Dear Dr. Balsiger:

This document transmits the Fish and Wildlife Service's (Service) programmatic Biological Opinion (BO) on the Fishery Management Plans (FMPs) for the Gulf of Alaska (GOA) and Bering Sea/Aleutian Islands (BSAI) groundfish fisheries on the endangered short-tailed albatross (*Phoebastria albatrus*) and threatened Alaska population of Steller's eider (*Polysticta stelleri*), in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

We have concurred with your determination that the implementation of these FMPs is not likely to adversely affect the threatened spectacled eider (*Somateria fischeri*), based on this species' behavior and distribution relative to fishing activities in the BSAI and GOA. Spectacled eiders typically congregate well off-shore and are not anticipated to occur in any near-shore areas where fishing vessels would be refueling. Furthermore, areas designated as spectacled eider critical habitat (where the birds congregate in large numbers) are well away from the shelf break, where the majority of fishing effort occurs, thus minimizing the probability of vessel strikes. Therefore, we do not anticipate that actions conducted under the BSAI and GOA FMPs would adversely affect spectacled eiders or destroy or adversely modify spectacled eider critical habitat.

Your original request for formal consultation on these amended FMPs was received on September 19, 2000. In that letter, you requested consultation not only for the FMPs but also for your proposed amendment to revise regulations for seabird avoidance measures in the hook-and-line fisheries off Alaska. The short-tailed albatross is a species of major concern addressed by these revised avoidance measures. Following your original request, the proposed action was modified by facsimile request on October 23, 2000, when you decided to delay publication of the proposed

rule, pending completion of a Washington Sea Grant study (see below).

In January 2001, NMFS released the Draft Alaska Groundfish Fisheries Programmatic Supplemental Environmental Impact Statement (DSEIS) (NMFS 2001a). The purpose of this document was to address significant changes that have occurred in the environment since the original environmental impact statements (EISs) for the GOA and BSAI groundfish fishery management plans were published, approximately 20 years ago. While many environmental assessments (EAs) and several EISs have been prepared for fishery plan amendments over the ensuing years, none examined the groundfish FMPs at a programmatic level. For the purposes of this consultation, NMFS defines the **federal action** as the **management of groundfish fisheries off Alaska and the authorization of groundfish fishing activities off Alaska** pursuant to approved FMPs.

Our agencies mutually agreed to delay initiation of formal consultation pending the results of an ongoing study by the Washington Sea Grant Program evaluating the effectiveness of various seabird avoidance measures used in hook-and-line fisheries off Alaska. This study was initiated pursuant to our February 19, 1998, extension of consultation on the BSAI and GOA FMPs, which required testing of the effectiveness of seabird bycatch avoidance devices and methods in the BSAI and GOA fisheries. The results of that study became available in August of 2001. Based on the study results and additional recommendations, the North Pacific Fisheries Management Council (Council) in December 2001, made recommendations to NMFS for revisions to the regulations for seabird avoidance in the groundfish and halibut hook-and-line fisheries off Alaska. These proposed revisions to the regulations implementing the BSAI and GOA FMPs are a major subject addressed in this consultation. In addition to covering longline fisheries, which we have addressed in previous biological opinions, this BO also addresses the trawl fisheries covered under the BSAI and GOA FMPs.

After reviewing the current status of the short-tailed albatross and the Alaskan breeding population of Steller's eider, the environmental baseline for the action area, the cumulative effects, and the effects of the proposed action, it is the Service's biological opinion that the action, as proposed, is not likely to jeopardize the continued existence of the short-tailed albatross or the Steller's eider, nor is it likely to adversely modify or destroy Steller's eider critical habitat. This biological opinion will be accompanied by a companion BO, conducted under the "umbrella" of this FMP programmatic consultation, on the Total Allowable Catch (TAC)-setting process for the BSAI and GOA. The latter document will include an Incidental Take Statement, Reasonable and Prudent Measures, and Terms and Conditions, which must be implemented for the authorization of any incidental take which occurs in association with the proposed TAC process and the associated commercial fishing activities. We have included non-mandatory Conservation Recommendations in this Programmatic Biological Opinion, which NMFS may wish to implement, to further enhance protection of endangered species and of the environment.

The enclosed document concludes formal consultation on the FMP Programs for the BSAI and GOA. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new

information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not considered in this BO; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this BO; or (4) a new species not covered by this BO is listed or additional critical habitat designated that may be affected by this action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take should cease pending reinitiation.

If you have any questions concerning this biological opinion, please contact me at (907) 271-2787, or lead endangered species biologist Judy Jacobs at (907) 271-2780.

Sincerely,



Ann G. Rappoport
Field Supervisor

Enclosure

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North Pacific Fisheries Management Council, Attn: Bill Wilson
University of Washington Sea Grant Program, Attn: Ed Melvin
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Programmatic Biological Opinion on the Effects of the Fishery Management Plans (FMPs) for the Gulf of Alaska (GOA) and Bering Sea/Aleutian Islands (BSAI) Groundfish Fisheries on the Endangered Short-tailed Albatross (*Phoebastria albatrus*) and Threatened Steller’s Eider (*Polysticta stelleri*)

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I. BACKGROUND

The domestic groundfish fishery off Alaska is an important segment of the U.S. fishing industry. With a total catch of 2.0 million metric tons (mt), it accounted for 47% of the weight of total U.S. domestic landings, as reported in Fisheries of the United States, 2001. All but a small part of the commercial groundfish catch off Alaska occurs in the groundfish fisheries managed under the Fishery Management Plans (FMP) for the Gulf of Alaska (GOA) and the Bering Sea/Aleutian Islands area (BSAI) groundfish fisheries. In 2001, other fisheries accounted for only 3,800 mt, or less than two tenths of a percent, of the catch reported above. The groundfish fisheries accounted for 56% of the ex-vessel value of all commercial fisheries off Alaska in 2001 (NMFS 2002b).

The BSAI and GOA FMPs form general programmatic planning documents that authorize and regulate all actions or activities involved in the groundfish fisheries. They function as overarching documents under which future decisions are made. They are adjustable through monitoring, evaluation and amendment (a process which has been termed “adaptive management”). Future federal actions implemented under the programmatic BSAI and GOA FMPs are all subject to National Environmental Policy Act (NEPA) and ESA section 7 review prior to implementation. Thus, no irreversible or irretrievable commitment of resources is made in the FMPs until the point in time when a future proposed action undergoes its own NEPA and section 7 reviews, a decision document is signed, and the proposal is implemented.

This Biological Opinion reviews the overarching goals, objectives, policy and guidance for maximizing the compatibility of the groundfish fisheries in the Bering Sea and GOA with the biological requirements of the short-tailed albatross and Steller's eider. By authorizing the FMPs, the National Marine Fisheries Service (NMFS) is committed to authorizing the fisheries conducted in the Bering Sea and GOA, within the constraints of the policy and guidance developed for federally-listed species and incorporated into the FMPs.

This Biological Opinion will determine if the goals, objectives, guidance and policy emphasis for the proposed revisions to regulations implementing the Alaska groundfish fisheries FMPs, as described in the DSEIS and subsequent documents, are likely to jeopardize the continued existence of the short-tailed albatross and the Steller's eider. In addition, it will provide management direction and establish guidelines under which future federal actions proposed under the programmatic BSAI and GOA FMPs could be implemented, thereby resulting in fewer environmental conflicts, better species protection, better decision documents, reduced costs, greater predictability and certainty, and an expeditious review to implement future actions.

Proposed federal actions implemented under the BSAI and GOA FMPs that have effects similar

in scope and nature to those addressed in this Biological Opinion, and can be implemented in a manner consistent with the established guidelines found herein, may be tiered to this biological opinion, as the Service deems appropriate. This does not preclude the NMFS from completing its section 7 consultation responsibilities under the Act for future federal actions. However, the consultation process should be expedited by the guidance established in this programmatic Biological Opinion.

On September 4, 2002, NMFS issued a proposed rule to implement protection measures for Steller sea lion (*Eumetopias jubatus*), to avoid the likelihood that groundfish fisheries off Alaska would jeopardize the continued existence of the western distinct population segment of this species (67 FR 56692). Proposed protection measures include:

- Area closures for all groundfish fishing within 0 to 3 nautical miles of 39 rookery sites considered most sensitive for females with pups;
- a number of measures for Atka mackerel, pollock, and Pacific cod fisheries, including a modified harvest control rule, certain area closures for selected sea lion haul-out, rookery and foraging sites, a vessel monitoring system, to facilitate enforcement of closed areas, and modifications to the CDQ groundfish program, fisheries permit requirements, and catcher vessel fishing trip definition; and
- Aleutian Island subarea, Bering Sea and Gulf of Alaska protection measures, including various area closures, TAC apportionment by season and gear, observer requirements, and fisheries research.

These proposed measures are designed to disperse fishing effort over time and area, to decrease competition for Steller sea lion prey species (especially near areas important for breeding or congregation). We anticipate that these measures, or other similar measures adopted in a final rule, unless substantively different, would not adversely affect short-tailed albatross, Steller's eider or spectacled eider, and in fact may have a slight beneficial effect, by decreasing disturbance and foraging competition for these birds as well as for the sea lions.

This Biological Opinion (BO) is based on information provided from the following sources: NMFS DSEIS (NMFS 2001a), NMFS harvest statistics for Alaska groundfish fisheries, NMFS fisheries observer reports, Melvin *et al.* (2001) report on Solutions to Seabird Bycatch in Alaska's Longline Fisheries, Final United States National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (NMFS 2001b), North Pacific Fishery Management Council recommendations (December, 2001), and NMFS' proposed revisions to seabird avoidance measures in the hook-and-line fisheries off Alaska (NMFS 2003). In addition, numerous other sources of information were used in formulating this BO. The complete administrative record for this consultation is on file at our Anchorage Fish and Wildlife Field Office.

The Service and NMFS are in a continuing dialog and research effort on the effects of fishing activities to listed species. Both parties have agreed to reinitiate this consultation as appropriate

in the future, as new information becomes available, particularly regarding refined technologies for seabird bycatch avoidance.

II. CONSULTATION HISTORY

1983 July: A short-tailed albatross recovered dead by the crew of a commercial fishing vessel after it had drowned in a net (gear type unknown) while the vessel was fishing in the northern Bering Sea near St. Matthew Island.

1987 October: A short-tailed albatross was taken, while fishing for halibut near Middleton Island in the Gulf of Alaska. The bird had been banded as a nestling on Torishima Island, Japan on 5 April 1987 (Red plastic band #173, metal band #130-01836).

1989 July 3: Non-jeopardy BO issued. to NMFS on the effects of the Interim Incidental Take Exemption Program for marine mammals, and related fishing activities, to all listed species under Service jurisdiction. Included in the list of species that may be adversely affected was the short-tailed albatross. The Service concluded that commercial fishing, and especially commercial longline and gillnet fishing, would adversely affect the short-tailed albatross through: 1) direct injury or mortality from entanglement with hooks, nets, and other gear; 2) problems associated with entanglement or ingestion of plastics and other debris; 3) competition with the fishery for certain species utilized as food by albatrosses; 4) injury resulting from contact with petroleum products spilled or leaked from vessels.

The anticipated incidental take of short-tailed albatrosses was set at two birds per year. Reasonable and prudent measures and terms and conditions required that:

1. fishery observers become trained in identification of short-tailed albatrosses and report all sightings;
2. when a short-tailed albatross is observed following a fishing vessel, every effort be made to minimize the possibility of the bird becoming entangled with the gear (i.e., changing ship's heading or speed, aborting or delaying the set on a long line, gillnet or trammel, or taking steps to flush or remove birds from dangerous situations);
3. all commercial vessels strictly comply with the Marine Plastic Pollution Research and Control Act and the International Convention of the Prevention of Pollution by Ships, 1973, and the subsequent Protocol of 1978, known as MARPOL 73/78;
4. all observations or recoveries of short-tailed albatrosses should be reported. Dead birds should be frozen pending a decision by the Service regarding their disposition. Injured birds should be provided veterinary care as quickly as possible.

1990 October 24: Non-jeopardy BO issued on the BSAI Crab FMP.

1990 October 30: Non-jeopardy BO issued on the Bering Sea Snail Fishery.

- 1991 April 19:** Non-jeopardy BO issued on the BSAI and GOA FMPs, as amended.
- 1991 June 5:** Non-jeopardy BO issued on the GOA pollock total allowable catch.
- 1991 September 30:** Non-jeopardy BO issued on the fourth quarter pollock fishery.
- 1991 October 22:** Informal consultation completed on amendments 17/20 and 20/25 of the BSAI and GOA FMPs.
- 1991 November 12:** Informal consultation completed on amendment 23 of the GOA FMP.
- 1991 December 23:** Informal consultation completed on the 1992 total allowable catch for the GOA.
- 1992 January 21:** Non-jeopardy BO issued on the 1992 total allowable catch for the BSAI.
- 1992 March 4:** Non-jeopardy BO issued on amendment 18 to the BSAI FMP.
- 1992 March 4:** Informal consultation completed on the delay of the second quarter fishing season in the GOA.
- 1992 June 11:** Informal consultation completed on the Individual Fishery Quota for the BSAI and GOA.
- 1992 October 9:** Informal consultation completed on amendments 20/25 for the BSAI FMP.
- 1992 December 22:** Informal consultation completed on the delay of the second quarter GOA pollock fishing season.
- 1993 January 6:** Informal consultation completed on the Experimental Fishing Permit for the GOA.
- 1993 January 20:** Informal consultation completed for the 1993 total allowable catch for the BSAI.
- 1993 January 27:** Informal consultation completed for the 1993 total allowable catch for the GOA.
- 1993 February 16:** Informal consultation completed on the delay of the second quarter fishing season in the GOA.
- 1993 March 12:** Informal consultations completed on the careful release of halibut in hook-and-

line fisheries, and on the delay of the second pollock fishing seasons in the BSAI and GOA.

1993 April 14: Informal consultation completed on amendment 28 of the BSAI FMP.

1993 April 28: Non-jeopardy BO issued on the delay of pollock “B” season in the BSAI.

1993 May 10: Service publishes final rule designating threatened status for spectacled eider.

1993 July 21: Informal consultation was completed on amendment 31 of the GOA FMP.

1994 January 31: Informal consultation completed for the 1994 total allowable catch for the GOA.

1994 February 2: Informal consultation completed for the 1994 total allowable catch for the BSAI.

1994 June 22: Informal consultation completed on the Experimental Trawl Fishery, Kuskokwim Bay to Hooper Bay.

1995 February 3: Informal consultation completed for the 1995 total allowable catch for the BSAI and GOA.

1995 February 7: The Service issues an amendment to the original 1989 BO on the effects of the Interim Incidental Take Exemption Program for marine mammals, and related fishing activities, on all listed species under Service jurisdiction. Amended reasonable and prudent measures and terms and conditions required that NMFS:

1. Collect fishery observer data on short-tailed albatross sightings and fishery interactions;
2. Conduct a program informing fishermen about short-tailed albatross conservation and marine debris pollution issues;
3. Collect fishery observer data on marine pollution and report violations of disposal regulations to appropriate authorities.

In the reinitiation clause, the Service stated that “An increase in the total allowable catch of 10% or more from the proposed 1995 level would constitute effects of the agency action not considered in this opinion,” and therefore require reinitiation of consultation.

1995 August 25: Informal consultation completed on amendment 38/40 of the BSAI and GOA FMPs.

1995 August 28: Juvenile short-tailed albatross taken in the western GOA Individual Fishery Quota sablefish longline fishery south of the Krenitzin Islands. Mortality is not in the observed sample.

1995 September 8: Letter from NMFS requesting reinitiation of consultation on the 1989 BO based on the 1995 reinitiation clause amendment where an increase in the total allowable catch of 10% or more from the proposed 1995 level would require NMFS to reinitiate consultation.

1995 October 8: A short-tailed albatross mortality occurred in the Individual Fishery Quota sablefish fishery, in the Bering Sea. Mortality is not in the observed sample.

1996 January 26: Non-jeopardy BO issued on the BSAI and GOA FMPs and 1996 total allowable catch specifications.

1996 June 12: The Service concurred with the NMFS that since the 1996 total allowable catch specification for the fisheries was equal to or below the 1995 levels, reinitiation of formal consultation was not necessary for the 1996 fisheries. The Service also amended the January 26, 1996, BO to anticipate take of as many as two short-tailed albatrosses, as a result of the total allowable catch specification.

1996 September 27: Mortality of a 5-year-old short-tailed albatross occurred in the BSAI hook-and-line fishery, in the observed sample.

1996 October 1: The Service amended the January 26, 1996, BO total allowable catch specifications, clarifying these specifications apply only to the 1996 BSAI and GOA groundfish fisheries season. The incidental take level was maintained at two short-tailed albatrosses.

1996 November 14: Letter from NMFS requesting reinitiation of consultation on the January 26, 1996, BO total allowable catch specifications. The October 1, 1996, amendment to the January 26, 1996, BO clarified the total allowable catch specifications only applied to the 1996 BSAI and GOA groundfish fisheries. Therefore, NMFS requested reinitiation of consultation on the 1997 total allowable catch specifications for the BSAI and GOA groundfish fisheries.

1996 December 20: Letter from the Service to NMFS extending the total allowable catch specifications for the 1996 BSAI and GOA groundfish fisheries into the 1997 season until the existing BO was superseded by subsequent amendment. The Service anticipated this extension would last until the completion date of the new amendment scheduled for end of February. The Service determined this short-term extension was not likely to adversely affect the short-tailed albatross because the birds do not occur in Alaskan waters during that period.

1996 December 26: The Service receives the final 1997 total allowable catch specifications from NMFS.

1997 January 16: Letter received from NMFS requesting that the proposed action to require seabird bycatch avoidance devices on hook-and-line vessels in the BSAI and GOA groundfish fisheries be incorporated into the 1997 total allowable catch specifications for the BSAI and GOA groundfish fisheries consultation.

1997 February 19: Letter from the Service to NMFS indicating the proposed action cannot be modified to include the seabird avoidance devices on hook-and-line vessels in the BSAI and GOA groundfish fisheries because the final outcome of the study is unknown. In addition, the Service amended the January 26, 1996, BO on the BSAI and GOA FMPs and total allowable catch specifications to:

(1) limit the scope of the consultation to only the hook-and-line groundfish fisheries; although previous consultations and amendments were requested on the groundfish fisheries in their entirety, the *NMFS determined, and the Service concurred, that trawl and pot fishing activities in the BSAI and GOA areas are not likely to adversely affect the short-tailed albatross.*

(2) extend the current consultation on the 1997 total allowable catch specifications for the BSAI and GOA groundfish fisheries, to include the 1998 fishery season as well. Thus, this consultation covered the time period from January 1, 1997 to December 21, 1998. In this extended consultation:

(a) the Service anticipated that the incidental take level for the 2-year period would be four short-tailed albatrosses, and

(b) Additional reasonable and prudent measures included: (1) requirement that seabird avoidance devices and methods be used in the hook-and-line fisheries of the BSAI and GOA groundfish fisheries; and, (2) requirement to test the effectiveness of seabird bycatch avoidance devices and methods in the BSAI and GOA fisheries.

1997 April 29: NMFS publishes a final rule in the Federal Register (Vol. 62, No. 82) regarding management measures required for vessels greater than 26 ft length overall (LOA) to reduce seabird bycatch in the hook-and-line groundfish fisheries. Regulations effective May 29, 1997.

1997 June 11: Service publishes final rule designating threatened status for Steller's eider.

1997 September 10: Informal consultation completed on amendment 46 of the GOA FMP.

1998 January 12: Letter from the Service to NMFS limiting the scope of the consultation to vessels greater than 26 ft. LOA in the hook-and-line fisheries in the BSAI and GOA and concurring with NMFS that vessels less than or equal to 26 LOA are not likely to adversely affect short-tailed albatrosses.

1998 February 12: Informal consultation on regulatory amendments/measures to reduce seabird bycatch is completed. The Service concurs with the NMFS's assessment that the amendments are not likely to adversely affect threatened or endangered species.

- 1998 February 17:** Letter from the Service to NMFS clarifying that incidental take of short-tailed albatrosses anticipated in the February 19, 1997, consultation applies only to groundfish vessels 26 ft. LOA or greater. No incidental take of short-tailed albatrosses by groundfish vessels under 26 ft. in length is anticipated.
- 1998 March 13:** Service issues non-jeopardy BO on Pacific halibut fishery off Alaska, requiring NMFS to institute changes deemed appropriate based on evaluation of seabird deterrent devices and methods.
- 1998 April:** NMFS submits to Service the “Test Plan to Evaluate Effectiveness of Seabird Avoidance Measures Required in Alaska’s Hook-and-Line Groundfish and Halibut Fisheries,” as required by the February 19, 1997, amendments to the January 26, 1996, BO.
- 1998 September 21:** Mortality of an 8-year-old short-tailed albatross occurs in the BSAI hook-and-line fishery. Mortality is in the observed sample.
- 1998 September 28:** Mortality of a short-tailed albatross occurs in the BSAI hook-and-line fishery, but the specimen is not retained on the vessel. Identification of the bird is confirmed by Service seabird experts. The identification and confirmation are based on the fishery observer’s description of key characteristics that matched that of a subadult short-tailed albatross to the exclusion of all other species. Mortality is in the observed sample. A second albatross is also taken on the same date but the specimen is not retained on board the vessel, and the observer is unable to confirm the species identification.
- 1998 November 4:** Letter from NMFS to the Service, in which NMFS: (1) requests reinitiation of consultation for BSAI and GOA groundfish fisheries beginning January 1, 1999; (2) determines, based on new information, that groundfish trawl vessels that deploy a sonar transducer cable, may affect short-tailed albatrosses; and, (3) requests initiation of consultation on the effects of the groundfish trawl fishery on short-tailed albatrosses.
- 1998 December 2:** Letter from the Service to NMFS in which the Service: (1) establishes the statutory deadline for receipt of a final BO and Incidental Take Statement for the GOA/BSAI hook-and-line groundfish fisheries as March 19, 1999; (2) notifies the NMFS that the next step in the consultation process for the trawl fishery is completion of a biological assessment by the action agency (NMFS) on the effects of the action on listed species; and, (3) extends the period of the 1997-1998 BO until it is superseded by a subsequent amendment.
- 1999:** Study initiated by Washington Sea Grant Program to evaluate effectiveness of seabird avoidance measures required in Alaska’s hook-and-line groundfish and halibut fisheries, as required by the Service’s February 19, 1997, BO amendments.

1999 March 19: The Service issues a no jeopardy BO on the effects of the hook-and-line groundfish fisheries in the BSAI and GOA to short-tailed albatross. As a result of this proposed action, the Service anticipated that four short-tailed albatross could be taken. The BO included a number of reasonable and prudent measures and associated terms and conditions to minimize potential incidental take.

2000 July 31: Final rule published designating short-tailed albatross as endangered in the U.S. as well as throughout the rest of its range.

2000 September 8: Letter from the NMFS to the Service requesting reinitiation of consultation on the effects of the BSAI and GOA FMPs, in their entirety, to any listed species and critical habitat under the jurisdiction of the Service. In addition, the NMFS requested we include, as part of the proposed action, their revised regulations for seabird avoidance measures in the hook-and-line fisheries off Alaska. Additionally, the NMFS requested Service concurrence with their conclusions that the hook-and-line and trawl gear used in the groundfish fisheries was likely to adversely affect the short-tailed albatross but was not likely to adversely affect either the spectacled eider or the Steller's eider or destroy or adversely modify their proposed critical habitat.

2000 October 11: Letter from the Service to NMFS acknowledging receipt of September 8 letter and initiating consultation.

2000 October 23: The Service received a facsimile transmission of an October 20, 2000, letter from NMFS to the Council, modifying the proposed action as defined in their September 8, 2000, letter. The NMFS has decided to postpone rulemaking to revise the seabird avoidance measures that are required by vessel operators using hook-and-line gear for groundfish in waters off Alaska, pending results of study evaluating the effectiveness of various seabird deterrent devices.

2000 November 6: The Service responded to the September 8, 2000, letter from NMFS establishing the statutory requirements for completing the consultation and concurring with the NMFS that the proposed action is likely to adversely affect the short-tailed albatross. The Service also concurred with the "not likely to adversely affect" determination for spectacled eiders and for the proposed critical habitat for spectacled eider and Steller's eider, but indicated that the proposed action could adversely affect the Steller's eider due to the indirect effects of vessel refueling.

2001 January 4: Letter from NMFS to the Service in which NMFS requests that the March 19, 2000, BO and accompanying incidental take statement be extended as of January 1, 2001, and for the duration of NMFS's emergency regulation to implement measures to avoid jeopardy to Steller sea lions or adverse modification of their critical habitat (a 180-day period beginning January 20, 2001).

2001 January 10: Letter from the Service to NMFS in which the Service:

1. Acknowledges the receipt of the January 4, 2001, letter.
2. Extends the period of coverage of the March 19, 2000, documents until they are superseded by our documents for the 2001-2004 TACs for GOA/BSAI groundfish fisheries.
3. Stated that we did not extend our March 19, 2000, documents for the 180-day period beginning January 20, 2001.

2001 January: NMFS issues Draft Programmatic Supplemental Environmental Impact Statement for Alaska Groundfish Fisheries Management Plans.

2001 January 7: Letter from NMFS to the Service summarizing NMFS' activities relating to fisheries management interactions with listed species under Service jurisdiction.

2001 March 26: Letter from NMFS to the Council indicating that presentation of results of study testing effectiveness of various seabird deterrent devices would be postponed.

2001 August 31: Washington Sea Grant Program makes available *Solutions to Seabird Bycatch in Alaska's Demersal Longline Fisheries*. Final results and recommendations based on a 2-year experimental study conducted on commercial longline vessels (Melvin *et al.* 2001).

2001 October: NMFS releases DEIS for American Fisheries Act Amendments to the FMPs for the BSAI and GOA groundfish fisheries, the BSAI king and tanner crab fishery and the scallop fishery off Alaska.

2001 December: Council recommends revised seabird avoidance measures in groundfish and halibut hook-and-line fisheries off Alaska.

2002 January 8: NMFS publishes emergency interim rule, implementing Steller sea lion protection measures for the groundfish fisheries off Alaska.

2002 March: Alaska Board of Fisheries changed state groundfish regulations to parallel council-approved revised seabird avoidance measures.

2002 July: NMFS/FWS jointly developed written protocols for handling bycaught short-tailed albatross, observer training, and observer interview in the event of unidentified albatross report.

2002 November 11-14: First meeting of Short-tailed Albatross Recovery Team held. Tentative recovery criteria discussed. Fisheries interactions was one of the major topics of discussion.

In October of 2001 and January of 2002, mortalities of albatross that observers believed were possibly short-tailed were noted in the Bering Sea; however, the birds were not retained until positive identification was made. In one case, streamer lines were in use, but apparently not

properly deployed. In the past, observers have also mis-identified some albatross carcasses as short-tailed. Such instances underscore the need for retaining specimens until positively identified, developing performance standards for deployment of seabird deterrence devices, and thorough training of observers in seabird identification.

III. ACTION AREA

The action area is determined based on consideration of all the direct and indirect effects on the species of the proposed agency action. The action area also includes areas that may result in effects on the species by other activities that are interrelated or interdependent with the proposed action [50 CFR 402.02].

The action area defined by the NMFS for the BSAI FMP effectively covers all of the Bering Sea under United States (U.S.) jurisdiction, extending southward to include the waters south of the Aleutian Islands west of 170° W. longitude, to the border of the U.S. Exclusive Economic Zone (3 to 200 nautical miles (nm) offshore). The GOA FMP applies to the U.S. Exclusive Economic Zone of the North Pacific Ocean, exclusive of the Bering Sea, between the eastern Aleutian Islands at 170 degrees W. longitude and Dixon Entrance at 132° 40' W. longitude. The Service concurs with this definition of action areas. All direct and indirect effects to short-tailed albatrosses and Steller's eiders related to the activities authorized by the BSAI and GOA FMPs are believed to occur within these areas, as defined. The observed distributions of short-tailed albatross and Steller's eiders within the action area are shown in Figures 1 and 2, respectively.

IV. DESCRIPTION OF THE PROPOSED ACTION

A. Background

NMFS manages the groundfish fisheries of the GOA and BSAI in part through federal fisheries permits and federal processor permits, which are issued upon request (50 CFR 679.4). These permits authorize participants to harvest, receive, or process groundfish from the BSAI and GOA. A federal fisheries permit may be issued to a vessel that functions as a catcher vessel (greater than 60 ft LOA), catcher/processor, mothership, tender vessel, or any combination of those four categories. Or, a vessel may be permitted as a support vessel. No vessel may fish for groundfish or receive groundfish harvested in the GOA or BSAI without a federal fisheries permit. A federal processor permit may be issued to a shoreside processor or a stationary floating processor that receives or processes groundfish. No shoreside processor or stationary floating processor may receive or process groundfish harvested in the GOA or BSAI without a federal processor permit.

The Alaska groundfish fisheries are managed under FMPs (16 U.S.C. 1801 2(b)(4)) developed by the North Pacific Fishery Management Council (Council) pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA). Unlike management of the nation's timber, mineral, grazing, and water resource, for which policy is dictated by the responsible agency, the U.S. Congress instituted a regional council system for marine fisheries resources. These regional councils use a formal public process that strives toward consensus-building in shaping policy,

balancing competing interests, and addressing resource conservation issues. The Council is one of eight regional fishery management councils established by Section 302(a) of the Magnuson-Stevens Act. The regional councils respond to the basic concept of the MSA that the needs of fishery users vary across the nation and should be addressed at a regional level.

The FMPs are the overall guiding and planning documents for the management of the groundfish fisheries in all their aspects; they establish the goals for fishery management under the MSA and other Congressional authorities. FMPs and FMP amendments are developed by the regional councils, submitted to the Secretary of Commerce for review, and, if approved, implemented by Federal regulations. FMP components generally include: management objectives; management units; habitat issues; management alternatives; summary of benefits and adverse impacts of each alternative; management measures; discussion of rationale and net benefit; plan for continuing Council review and monitoring of the FMP or amendment; and supporting material describing the fishery, and its ecological, economic, and social setting.

The original BSAI FMP was approved by the Secretary of Commerce on October 27, 1979 and implemented by regulations published on December 31, 1981 (46 FR 63295, corrected January 28, 1982, 47 FR 4083). The GOA FMP was approved by the Secretary on February 24, 1978 and implemented by regulations published on November 14, 1978 (44 FR 52709).

The BSAI FMP lists four broad goals, accompanied by six objectives. The GOA FMP lists one broad goal accompanied by seven objectives. The BSAI FMP consists of 18 main sections, and has been amended approximately 70 times. The GOA FMP consists of five main sections, and has been amended approximately 60 times.

B. Goals and Objectives for Management of GOA Groundfish Fisheries

The GOA FMP management goal is “...to maximize positive economic benefits to the United States, consistent with resource stewardship responsibilities for the continuing welfare of the GOA living marine resources. Economic benefits include, but are not limited to profits, benefits to consumers, income and employment.”

To accomplish this goal, the accompanying objectives were developed:

- (1) The North Pacific Fishery Management Council will establish annual harvest guidelines, within biological constraints, for each groundfish fishery and mix of species taken in that fishery;
- (2) In its management process, including the setting of annual harvest guidelines, the Council will account for all fishery-related removals by all gear types for each groundfish species, sport fishery and subsistence catches, as well as directed fisheries;
- (3) The Council will manage the fisheries to minimize waste by: (a) developing approaches to treating bycatches other than as a prohibited species. Any system adopted must address the problems of covert targeting and enforcement; and (b) developing

management measures that encourage the use of gear and fishing techniques that minimize discards;

- (4) The Council will manage groundfish resources of the GOA to stimulate development of fully domestic fishery operations;
- (5) The Council will develop measures to control effort in a fishery, including systems to convert the common property resource to private property, but only when requested to do so by industry;
- (6) Rebuilding stocks to commercial or historic levels will be undertaken only if benefits to the United States can be predicted, after evaluating the associated costs and benefits and the impacts on related fisheries; and
- (7) Population thresholds will be established for economically viable species complexes under Council management on the basis of the best scientific information, and acceptable biological catches will be established, as defined in this document. If population estimates drop below these thresholds, an acceptable biological catch will be set to reflect necessary rebuilding as determined in objective 6.

C. Goals and Objectives for Management of BSAI Groundfish Fisheries

The BSAI FMP lists the following management goals:

- (1) Promote conservation while providing for optimum yield from the region's groundfish resources, in terms of: providing the greatest overall benefit to the nation, with particular reference to food production and recreational opportunities; avoiding long-term or irreversible adverse effects on fishery resources and the marine environment; and insuring availability of a multiplicity of options with respect to future uses of these resources;
- (2) Promote, where possible, efficient use of the fishery resources, but not solely for economic purposes;
- (3) Promote fair and equitable allocation of identified available resources in a manner that no particular group acquires an excessive share of privileges; and
- (4) Base the plan on the best scientific information available.

These goals are supported by the following objectives:

- (1) Conservation and management measures have taken into account the unpredictable characteristics of future resource availability and socioeconomic factors influencing the viability of the industry;

- (2) Where possible, individual stocks of fish are managed as a unit throughout their range, but such management is in due consideration of other impacted resources;
- (3) In such instances when stock have declined to a level below that capable of producing maximum sustained yield, management measures promote rebuilding the stocks. In considering the rate of rebuilding, factors other than biological considerations have been taken into account;
- (4) Management measures, while promoting efficiency where practicable, are designed to avoid disruption of existing social and economic structures where fisheries appear to be operating in reasonable conformance with the MSA and have evolved over a period of years as reflected in community characteristics, processing capability, fleet size and distribution. These systems, and the resources upon which they are based, are not static, but changes in the existing regulatory regime should be the result of considered action, based on the data and public input;
- (5) Management measures should contain a margin of safety in recommending allowable biological catches when the quality of information concerning the resource and ecosystem is questionable. Management plans should provide for accessing biological and socioeconomic data in such instances where the information base is inadequate to effectively establish the biological parameters of the resource or to reasonably establish optimum yield. This plan has identified information and research required for further plan development; and
- (6) Fishing strategy has been designed in such a manner as to have minimal impact on other fisheries and the environment.

D. Conservation Measures

There are no policy goals or objectives within the current BSAI and GOA FMPs specifically addressing the protection and recovery of federally-listed species. However, regulations at 50 CFR 679.50 require groundfish observers aboard vessels equal to or greater than 60 ft length overall (LOA) and at shoreside processors that process more than 500 metric tons (mt) of groundfish in a single monthly period. In addition to monitoring fish species harvested, the observers have been trained to monitor bycatch of seabirds as well. Two levels of observer coverage are established:

1. Vessels in the 60- to 124-ft LOA range and all vessels equal to or larger than 60 ft LOA using pot gear are required to carry groundfish observers during 30 percent of their fishing days in that calendar quarter.
2. Shoreside processors that process 500–1,000 mt of groundfish a month require 30 percent observer coverage; those that process more than 1,000 mt require 100 percent coverage.

Additional observer coverage requirements are established for vessels and processors

participating in management programs involving vessel-specific fishery quotas. The groundfish fisheries in the BSAI and GOA are managed on a real-time basis using weekly production data from processors coupled with observer data on retained and discarded groundfish and prohibited species catch.

As an additional conservation measure specifically aimed at seabird protection, in 1997, NMFS promulgated regulations requiring operators of both hook-and-line vessels fishing for groundfish in the BSAI and GOA, and federally-permitted hook-and-line vessels fishing for groundfish in Alaska waters adjacent to the BSAI and GOA, to employ specified seabird avoidance measures to reduce seabird bycatch and incidental seabird mortality (62 FR 23176, April 29, 1997, and see below). Measures were intended to mitigate longline fishery interactions with the federally-listed short-tailed albatross and other seabird species. Prior to 1997, measures were not required, but anecdotal information indicates that some vessel operators used mitigation measures voluntarily. In February 2003, NMFS proposed revised seabird avoidance measures (NMFS 2003).

The U.S. Coast Guard (USCG) has assumed an aggressive and proactive policy of educating commercial longline fishers in the months prior to regulations becoming effective. Vessels are checked for compliance with regulations during at-sea boardings by the USCG and reports of these compliance checks are made in the USCG's report to the Council at each of its meetings.

E. Specific Actions/Activities Addressed in this Programmatic BO

NMFS' request for formal consultation provided an analysis and determination of effects on implementation of the programmatic BSAI and GOA FMPs for the specific groundfish fisheries using hook-and-line gear, trawl gear and pots, which are authorized and managed by the NMFS. The vessel groups in the BSAI and GOA groundfish fisheries are typically defined by the gear and areas fished, by length classes, and by whether they only catch fish or catch and process fish. Trawl, hook and line (including longline and jigs), and pot gear account for virtually all the catch in the BSAI and GOA groundfish fisheries. There are catcher vessels and catcher/processor vessels for each of these three gear groups.

In the last 5 years, the trawl catch has averaged about 90% of the total catch, while the catch with hook and line gear accounting for 8.4%. Most species are harvested predominantly (typically 90% or more) by one type of gear. The one exception is Pacific cod, where in 2001, 35% (76,000 mt) was taken by trawls, 54% (118,000 mt) by hook and line gear, and 11% (24,000 mt) by pots. In the last 5 years for the BSAI and GOA as a whole, catcher vessels took 44% of the catch and catcher/processor vessels took the other 56%.

The Service has previously determined (in its February 19, 1997, BO amendment) that groundfish fishing activities by vessels 26 feet length overall or less, and groundfish fishing activities by vessels using pot gear, are not likely to adversely affect the short-tailed albatross and Steller's eider.

1. Hook-and-Line Groundfish Fisheries

Hook-and-line gear in Alaska is fished demersally; the gear is designed to sink to the sea floor. In 1996, the average set length was 9 kilometers (km) for the sablefish fishery, 16 km for the Pacific cod fishery, and 7 km for Greenland turbot. Twelve-inch gangions with hooks are attached to the groundline at regular intervals. The average hook spacing in these three fisheries is 1.2 m, 1.4 m, and 1.3 m, respectively. Therefore, the average number of hooks per set for the three fisheries is 7500, 11,428, and 5385, respectively. Baiting on smaller vessels generally occurs by hand, and baiting on larger vessels is generally accomplished mechanically. Circle hooks are usually used, except that modified J-hooks are used on some vessels with machine baiters. In the Pacific cod fishery, two lines are typically set and hauled in a day. The vessel travels at a speed of approximately five to seven knots, and the gear is usually deployed from the vessel stern during a two-hour set. Radar-reflecting buoys are connected to both ends of the groundline. Most of the longline vessels in the BSAI targeting Pacific cod are freezer/longliners, many of which use autobaiting systems. Hook-and-line vessels targeting sablefish or Greenland turbot set gear in deeper water on the continental slope. Many smaller vessels participate in both the BSAI and GOA fisheries, and fewer are equipped with autobaiting machines.

Hook-and-line groundfish fisheries covered under this programmatic BO include the use of both catcher-processor vessels and catcher vessels 26 feet overall length or greater using hook-and-line fishing gear. The following information on these fisheries in the BSAI and GOA is summarized from the NMFS DSEIS (NMFS 2001a), NMFS (2002a) and NMFS (2002b).

One method used by NMFS to measure longline fishing effort is the number of hooks per set, multiplied by the number of observed sets (and extrapolated to include the unobserved sets). The 1993-2001 fishing effort for the BSAI and GOA calculated by this method is shown in Table 1 (modified from NMFS (2002a)). This method of calculating fishing effort indicates an 85 percent increase from 1993 to 2001 in the BSAI, but a 61% decrease in the GOA.

Table 1 - Overall longline fishing effort in the BSAI and GOA, 1993 to 2001

Year	Effort (No. of Hooks x 1000)	
	BSAI	Gulf of Alaska
1993	123,232	56,300
1994	134,954	49,452
1995	141,779	42,357
1996	141,810	33,195
1997	176,534	28,047
1998	175,530	29,399
1999	157,319	31,895
2000	192,994	35,345
2001	226,186	34,216
Average	163,370	37,800

a. Bering Sea and Aleutian Islands

In the BSAI, “fixed gear” fisheries is defined as hook-and-line and pots. (Recall that the Service has determined that pot fishery activities are not likely to adversely affect short-tailed albatross or Steller’s eiders.) Fixed gear fisheries in the BSAI primarily target Pacific cod, Greenland turbot, and sablefish, with a smaller amount of “other” species (sculpin, skate, shark and octopus). Overall, 118 catcher vessels, and 45 catcher-processors targeted groundfish with hook and line in the BSAI in 2001 (Table 2).

b. Gulf of Alaska

In the GOA, the use of the following types of fixed gear is allowed: hook-and-line gear, troll gear, handline gear, jig gear, and pot-and-line gear. GOA fixed gear fisheries consist primarily of hook-and-line fisheries for sablefish, Pacific cod, and rockfish. In 2001, 933 catcher vessels and 20 catcher-processors participated in the hook-and-line fishery in the GOA (Table 2). Sablefish is the most important hook-and-line fishery in terms of both volume and value in the GOA, followed by Pacific cod.

Table 2 - Number of vessels that caught groundfish with hook and line gear in the BSAI and GOA, 1997 to 2001

Year	GOA			BSAI		
	Catcher	Catcher-Processor	Total	Catcher	Processor	Total
1997	946	29	975	93	44	137
1998	866	22	888	72	43	115
1999	902	30	932	75	41	116
2000	1,008	21	1,029	105	43	148
2001	933	20	953	118	45	163

c. Current Seabird Avoidance Regulations

The current seabird avoidance regulations, adopted by NMFS in 1997, apply to all operators of Federally-permitted vessels fishing for groundfish with hook-and-line gear in the GOA and the BSAI, and Federally-permitted vessels fishing for groundfish with hook-and-line gear in waters of the State of Alaska that are shoreward of the GOA and the BSAI. Therefore, **all applicable hook-and-line groundfish fishing operations are currently conducted in the following manner to minimize the potential incidental catch of short-tailed albatrosses:**

1. Use hooks that when baited, sink as soon as they are put in the water;
2. If offal is discharged while gear is being set or hauled, it must be discharged in a manner that distracts seabirds from baited hooks, to the extent practicable (= *strategic offal discharge*).

The discharge site on board a vessel must either be aft of the hauling station or on the opposite side of the vessel from the hauling station;

3. Make every reasonable effort to ensure that birds brought aboard alive are released alive and that wherever possible, hooks are removed without jeopardizing the life of the bird;
4. For a vessel longer than or equal to 26 feet in overall length, the operator of the vessel must employ *one or more* of the following seabird avoidance measures:
 - a. Tow a streamer line/s during deployment of gear to prevent birds from taking hooks;
 - b. Tow a buoy, board, stick or other device during deployment of gear at a distance appropriate to prevent birds from taking hooks. Multiple devices may be employed;
 - c. Deploy hooks underwater through a lining tube at a depth sufficient to prevent birds from settling on hooks during deployment of gear; or,
 - d. Deploy gear only during the hours specified in regulation [“hours of darkness” 679.24(e)(3)(iv)], using only the minimum vessel’s lights necessary for safety.

At the December 2001 meeting, the Council unanimously approved recommended changes to the existing regulations for seabird avoidance measures required in the groundfish and halibut fisheries off Alaska. Recommended changes were based on research results from Melvin *et al.* (2001), with modifications considered necessary to accommodate vessel length, vessel type, gear type, and area fished. Details of these provisions are presented in Appendix 1.

In summary, the Council recommended the following:

- Vessels over 55 ft length overall (LOA) in the Exclusive Economic Zone (EEZ) would be required to use paired streamer lines of specified performance and materials standards.
- Vessels 26 ft LOA to 55 ft LOA would be required to use less stringent measures, such as a buoy bag line or single streamer line – each with its own specified performance and materials standards. The requirement would depend upon fishing location (“Inside” or “EEZ,” where “Inside” is Prince William Sound, Southeast Inside District, and state waters of Cook Inlet), vessel type (if masts, poles, or rigging on vessel), and gear type (if snap gear used).
- The performance and material standards for measures required on smaller vessels would be guidelines for an interim 1-year period, at which time they would become required.
- Directed discharge (through chutes, pipes, or other similar devices suited for purpose of offal discharge) of residual bait or offal from the stern of the vessel while setting gear would be prohibited.
- A Seabird Avoidance Plan would be required onboard the vessel.
- Vessels less than or equal to 32 ft LOA fishing for halibut in International Pacific Halibut Commission (IPHC) Area 4E within 0 to 3 miles of shore would be exempt from measures.
- Vessels less than or equal to 26 ft LOA would continue to be exempt from seabird avoidance measures.

Seabird avoidance measures would apply to the operators of vessels using hook-and-line gear as

follows:

- A. Pacific halibut in the Individual Fishing Quota (IFQ) and Community Development Quota (CDQ) management programs (0 to 200 nm);
- B. IFQ sablefish in EEZ waters (3 to 200 nm) and waters of the State of Alaska (0 to 3 nm), except waters of Prince William Sound and areas in which sablefish fishing is managed under a State of Alaska limited entry program (Clarence Strait, Chatham Strait); and
- C. Groundfish (except IFQ sablefish) with hook-and-line gear in the U.S. EEZ waters off Alaska (3 to 200 nm).

In consideration of existing regulations, the council recommended that operators of all applicable vessels using hook-and-line gear must:

- A. Use hooks that, when baited, sink as soon as they are put in the water (*unchanged from current regulations*);
- B. Prohibit directed discharge (through chutes, pipes, or other similar devices suited for purpose of offal discharge) of residual bait or offal from the stern of the vessel while setting gear. This does not include bait falling off the hook or offal discharges from the other locations that parallel the gear and subsequently drift into the wake zone well aft of the vessel. For vessels not deploying gear from the stern, (i.e., gear is deployed from the side of the vessel or amidship), directed discharge of residual bait or offal over sinking longlines while gear is being deployed is prohibited. This prohibition of directed discharge of bait is not to be confused with strategic offal discharge (i.e., discharge in a manner that distracts seabirds from baited hooks), which is allowed.
- C. remove embedded hooks in bait/offal that is to be discharged;
- D. make every reasonable effort to ensure that birds brought aboard alive are released alive and that wherever possible, hooks are removed without jeopardizing the life of the bird (*unchanged from current regulations*).

NMFS has incorporated these recommendations into its proposed revisions to seabird avoidance measures (NMFS 2003).

2. Trawl Fisheries

a. Bering Sea and Aleutian Islands

In the BSAI, trawl effort is concentrated between Unimak Pass and the Pribilof Islands, over a wide area of the shelf waters. The total number of vessels involved in this fishery has remained relatively stable in recent years, although the number of catcher-processors has declined (Table

3).

Pollock is by far the most important groundfish trawl fishery in the BSAI, accounting for 1382 thousand mt in 2001. Regarding other trawl fisheries, the majority of Pacific cod harvested by trawl gear is taken in shallow waters on the eastern Bering Sea shelf. The directed Atka mackerel fishery is primarily a bottom trawl fishery that occurs off the continental shelf in the eastern Bering Sea and in the passes between the islands of the central and western Aleutians. Most of the rock sole, flathead sole, and other flatfish fisheries occur on the continental shelf in the eastern Bering Sea, in water shallower than 200 m. Some effort follows the contour of the shelf to the northwest and extends as far north as Zhemchug Canyon. Very few rock sole, flathead sole, and other flatfish are taken in the Aleutian Islands due to the limited shallow water areas present. The yellowfin sole fishery takes place in the relatively shallow waters of the eastern Bering Sea shelf.

Since 1996, directed fisheries for Greenland turbot and sablefish in the BSAI have been open only to vessels using hook-and-line (and for sablefish, pot) gear. Both species are taken as incidental bycatch in trawl fisheries, most notably those targeting flatfish species in the Bering Sea.

b. Gulf of Alaska

Pollock, Pacific cod, flatfish and rockfish constitute the primary groundfish trawl fisheries in the GOA. The number of vessels participating in this fishery has decreased by some 66 percent since 1997 (Table 3).

Table 3 - Number of vessels that caught groundfish with trawl gear in the BSAI and GOA, 1997 to 2001 (from NMFS 2002).

Year	GOA			BSAI		
	Catcher	Catcher-Processor	Total	Catcher	Catcher-Processor	Total
1997	173	32	205	108	59	167
1998	167	24	191	115	51	166
1999	154	18	172	127	40	167
2000	123	18	141	117	39	156
2001	117	18	135	123	39	162

V. STATUS OF THE SPECIES

A. Short-tailed Albatross

1. Species Description

George Steller made the first recorded observation of the short-tailed albatross in the 1740s. The type specimen for the species was collected offshore of Kamchatka, Russia and was described in 1769 by P.S. Pallas in *Spicilegia Zoologica* (AOU 1998). The short-tailed albatross is classified within the family Diomedidae, in the order of tube-nosed marine birds (Procellariiformes). Until recently, it had been assigned to the genus *Diomedea*. Following the results of genetic studies by Nunn *et al.* (1996), the family Diomedidae was arranged in four genera. The genus *Phoebastria* (North Pacific albatrosses) now includes the short-tailed albatross, the Laysan albatross (*P. immutabilis*), the black-footed albatross (*P. nigripes*), and the waved albatross (*P. irrorata*) (AOU 1998).

The short-tailed albatross is a large pelagic bird with long narrow wings adapted for soaring just above the water surface. The bill is disproportionately large compared to other northern hemisphere albatrosses; it is pink with a bluish tip and hooked, has external tubular nostrils; there is a thin but conspicuous black line extending around the base. Adult short-tailed albatrosses are the only North Pacific albatross with an entirely white back. The white head develops a yellow-gold crown and nape over several years. Fledged juveniles are dark brown-black, but soon obtain pale bills and legs that distinguish them from black-footed and Laysan albatrosses (Tuck 1978, Roberson 1980). Subadult birds have mixed white and brown-black areas of plumage.

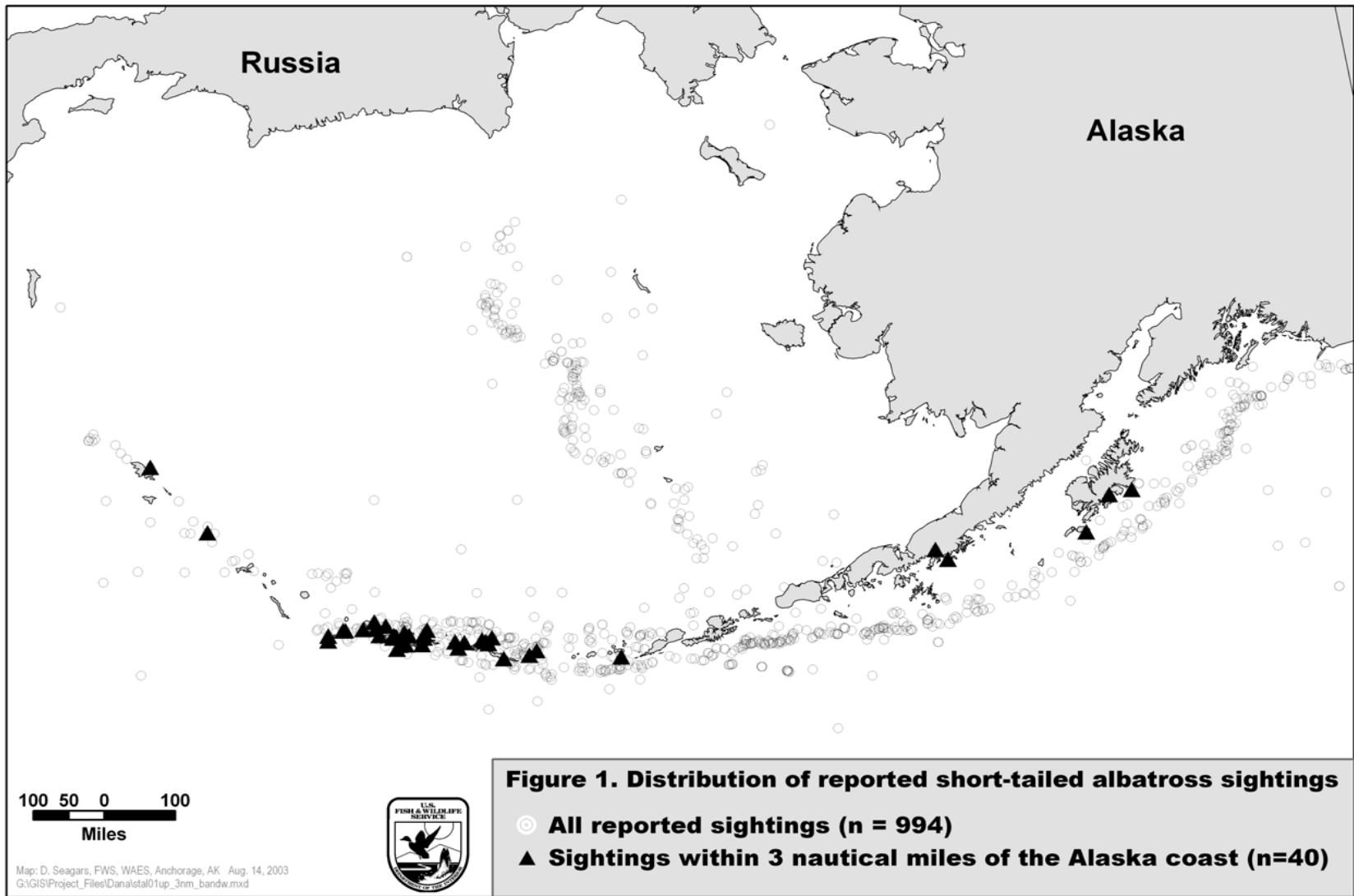
2. Life History

a. Breeding Habitat

Available evidence from historical accounts, and from current breeding sites, indicates that short-tailed albatross nesting habitat is characterized by flat or sloped sites, with sparse or full vegetation, on isolated windswept offshore islands, with restricted human access (Aronoff 1960, Sherburne 1993, DeGange 1981). Current nesting habitat on Torishima Island (colony is called “Tsubamesaki”) consists of steep sites on soils containing loose volcanic ash. The island is dominated by a grass, *Miscanthus sinensis* var. *condensatus*, with a composite, *Chrysanthemum pacificum*, and a nettle, *Boehmeria biloba*, also present (Hasegawa 1977). The vegetation probably stabilizes the soil, provides protection from weather, and minimizes interference among nesting pairs, while allowing for safe, open take-offs and landings (Hasegawa 1978). The nest is a grass or moss-lined concave scoop about 0.75 m (2 ft.) in diameter (Tickell 1975).

b. Marine Habitat

The Service’s short-tailed albatross “at-sea sightings” database contains many observations of short-tailed albatrosses within 10 km (6 miles (mi)) of shore, and 40 (of a total 993) observations of birds within 5 km (3 mi) of the shore (Figure 1) (U.S. Fish and Wildlife Service (2002c), although these could represent multiple sightings of fewer individuals. Such observations may



explain why an older common name for the species is the “coastal albatross.” However, these records derive from boats that were near shore to begin with; the lack of more pelagic observations may say more about the distribution of boats than of albatrosses. However, short-tailed albatrosses have also been found in middens in coastal areas, suggesting that they were available to hunters in kayaks close to shore. References from the early and mid-1800s suggest that short-tailed albatrosses were more coastal in distribution than black-footed or Laysan albatrosses.¹ Coastal marine habitats often coincide with areas of high biological productivity, such as along the west coast of North America, the Bering Sea, and offshore from the Aleutians (Hasegawa and DeGange 1982). The North Pacific marine environment is characterized by coastal regions of upwelling and high productivity and expansive, deep water beyond the continental shelf.

Available data suggest that the short-tailed albatross uses coastal shelf break areas of the Aleutian Islands, Bering Sea, and northern Gulf of Alaska on a regular basis for foraging. However, it is not known how important these areas are to the species, what percentage of the population visits these areas, what amount of time the species spends in these coastal areas, or if it uses open ocean areas to the same degree. Additionally, the short-tailed albatross is known to forage in the waters surrounding Hawaii including Midway Atoll in the northwest Hawaiian Island chain. We are increasing our knowledge of short-tailed albatross movements at sea through satellite telemetry.

c. Diet

The diet of short-tailed albatrosses includes squid, fish, eggs of flying fish, shrimp, and other crustaceans (Hattori in Austin 1949, H. Hasegawa pers. comm. 1997). There is currently no information on variation in diet by season, habitat, or environmental condition.

d. Breeding Behavior

Short-tailed albatrosses are long-lived and slow to mature; the average age at first breeding is 6 years (H. Hasegawa, pers. comm.). As many as 25 percent of breeding age adults may not return to the colony in a given year (H. Hasegawa, pers. comm.; Cochrane and Starfield 1999). Females lay a single egg each year, which is not replaced if destroyed (Austin 1949). Adult and post-fledged juvenile survival rates are high (94 percent; Cochrane and Starfield 1999). However, chick survival can be severely reduced in years when catastrophic volcanic or weather events occur during the breeding season.

At Torishima, birds arrive at the breeding colony in October and begin nest-building. Egg laying begins in late October and continues through late November. Incubation involves both parents and lasts for 64 to 65 days. Eggs hatch in late December and January, and by late May or early June, the chicks are almost full grown, and the adults begin abandoning their nests (H. Hasegawa, pers. comm.; Hasegawa and DeGange 1982). The chicks fledge soon after the adults leave the colony, and by mid-July, the colony is totally deserted (Austin 1949). Non-breeders and failed breeders disperse from the breeding colony in late winter through spring (Hasegawa and

¹It is important to note that the term 'coastal albatross' was applied at a time when the short-tailed albatross population was some 2-5 million birds, about 1500 times greater than the population today. Some of the 'coastal' nature of the species' distribution could have been simply related to its more extensive marine range.

DeGange 1982). There is no detailed information on phenology on Minami-kojima, but it is likely to be similar to that on Torishima.

Short-tailed albatrosses are monogamous and highly philopatric to breeding sites. However, young birds may occasionally disperse from their natal colonies to breed, as evidenced by the appearance of adult birds that were banded as chicks on Torishima attempting to breed on Midway Atoll (H. Hasegawa, pers. comm., Richardson 1994).

3. Distribution, Status and Threats

a. Distribution

The species once ranged throughout most of the north Pacific Ocean and Bering Sea, with known nesting colonies on numerous western North Pacific islands in Japan and Taiwan (Hasegawa 1979, King 1981). Other undocumented nesting colonies may have existed. For example, recent observations, together with records from the 1930s, suggest that the short-tailed albatross may once have nested on Midway Atoll, United States. However, no confirmed historical breeding accounts are available for this area .

Early naturalists believed that short-tailed albatrosses bred in the Aleutian Islands because high numbers of birds were seen nearshore during the summer and fall months (Yesner 1976). Alaska Aleut lore referred to local breeding birds, and explorer O. Von Kotzebue reported that natives harvested short-tailed albatross eggs. However, while adult bones were found in Aleut middens, fledgling remains were not recorded in over 400 samples (Yesner 1976). Yesner (1976) believed that short-tailed albatrosses did not breed in the Aleutians but were harvested offshore during the late summer, non-breeding season. Given the constraints on avian breeding at high latitudes during midwinter and the known southerly location of winter breeding, it is highly unlikely that these birds ever bred in Alaska (Sherburne 1993).

Additional historical information on the species' range away from known breeding areas is scant. Evidence from archeological studies in middens suggests that hunters in kayaks had access to an abundant nearshore supply of short-tailed albatrosses from California north to St. Lawrence Island as early as 4000 years ago (Howard and Dodson 1933, Yesner and Aigner 1976, Murie 1959). In the 1880s and 1890s, short-tailed albatross abundance and distribution during the non-breeding season was generalized by statements such as "more or less numerous" in the vicinity of the Aleutian Islands (Yesner 1976). They were reported as highly abundant around Cape Newenham, in western Alaska, and Ventaiminov regarded them as abundant near the Pribilof Islands (DeGange 1981). In 1904, they were considered "tolerably common on both coasts of Vancouver Island, but more abundant on the west coast" (Kermode in Campbell *et al.*, 1990).

At the beginning of the 20th century, the species' numbers declined to near extinction, primarily as a result of hunting at the breeding colonies in Japan. Albatross were killed for their feathers and various other body parts. The feathers were used for writing quills; their bodies were processed into fertilizer, their fat was rendered, and their eggs were collected for food (Austin 1949).

Pre-exploitation worldwide population estimates of short-tailed albatrosses are not known; the total number of birds harvested may provide the best estimate, since the harvest drove the species nearly to extinction. Between approximately 1885 and 1903, an estimated 5 million short-tailed albatrosses were harvested from the breeding colony on Torishima (Yamashina in Austin 1949), and harvest continued until the early 1930s, except for a few years following the 1903 volcanic eruption. By 1949, there were no short-tailed albatrosses breeding at any of the historically known breeding sites, including Torishima, and the species was thought to be extinct (Austin 1949).

The species persisted, however. In 1950, the chief of the weather station at Torishima, Mr. M. Yamamoto, reported nesting of the short-tailed albatross (Tickell 1973, 1975), and by 1954 there were 25 birds and at least 6 breeding pairs present on Torishima (Ono 1955). These were presumably juvenile birds that had been wandering the North Pacific during the final several years of slaughter. Since then, as a result of habitat management projects, stringent protection, and the absence of any significant volcanic eruption events, the population has gradually increased. The average growth of the colony on Torishima Island between 1950 and 1977 was 2.5 adults per year; between 1978 and 1991 the average population increase was 11 adults per year. An average annual population growth between 7 and 8 percent per year (H. Hasegawa, in litt.) has resulted in a continuing increase in the breeding population to an estimated 534 breeding birds on Torishima in 2002 (H. Hasegawa, pers. comm.). Torishima is under Japanese government ownership and management, and is managed for the conservation of wildlife. There is no evidence that the breeding population on Torishima is nest site-limited at this point; therefore, ongoing management efforts focus on maintaining high rates of breeding success. In August of 2002, a volcanic eruption began at Torishima, the first since 1939. Fortunately, by that time, the albatross breeding season had ended, and no albatrosses were believed present on the island. Additionally, the latest information indicates that the eruption consisted mostly of smoke and steam. A visit to Torishima in November of 2002 revealed no changes in vegetation and landscape as a result of the eruption, except for the creation of a tiny crater just beside the old one at the top of the island. The recent eruption of Torishima volcano was very small-scaled and had no apparent effect on the breeding of the short-tailed albatrosses (H. Hasegawa in litt. December, 2002). However, this volcanic activity underscores the tenuous condition of the area where most short-tailed albatrosses breed. The fact that the majority of individuals of this species breed on an active volcanic island certainly complicates efforts to recover the species.

In 1971, 12 adult short-tailed albatrosses were discovered on Minami-kojima in the Senkaku Islands, one of the former breeding colony sites (Hasegawa 1984). Aerial surveys in 1979 and 1980 resulted in observations of between 16 and 35 adults. In April 1988, the first confirmed chicks on Minami-kojima were observed, and in March 1991, 10 chicks were observed. In 1991, the estimate for the population on Minami-kojima was 75 birds, including 15 breeding pairs (Hasegawa 1991). In the 2001-2002 breeding season Hasegawa (pers. comm.) estimated 50 to 55 breeding pairs on Minami-kojima. There is no information available on historical numbers at this breeding site.

Short-tailed albatrosses have been observed on Midway Atoll since the early 1930s (Berger 1972, Hadden 1941, Fisher in Tickell 1973, Robbins in Hasegawa and DeGange 1982). There is one

unconfirmed report of a short-tailed albatross breeding on Midway Atoll in the 1960s (H. Hasegawa, pers. comm., in a letter from Dr. Harvey Fischer), but no subsequent reports of successful breeding. In the years following the reported observation, tens of thousands of albatrosses were exterminated from Midway Atoll to construct an aircraft runway, and to provide safe conditions for aircraft landings and departures. It is possible that short-tailed albatrosses nesting on the island could have been killed during this process. Since the mid-1970s, a few short-tailed albatrosses have been observed during the breeding season on Midway Atoll. In March 1994, a courtship dance was observed between two short-tailed albatrosses (Richardson 1994), and at least one has occupied a nest site and laid an egg which did not hatch (K. Niethammer, Service, Midway Atoll, pers. comm.). Midway Atoll is managed by the Service as a National Wildlife Refuge.

Observations have also been made during the breeding season on Laysan Island, Green Island at Kure Atoll, and French Frigate Shoals, but there is no indication that these occurrences represent breeding attempts (Sekora 1977).

b. Status

The dramatic decline during the turn of the century and recent increases in numbers of short-tailed albatrosses were reflected in at-sea observations away from the breeding colonies. Between the 1950s and 1970, there were few records of the species away from the breeding grounds according to the AOU Handbook of North American Birds (Vol. 1, 1962) and the Red Data Book (Vol.2, Aves, International Union for the Conservation of Nature, Morges, Switzerland, 1966) (Tramontano 1970). There were 12 reported marine sightings in the 1970s, 55 sightings in the 1980s, and over 250 sightings reported in the 1990s (Sanger 1972, Hasegawa and DeGange 1982). The Service's unpublished database of cumulative short-tailed albatross, which consists almost exclusively of fisheries observer records, contains 993 data points (Figure 1). This observed increase in opportunistic sightings should be interpreted cautiously, however, because of the potential temporal, spatial, and numerical biases introduced by opportunistic shipboard observations. Observation effort, total number of vessels present, and location of vessels may have affected the number of observations independent of an increase in total numbers of birds present. Moreover, it is likely the reporting rate of observations has increased with implementation of outreach efforts by federal agencies and fishing interest groups in the last few years.

At-sea sightings since the 1940s indicate that the short-tailed albatross, while very few in number, is distributed widely throughout its historical foraging range (Sanger 1972; Service unpublished data), and ranges close to the U.S. west coast. From December through April, distribution is concentrated near the breeding colonies in the Izu and Bonin Islands (McDermond and Morgan 1993). Recent satellite tracking of black-footed and Laysan albatrosses revealed that individuals of those species travel hundreds of miles from the breeding colonies during the breeding season (David Anderson, Wake Forest University, pers. comm.). If short-tailed albatrosses are similar in behavior to black-footed and Laysan albatrosses, their foraging trips may also extend hundreds of miles from the colony sites during the breeding season.

In summer (i.e., non-breeding season), individual short-tailed albatrosses appear to disperse

widely throughout their historical range (Sanger 1972), with observations concentrated in the northern Gulf of Alaska, Aleutian Islands, and Bering Sea (McDermond and Morgan 1993, Sherburne 1993, Service unpublished data). Individuals have been recorded along the west coast of North America as far south as the Baja Peninsula, Mexico (Palmer 1962).

The short-tailed albatross is considered endangered by the State of Alaska (State of Alaska, Alaska Statutes, Article 4. Sec. 16.20.19). This classification was supported by a letter to Commissioner Noerenberg from J.C. Bartonek (1972, in litt.) in which he recommended endangered status because the short-tailed albatross occurs or “was likely” to occur in state waters within the 3-mile limit of state jurisdiction (Sherburne 1993). The short-tailed albatross is not on the State of Hawaii’s list of threatened and endangered species.

The Japanese government designated the short-tailed albatross as a protected species in 1958, as a Special National Monument in 1962 (Hasegawa and DeGange 1982), and as a Special Bird for Protection in 1972 (King 1981). Torishima was declared a National Monument in 1965 (King 1981). These designations have resulted in tight restrictions on human activities and disturbance on Torishima (H. Hasegawa, pers. comm.). In 1992, the species was classified as endangered under the newly implemented “Species Preservation Act” in Japan which makes federal funds available for conservation programs and requires that a 10-year plan be in place which sets forth conservation goals for the species. The current Japanese “Short-tailed Albatross Conservation and Management Master Plan” outlines general goals for continuing management and monitoring of the species, and future conservation needs (Environment Agency 1996).

As a result of an administrative error in the original listing (and not from any biological evaluation of the species status) the short-tailed albatross was listed as endangered throughout its range *except* the United States (50 CFR 17.11). A final rule was published by the Service listing the short-tailed albatross as endangered throughout its range on July 31, 2000 (50 FR (65) 147:46643-46654).

c. Threats

Threats to short-tailed albatross derive from a number of factors, including previous harvest, volcanic eruptions, disease, parasites, chick predation, introduced species such as rats and cats, oil contamination, plastics ingestion, mortality associated with longline fisheries, entanglement with derelict fishing gear, airplane strikes, and stochastic events. Threats considered most relevant to the present consultation are discussed in detail under the Effects section of this Opinion.

4. Population Dynamics

Breeding-age population estimates come primarily from egg counts and breeding bird observations. The most recent estimates indicate 267 nesting pairs (or 534 breeding adults) present on Torishima (H. Hasegawa pers. comm. December 2002), and about 100 breeding adults on Minami-kojima (H. Hasegawa, in litt.). A total worldwide estimate for breeding birds at the end of the 2002-03 breeding season is therefore 634. It has been noted that an average of approximately 20 percent of breeding adults may not return to breed each year. It is reasonable, therefore, to estimate that approximately 126 additional breeding-age birds may not be observed on the breeding grounds. The worldwide estimate of breeding-age birds is therefore 760.

Estimates of immature birds are more difficult to calculate because these individuals do not congregate between fledging and returning to breed at approximately 6 years of age. An estimate can be calculated by totaling the number of known fledged chicks in the last 6 years, and the average post-fledging juvenile survival rate (H. Hasegawa, pers. comm., Cochrane and Starfield 1999). Based on H. Hasegawa's reports, some 926 chicks were fledged from the Tsubamesaki colony on Torishima from 1997 through 2003. Given an average post-fledging juvenile survival rate of 94 percent, there are now an estimated 870 birds in the immature population from Torishima Island. H. Hasegawa (pers. comm. 2002) estimates the population at Minami-kojima to be approximately 200 birds. Subtracting the estimated number of breeding adults on Minami-kojima from this total number results in an estimated immature population of 100 individuals. Combining the estimated number of immature birds from Torishima Island and the estimated number of immature birds from Minami-kojima yields a worldwide immature population estimate of 970 individuals. This would indicate a current total world population of approximately 1730 short-tailed albatross individuals, at the end of the 2003 breeding season. No numerical estimates of uncertainty are available for this figure.

Observed population growth rates are determined by annual increases in adults observed, eggs laid, and chicks fledged on Torishima Island. The population at Torishima is growing at a rate between 6.5% and 8.0% (H. Hasegawa, pers. comm.).

B. Steller's Eider

1. Species Description

The Steller's eider is the smallest of the eiders. The average weight of adults (both male and female) is 1.94 pounds (Bellrose 1980). Adult male Steller's eiders in breeding plumage have a black back, white shoulders, and a chestnut brown breast and belly. The males have a white head with black eye patches; they also have a black chin patch and a small greenish patch on the back of the head. Females and juveniles are mottled dark brown.

2. Range and Distribution

Three breeding populations of Steller's eider are recognized, two in Arctic Russia and one in Alaska. The majority of Steller's eiders are separated into two breeding and wintering distributions in Russia (Nygard *et al.* 1995). The Russian-Atlantic population nests west of the mouth of the Khatanga River and winters in the Barents and Baltic seas. The Russian-Pacific population nests east of the Khatanga River and winters in the southern Bering Sea and northern Pacific Ocean, where it mixes with the Alaska-breeding population. The Alaska-breeding population occurs in two disjunct regions: western Alaska and northern Alaska. The status of the subpopulations occupying these regions is inadequately understood due to lack of precise population size estimates and limited historical information for comparison with current estimates. Whereas the Russian Atlantic population is believed to contain 30,000-50,000 individuals and the Russian Pacific population likely numbers 100,000-150,000 individuals, the Alaska breeding population is thought to comprise hundreds or low thousands of individuals. Only the Alaska breeding population of the Steller's eider has been federally listed as threatened.

The breeding range of the Steller's eider occurs along the arctic coastal plain in northern Alaska and the arctic and western Siberian coast in Russia. The non-breeding range of the Steller's eider extends along the west and southwest Alaskan coastline. Since there is no way to separate the federally-listed Alaska breeding population from the rest of the world's Steller's eider population during the non-breeding period, it is possible that birds from the Alaskan breeding population could occur anywhere throughout the range of the species during the non-breeding period. In fact, recent telemetry data have revealed extensive summer use of the Chukotka coast of Russia by both male and female Alaska-breeding Steller's eiders (P. Martin, Fish and Wildlife Service, pers. comm. 2002).

A concentration of 15,110 Steller's eiders was detected on September 27, 1996, in Kuskokwim Bay (Larned and Tiplady 1996). The majority of the birds (13,969) were located along the mainland side of barrier islands while 1,141 were detected further offshore. Despite this species' apparent biased use of nearshore habitats, several groups of birds were detected over 10 km from shore, and two groups were over 30 km from shore. Because of Kuskokwim Bay's location adjacent to the general nesting area of this species on the Yukon-Kuskokwim Delta, and its location between the nesting birds at Barrow and the main wintering area in south-central and southwestern Alaska, the Alaskan breeding population probably uses this area during migration. In support of this assumption, two of three satellite-telemetered Steller's eiders captured at Barrow used this area during the molting season (P. Martin, pers. comm. 2000).

In late summer and fall, large numbers of Steller's eiders molt in a few lagoons located on the north side of the Alaska Peninsula (i.e., Izembek and Nelson Lagoon/Port Moller Complex) (Petersen 1980 & 1981). Given the large number of Steller's eiders detected in Kuskokwim Bay in late September (Larned and Tiplady 1996), this area also appears important for molting activities. Following the molt, large numbers of Steller's eiders overwinter along nearshore marine waters of the Alaska Peninsula, Aleutian Islands, Kodiak Archipelago, and the Kenai Peninsula (e.g., within Kachemak Bay). The exact location of the Alaskan breeding population of Steller's eider during the winter is unknown. However, it is reasonable to conclude that the Alaskan birds are also overwintering in Alaska, based on: (1) the number of Steller's eiders that molt and winter in Alaska (i.e., the majority of the estimated world population), (2) the proximity of this area to nesting areas in Alaska, (3) a few band recoveries (Jones 1965, Quakenbush *et al.* 1995, Paul Flint, pers. comm., 1999), and (4) the location of satellite-transmitted birds during autumn.

Following the molt, many of these animals disperse to other suitable habitat along the Alaska Peninsula and Aleutian Islands. Ice often forces the remaining birds out of areas such as Izembek and Nelson Lagoons. During the winter, this species congregates in various areas of nearshore waters along the Alaska Peninsula and the Aleutian Islands (Larned 2000b). In addition to these areas, the species is known to overwinter near Nunivak Island, the Pribilof Islands, around the Kodiak Archipelago, and in Kachemak Bay (Bent 1987, Agler *et al.* 1994, Larned and Zwiefelhofer 1995).

A major portion of the presumed wintering range of the Steller's eider was surveyed during the winter of 1999/2000 (Larned 2000b). During this survey, large concentrations of Steller's eiders were observed to be concentrated within relatively small areas of apparently suitable habitat. In

addition, a large component of the birds that were anticipated, based on the number that molt in lagoons along the north side of the Alaska Peninsula, were not detected (Larned 2000b). Given the distribution of apparently suitable habitat, as well as the species' propensity to stay in near-shore waters, many of the missing birds may be distributed farther west in the Aleutian Islands as well as along the south side of the Alaska Peninsula.

In the spring, Steller's eiders that winter in Alaska amass in large flocks along the north side of the Alaska Peninsula and move north (Larned *et al.* 1993, Larned 1998, Larned 2000a). The movement of birds from their wintering habitats to Kuskokwim Bay may include movements along the coast, or direct flights across Bristol Bay; specific migration routes have not been confirmed on a fine scale (W. Larned, pers. com., 2000). Larned (1998) concluded that Steller's eiders show strong site fidelity to "favored" habitats during migration, and congregate in large numbers in certain areas to feed before continuing their northward migration.

A review of several years of spring survey information (Larned *et al.* 1993, Larned 1998, and Larned 2000a) indicates that several areas receive consistent use by Steller's eiders during spring migration. The areas include the general locations of Beechevin Bay, Morzhovoi Bay, Izembek Lagoon, Nelson Lagoon/Port Moller Complex, Cape Seniavin, Seal Islands, Port Heiden, Cinder River State Critical Habitat Area, Ugashik Bay, Egegik Bay, Kulukak Bay, Togiak Bay, Nanwak Bay, Kuskokwim Bay, Goodnews Bay, and the south side of Nunivak Island (Larned *et al.* 1993, Larned 1998, and Larned 2000a).

A small number of Steller's eiders are known to remain along the Alaska Peninsula and Kachemak Bay during the summer. Approximately 100 Steller's eiders have been documented in Kachemak Bay (Aglar *et al.* 1994), and about 10 at Izembek Lagoon (C. Dau, pers. comm. 2000) during the summer, and their presence is not consistent between years. The age class and ratio of female to male for these flocks is unknown.

3. Life History

a. Breeding biology:

Based on the breeding behavior of other sea ducks (Johnsgard 1994), pair formation in Steller's eiders probably occurs in the fall and spring. The length of time the pair bond lasts is unknown. However, long-term pair bonds have been documented for other sea ducks (Bengtson 1972; Savard 1985; Cooke *et al.* 2000).

Given the disproportionately large population of male Steller's eiders from Russia on the molting/wintering grounds, as compared to the number of males fledged in Alaska, it seems likely that females from the Alaska breeding population often form pair bonds with Russian birds. Pairs of Steller's eiders arrive at Point Barrow as early as June 5 (Bent 1987).

Nesting Steller's eiders occupy shallow coastal wetlands in association with tundra (Bent 1987, Quakenbush *et al.* 1995, Solovieva 1997). They establish nests near shallow ponds or lakes, usually close to water. Based on Quakenbush *et al.* (1995), of 6 nests studied near Barrow in 1991, 2 were within 10 meters of water and all 6 were within 70 meters of water. Of 20 nests studied in 1993, 15 (75%) were within 10 meters of a permanent water body. According to

Solovieva (1997), Steller's eider nests could be as much as 35 to 50 meters, but were usually only 2-3 meters, from water.

Steller's eiders nest in small depressions in the vegetation, lined with a thick bed of down, and incubate eggs for about 25 days (Quakenbush *et al.*, in press). Clutch size has been reported to range from 6 to 10 eggs (Bent 1987, Bellrose 1980). Based on Quakenbush *et al.* (1995), clutch size of successful nests (i.e., eggs hatched), ranged from 2 to 8 eggs (n=8). The average clutch size of successful nests was 4.62 (n = 8). According to another study (Solovieva 1997), clutch size varied between 5 and 8 eggs with an average of 6.1 (n=32). In addition, re-laid clutches varied between 3 and 6 eggs with an average of 3.9 (n=6). Nesting success (percent of nests where eggs hatch) is highly variable (Quakenbush *et al.*, 1995). Near Barrow in 1991, 5 of 6 nests hatched, while in 1993, 4 of 20 nests hatched. During some years, the species apparently does not nest at Barrow (Quakenbush *et al.*, 1995).

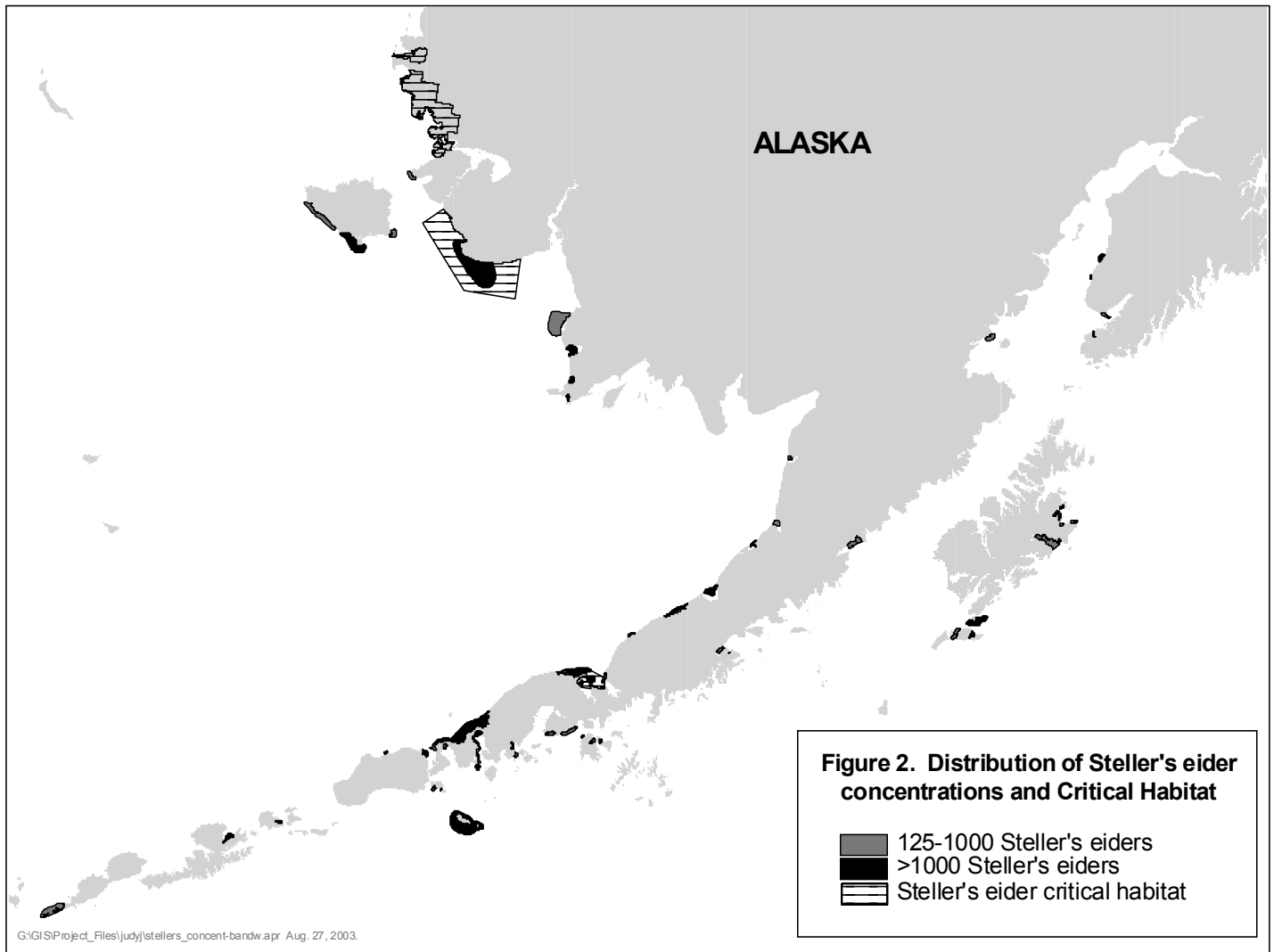
Young hatch in late June, although many nests are partially or completely depredated during incubation by foxes, ravens, jaegers, or other predators. Shortly after hatching, ducklings are led by females to nearby wetlands to feed on aquatic insects and plants until they are capable of flight at about 40 days (Obritschkewitsch *et al.* 2002).

b. Post-breeding

After breeding, Steller's eiders move to marine waters where they undergo a complete molt, including simultaneous replacement of their flight feathers. Individuals remain flightless for about 3 weeks, but the overall period of flight feather molt for the species lasts from late July until late October, with subadults molting first, followed by adult males and then adult females (Petersen 1981). Steller's eiders (presumably including members of both the Alaska-breeding and Russian-Pacific-breeding populations) molt in a number of locations in southwest Alaska (Figure 2), but the largest numbers concentrate in four areas along the north side of the Alaska Peninsula: Izembek Lagoon, Nelson Lagoon, Port Heiden, and Seal Islands (Gill *et al.* 1981; Petersen 1981; Metzner 1993). Molting areas where large numbers concentrate tend to be characterized by extensive shallow areas with eelgrass (*Zostera marina*) beds, intertidal sand flats, and mudflats, where Steller's eiders forage on marine invertebrates (Petersen 1980, 1981; Metzner 1993).

After molting, many Steller's eiders disperse to the Aleutian Islands, the south side of the Alaska Peninsula, Kodiak Island, and as far east as Cook Inlet, although thousands may remain in the lagoons used for molting, unless freezing conditions force them to move to warmer areas (Figure 2). Wintering Steller's eiders usually occur in waters less than 10 m (33 feet) deep, so are usually found within 400 meters (m) (437 yards) of shore, except where shallows extend further offshore in bays and lagoons or near reefs. Prior to spring migration, thousands to tens of thousands of Steller's eiders stage in estuaries along the north side of the Alaska Peninsula, including several areas used during molt and winter, such as Izembek Lagoon, Nelson Lagoon, Port Heiden, and Seal Islands. From there, they cross Bristol Bay, and it is thought that virtually the entire Alaska wintering adult population spends days or weeks feeding and resting in northern Kuskokwim Bay and in smaller bays along its perimeter before continuing northward to nesting areas.

c. Longevity:



Steller's eiders are known to have lived at least as long as 21 years, 4 months, in the wild (band number 647-66747). Other ages recorded for this species in the wild are 20 years, 4 months (band numbers 647-66757 and 1077-13265), 19 years, 3 months (band number 647-64547), and 16 years (band numbers 1157-01787 and 1157-01876)(C. Dau, pers. comm., 2000).

d. Energetics:

Goudie and Ankney (1986) suggest that small-bodied sea ducks (i.e., harlequin (*Histrionicus histrionicus*) and oldsquaw (*Clangula hyemalis*)) that winter at northern latitudes do so near the limits of their energetic threshold. These species have little flexibility in caloric consumption or on reliance of caloric reserves. Under this life history strategy, these species are vulnerable to

perturbations within their winter habitat. Because the Steller's eider is relatively small-bodied (intermediate in size between harlequin and oldsquaw (Bellrose 1980)), and forages in similar areas and on similar prey, the species is likely in the same situation. In support of this conclusion, it has been observed that female Steller's eiders continue to feed upon reaching their nesting areas to build up enough fat reserves to lay eggs, and they continue to feed during incubation (D. Solovieva, pers. comm., 2000). This strategy is entirely different from that of the large eiders (e.g., spectacled eider (*Somateria fischeri*)), which arrive on the nesting grounds fit enough to fast through egg-laying and incubation.

e. Age to Maturity:

For the Steller's eider, sexual maturity is probably reached in the second year (Bellrose 1980).

f. Recruitment:

Very little information is available regarding the number of Steller's eider young that fledge per year, or the variation of that number between years. However, based on nests containing eggs that hatched, 83.3 percent were successful in 1991, and 30.8 percent were successful in 1993 (Quakenbush *et al.* 1995). Based on information being collected near Barrow, 3 of 20 known nests (i.e., 15%) fledged during the nesting season of 2000 (P. Martin, pers. comm. 2000). As noted by Quakenbush *et al.* (1995), Steller's eiders at Barrow apparently completely forego nesting in some years. The percentage of fledged Steller's eiders that reach sexual maturity, and the annual variation of that percentage, is not known.

g. Site Fidelity:

Female philopatry to breeding grounds in waterfowl species is generally high (Anderson *et al.* 1992). The return of a female Steller's eider to the same area in subsequent years on the Yukon-Kuskokwim Delta (P. Flint, pers. comm. 1999) provides supporting evidence of philopatry in Steller's eiders.

Further evidence of site fidelity is found in other sea ducks. A study of sex-biased gene flow in spectacled eiders indicated that females did not move between general nesting areas (coastal versus interior) between years (Scribner *et al.* 2000). Other research has found evidence of strong natal, breeding, and winter philopatry in sea ducks (Dow and Fredga 1983; Savard and Eadie 1989; Robertson 1997; Robertson *et al.* 1999).

Steller's eiders appear to show site fidelity at different spatial scales during different times of the year. Fidelity of individuals to particular areas where they molt is strongly supported by the subsequent recapture of 95 percent of banded birds at their initial banding locations (Flint *et al.* 2000). In addition, the consistent use of particular lagoons by aggregates of birds from different geographic areas (e.g., birds from Russia and the United States) for molting is well documented (Petersen 1981; Flint *et al.* 2000; Dau *et al.* in press). Steller's eiders apparently also show site fidelity to particular areas during migration (Larned 1998). The consistent use of particular areas by apparent geographic populations for nesting (e.g., Barrow) is also observed (Kertell 1991; Quakenbush *et al.* 1995). During the winter of 1999/2000, Steller's eiders were observed to forage at the same locations within survey areas during and between survey events.

h. Population Structure:

Genetic analysis of vertebrate populations suggests that there are often genetic gradients or differences that correspond to the geographic distribution of the species (Lande and Barrowclough 1987). The Alaska breeding population of Steller's eiders may contain unique geographic sub-populations because of: 1) the distance between breeding populations on the Yukon-Kuskokwim Delta and the Arctic Coastal Plain (approximately 500 miles), and 2) the anticipated site fidelity of nesting adult females (Anderson *et al.* 1992). The similarly distributed North Slope and Yukon-Kuskokwim Delta populations of spectacled eiders possess distinct mitochondrial DNA markers, implying limited maternal gene flow between these two areas (Schribner *et al.* 2000).

i. Food Habits:

Steller's eiders employ a variety of foraging strategies that include diving up to 30 feet or more, tipping, bill dipping, and gleaning from the surface of water, plants, and mud. During the fall and winter, Steller's eiders forage on a variety of invertebrates that are found in near-shore marine waters. Based on Petersen's (1981) study conducted during the molt, Steller's eiders consumed blue mussel (*Mytilus edulis*), other bivalves (e.g., *Macoma balthica*), and amphipods (small crustaceans). Petersen (1981) found that they consumed more blue mussels while growing wing-feathers. Another study conducted in northern Norway during the winter found that Steller's eiders consumed a variety of gastropods, mollusks, and crustaceans (Bustnes *et al.* 2000). In this study, a total of 31 species were identified as food items: 13 species of gastropods (making up 68.4% of total number of items), 4 species of bivalves (18.5%); 12 species of crustaceans (13%); and 2 species of echinoderms (0.1%). Bustnes *et al.* (2000) found that Steller's eider juveniles fed more on crustaceans (x = 61% aggregate wet weight) than did adults (x = 26% aggregate wet weight). Female Steller's eiders found dead near Barrow had primarily consumed midge larvae of the family Chironomidae (Quakenbush *et al.* 1995). Larvae of this family are apparently the predominant macrobenthic invertebrate in arctic tundra ponds (Quakenbush *et al.* 1995).

j. Predators:

Predators of Steller's eiders include snowy owl (*Nyctea scandiaca*), short-eared owl (*Asio flammeus*), peregrine falcon (*Falco peregrinus*), gyrfalcon (*Falco rusticolus*), pomarine jaegers (*Stercorarius pomarinus*), rough-legged hawk (*Buteo lagopus*), common raven (*Corvus corax*), glaucous gulls (*Larus hyperboreus*), arctic fox (*Alopex lagopus*), and red fox (*Vulpes vulpes*). Quakenbush *et al.* (1995), reported 5 adult male and 3 adult female Steller's eiders taken by avian predators during their study near Barrow. During this study, peregrine falcons, gyrfalcons, and snowy owls were documented to have preyed on adult Steller's eiders. In addition, pomarine jaegers were documented to have preyed on Steller's eider eggs. On the Yukon-Kuskokwim Delta, Steller's eiders nests have been destroyed through the predation of eggs by gulls (Paul Flint, pers. comm., 1999).

4. Population Dynamics

a. Population Size:

i. Yukon-Kuskokwim Delta

Estimating the Steller’s eider breeding population in Alaska is problematic, due to the low counts and high variation in counts between years during systematic surveys. Hodges *et al.* (1996) note that the population size of eiders (*Polysticta stelleri* and *Somateria* spp.) on the Yukon-Kuskokwim Delta (not including the Arctic Coastal Plain) had declined by 90% since 1957. For the 1950s and early 1960s, the upper limit of the population, excluding the North Slope, had been estimated at 3,500 pairs (Kertell 1991). Kertell noted, however, that the population may have been smaller due, to the potential restriction of nesting Steller’s eiders to specific habitats. Kertell (1991) concluded that the Steller’s eider had been extirpated from the Yukon-Kuskokwim Delta.

Since publication of Kertell (1991), a few pairs of Steller’s eiders have been found on the Yukon-Kuskokwim Delta (P. Flint, pers. comm., 1999), as shown in the Table 4.

Table 4. Recent sightings of Steller’s eiders on the Yukon-Kuskokwim Delta (P. Flint, pers. comm., 1999)

Year	General Location	Number of Pair	Nest Detected	Number of Eggs	Fate of Nest
1994	Kashunuk River near Hock Slough	1	1	7	Destroyed by gulls
1996	Tutakoke River	1	1	6	Unknown
1997	Tutakoke River	2	0	NA	NA
1997	Kashunuk River	1	1	6	Hatched
1998	Tutakoke River; Kashunuk River	2;1	2; 1	Unk.; 7	Destroyed; Hatched

NA-Not Applicable
Unk.-Unknown

To date, no nesting concentration of Steller’s eiders similar to that which occurs near Barrow has been found on the Yukon-Kuskokwim Delta.

ii. Arctic Coastal Plain/North Slope

Quakenbush *et al.* (1995) reported on ground surveys conducted specifically for Steller’s eiders around Barrow from 1991-1994. Laing (1995) conducted helicopter-based brood surveys around Barrow and south of Barrow. ABR (1999) conducted intensive aerial surveys within the “Barrow Triangle” area, surveys that, when compared to concurrent ground surveys, may be used to help derive an aerial survey visibility correction factor. However, Martin and Obritschkewitsch (2002) conducted such concurrent ground surveys during three different years (1999, 2000, and 2001), and concluded that there was not a strong correlation between aerial survey sightings and nest locations. That is, many of the Steller’s eiders seen during the aerial breeding population surveys

are transient birds.

Arctic Coastal Plain Breeding Pair Aerial surveys have been conducted on the Arctic Coastal Plain of Alaska during the Steller's eider nesting period. Mallek and King (2000) and Brackney and King (1995) reported on surveys designed for optimal population estimates for the greatest number of breeding waterfowl species on the Arctic Coastal Plain (ACPBS - Table 5).

From these surveys, we can estimate a maximum number of Steller's eiders present on the North Slope breeding ground at around 2543, the number of birds seen in 1996. Given that the three most recent spring migration surveys estimate a total population of 60,459 Steller's eiders in Alaska (Larned 2000b, 2001, 2002), we estimate that about 4.2 percent of the Steller's eider population wintering in Alaska represents the listed Alaska-breeding birds.

Table 5. Aerial population estimates for Steller's eiders, from aerial breeding pair surveys on the Arctic Coastal Plain (ACPBPS; Mallek and King 2000; Dau and Mallek 2000, 2001).

Year	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Pop. Est.	2002	534	1118	954	1313	2524	931	2543	1295	281	1250	0	443

b. Population Variability:

Based on ground surveys, the number of birds returning to nest at Barrow is variable between years (Quakenbush *et al.* 1995). Indeed, Steller's eiders completely forego nesting in this area in some years (Quakenbush *et al.* 1995). No more than 3 pairs of Steller's eiders were observed nesting on Yukon-Kuskokwim Delta between 1994 and 1998 (P. Flint, pers. comm., 1999).

c. Population Stability:

The Steller's eider is a relatively long-lived species and, as such, should be capable of maintaining relatively stable populations. According to research conducted by Quakenbush *et al.* (1995), Steller's eiders have low annual fecundity and may completely forego nesting in some years. This reproductive strategy is consistent with a long-lived species that is not dependent on producing a large number of young (Begon and Mortimer 1986).

5. Threats

The distinct vertebrate population segment of Steller's eiders breeding in Alaska was listed as a threatened species on June 11, 1997 (USFWS 1997). The reasons for the listing included a substantial decrease in the species' nesting range in Alaska, a reduction in the number of Steller's eiders nesting in Alaska, and the increased vulnerability of the remaining breeding population to extirpation (Fish and Wildlife Service 1997).

The final rule (USFWS 1997) attributes this decline to a number of potential threats, including habitat loss, hunting, predation (including unnatural concentrations of predators resulting from

human factors (e.g. open village dumps)), lead poisoning, stochastic events affecting small populations, and ecosystem change. More recent threats to the species include collisions with manmade structures and chronic petroleum spills, which are most relevant to the present consultation.

The chronic release of petroleum products near large concentrations of Steller's eiders along the Alaska Peninsula and the Aleutian Islands was apparently not realized at the time the Alaska breeding population was listed as a threatened species. The gregarious behavior of Steller's eiders during a spill event could lead to instances (or unacceptable rates) of acute and chronic toxicity. Indeed, Larned (2000b) expressed concern for the survival and reproductive success of large number of Steller's eiders observed in harbors.

Because the Steller's eider is relatively small-bodied and winters at northern latitudes, it likely does so near the limits of its energetic threshold (see section 3.d. above). Therefore, environmental perturbations that reduce prey availability or increase the species' energetic needs may result in a reduction in fitness and perhaps increased mortality of adult and juvenile birds. Because fuels/oils are toxic to certain prey items of Steller's eiders (e.g., amphipods and snails) (Glegg *et al.* 1999; Finley *et al.* 1999), as well as being toxic to the species itself (Holmes *et al.* 1978; 1979, McEwan and Whitehead 1980; Leighton *et al.* 1983; Holmes 1984; Leighton 1993; Rocke *et al.* 1984; Yamato *et al.* 1996; Glegg *et al.* 1999; Trust *et al.* 2000; Esler *et al.* 2000), even small spills may have a significant adverse effect on this species.

Mortality factors appear to be undermining this species' ability to maintain a stable population. Flint *et al.* (2000) concluded that a decrease in adult survival may have initiated the long-term population decline in Steller's eiders molting and wintering in Alaska, which includes the Alaska breeding population. The decline of Steller's eiders molting and wintering along the Alaska Peninsula appears to be continuing (Flint *et al.* 2000, Larned 2000a). At the estimated annual survival rate of 0.899 ± 0.032 SE for females and 0.765 ± 0.044 SE for males (Flint *et al.* 2000), only 39 percent of the females, and 7 percent of the males of a cohort will reach 10 years of age.

This difference in survival between males and females may help explain the significantly female-skewed sex ratios of Steller's eider flocks observed during January, February, and March of 1999/2000. At Akutan Harbor, the combined female to male sex ratio was approximately 3 to 1 ($n = 590$). At False Pass, females represented 69 percent of all Steller's eiders observed ($n = 114$). Steller's eider surveys at Unalaska during the winter of 1999/2000 revealed females representing 63 percent of all Steller's eiders observed ($n = 2,053$) (J. Burns, pers. comm. 2000).

The adult sex ratio in ducks (Anatinae) should consist of a variable excess of males (Johnsgard 1994). With a positive male-biased sex ratio, there is competition for females, and all, or nearly all females are paired (Johnsgard 1994). In the case of the Steller's eider, however, optimum annual reproduction in Steller's eiders may not be achieved, because not all the available adult females will be paired. In addition, because female ducks (Anatinae) typically select their mates from a group of competing males (Johnsgard 1994), the ability of a female Steller's eider to select a fit mate may also be reduced. Furthermore, because female Steller's eiders from Russia outnumber female Steller's eiders from Alaska by several orders of magnitude, given the low

supply of male Steller's eiders, many adult female Alaskan birds may go unpaired. As such, population resiliency of the Alaska breeding population of Steller's eiders may be undermined.

VI. ANALYSIS OF EFFECTS

A. Background

When preparing a Biological Opinion, under 50 CFR 402.14, the Service is responsible for evaluating the “effects of the action,” i.e., direct and indirect effects, as well as effects of activities that are interrelated or interdependent, on federally-listed species. These effects become additive to the environmental baseline. The “environmental baseline” section of Service BOs summarizes the effects of past and present human and natural phenomena on the current status of threatened and endangered species and their habitat in an action area and establishes the base condition of natural resources, human use, and species use in an action area, which is the point of comparison for evaluating the effects of an action.

Longline and trawl fishery operations in the Bering Sea and GOA are likely to adversely affect the short-tailed albatross due to the bird’s distribution and foraging ecology and its association with fishing vessels. The BSAI and GOA fisheries are totally encompassed within the current range of this species. Seabirds like the short-tailed albatross are attracted to fishing vessels to feed on fish that escape from trawl nets, baited hooks of long-line vessels, and offal discharged from both trawl and longline vessels. In the process of feeding, short-tailed albatrosses may become hooked on longline gear or may strike trawl gear, and be injured or killed.

Based on the distribution of Steller’s eiders, and the fact they typically forage in shallow, near-shore areas where seafood processing takes place and fishing vessels refuel, adverse effects to the species could occur from discharge of an excess of organic materials into their habitat. Adverse effects may also result from the accidental release of petroleum products and/or oil-laden bilge water during fishing vessel fueling and mooring.

Factors to be considered in determining the effects of an action include the proximity of the action to the species under consideration, the timing of the action, nature of its effects, and the frequency and intensity of disturbance. These factors, as explained below, are a part of the baseline setting for the present actions under consideration.

1. Proximity of the Action:

Implementation of the groundfish fisheries authorized under the BSAI and GOA FMPs occur within the U.S. Exclusive Economic Zone (3-200 nautical miles offshore). This zone is an economic zone rather than an area where the U.S. has territorial jurisdiction. Numerous observations of short-tailed albatross are documented within 6 miles of shore and over 40 within 3 miles of shore (Figure 1), although these may represent multiple sightings of the same individuals. The short-tailed albatross is a frequent visitor to productive waters in shelf break areas of the northern Gulf of Alaska, Aleutian Islands, and Bering Sea. As indicated above, most of the BSAI and GOA fisheries concentrate in these shelf break areas, which yield a highly productive fishery for both fishermen and birds.

Steller’s eiders migrate in the fall and molt along the southern Alaskan coast, primarily in Izembek and Nelson Lagoons and Port Moller (USFWS 2001b). Most birds winter along the

Alaska Peninsula from the eastern Aleutian Islands to Cook Inlet in shallow, near-shore marine waters. The geographic areas where fishery operations may occur and where disturbance is anticipated coincides with the U.S. Exclusive Economic Zone for the short-tailed albatross and the migration, molting and winter distribution of Steller's eiders along the Alaskan coast, including the Alaska Peninsula. Because Steller's eiders generally molt, winter, and stage in lagoons and nearshore areas, they are not likely to be impacted by fishing activities that occur 3 miles or more offshore at these times in their life cycle. However, as indicated below, they may be affected by activities associated with vessel re-fueling and by vessel strikes during migration.

2. Timing:

The general groundfish season in the BSAI and GOA is open for at least some species all year long, 24 hours a day. Fishing for groundfish with trawl gear in the BSAI and GOA is prohibited January 1 through January 20. Directed fishing for certain species may have seasonal limitations (50 CFR 679.23). Data presented by Stehn (1999) for 1993 to 1997 indicate that a preponderance (59 to 73 percent) of *seabirds* are caught from January to May, which overlaps with the short-tailed albatross breeding season. Overall, fishery operations would temporally overlap with potential use by short-tailed albatross during breeding and non-breeding seasons, and with Steller's eiders primarily during the non-breeding season, when the birds are migrating, or congregated in molting or wintering groups.

Although short-tailed albatrosses and Steller's eider may occur in the U.S. Exclusive Economic Zone during any time of the year, they are more common during the non-breeding season. Data on observations of short-tailed albatrosses by fishery observers indicate that short-tailed albatrosses occur in Alaskan waters primarily from May until September (non-breeding season) with fewer sightings in other months. Relative abundance (number of sightings adjusted for observer effort) is still low in May and increases to the highest level in August, and drops back down in September. Groundfish catch data from 1993-1999 indicate that groundfish fishing activity is highest from January until May. Clearly, there is temporal overlap in the distribution of short-tailed albatrosses and fishing vessels, but periods of peak activity do not overlap.

Information is largely lacking regarding the Steller's eiders' use of marine waters adjacent to the arctic coastal plain and along the west and southwest coast of Alaska as they migrate south to molting and wintering areas. Birds that have bred near Point Barrow begin to return to the coast from the first to the middle of July and disappear from the area around the first to the middle of August (Bent 1987). The non-breeding period is generally considered to be September to June for the Steller's eider, which coincides with the peak fishing activity.

3. Nature of the Effect:

In groundfish fisheries, longlines account for most seabird incidental catch. Trawls also take some seabirds, primarily those that feed beneath the surface on prey in the water column. Pots occasionally take diving seabirds. Some birds, including eiders, may also be injured or killed by striking the vessel superstructure or fishing gear while flying in the vicinity. The magnitude of effects to Steller's eiders are difficult to ascertain, largely because there is not a reliable reporting mechanism in place for such strikes, particularly on small vessels fishing closer to shore, where

eiders are most likely to be encountered.

4. Disturbance Frequency and Intensity:

There is no reliable scientific or commercial information available that would permit the Service to evaluate these factors. However, due to the longevity of short-tailed albatrosses and Steller's eiders and their reproductive strategies, the premature loss of adult birds, or a decrease in their fitness, is not anticipated to be quickly compensated for by the population.

B. Environmental Baseline

In this BO, the Service is considering an action that requires us to deviate from our normal approach to establishing environmental baselines. The BSAI FMP was implemented by regulations published on December 31, 1981, and the GOA FMP was implemented by regulations published on November 14, 1978. Because the BSAI and GOA FMPs have been in place for two decades, they are part of the environmental baseline. However, these FMPs have never been consulted on in their entirety. Thus, although the effects of implementation of the BSAI and GOA FMPs that occurred from 1981 and 1978, respectively, to the present time are in fact part of the environmental baseline, their effects to listed species are considered and evaluated herein, relative to the jeopardy standard. The present actions being consulted on in this BO are implementation of the FMPs in their entirety, and in particular, the adoption of the changes to seabird avoidance measures presented in section IV.D.1 above (as further described in Appendix 1 and as presented in the proposed rule for an amendment to revise regulations for seabird avoidance measures in hook-and-line fisheries off Alaska (NMFS 2003)).

Many of the factors contributing to the environmental baseline for these species are reviewed under "Threats" above. With regard to the short-tailed albatross and commercial fishing activities, the Service has previously anticipated the incidental take of one short-tailed albatross per year in the Hawaii-based longline fishery (USFWS 2002), four albatrosses over 2 years in the North Pacific longline fishery, and one short-tailed albatross per year in Alaska's Pacific halibut fishery (USFWS 1998).

C. Effects of the Action

The effects of the action refers to the direct and indirect effects of the action on the species or its critical habitat. The effects of the action will be evaluated together with the effects of other activities that are interrelated or interdependent with the action. These effects will then be added to the environmental baseline in determining the proposed action's effects to the species or its critical habitat (50 CFR Part 402.02). Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur. In this case, the actions are continuing implementation of the existing FMPs for the BSAI and GOA groundfish fisheries, as revised by the recently-approved Council amendments, and NMFS' proposed amendment to revise regulations for seabird avoidance measures in the hook-and-line fisheries off Alaska.

1. Short-tailed Albatross

As discussed by Gilpen (1987), small populations will have difficulty surviving the combined effects of demographic and environmental stochasticity. Demographic stochasticity refers to random events that affect the survival and reproduction of individuals (Goodman 1987). Environmental stochasticity is due to random, or at least unpredictable, changes in factors such as weather, catastrophic events, food supply, and populations of predators (Shaffer 1987). The estimated total remaining world population of short-tailed albatrosses is approximately 1700 birds. This small population size puts them at risk to the deleterious effects of demographic and environmental stochasticity. Increasing the loss of adult birds due to the additive mortality associated with fishing operations, in combination with natural mortality and a major catastrophic event, could potentially destabilize population size, reproductive rate, and slow or preclude the recovery of this species.

Although habitat management efforts on its breeding grounds have increased short-tailed albatross nesting success and population growth rate, this species is slow to mature, and some 20 percent of breeding age adults may not return to the colony breeding grounds in a given year (H. Hasegawa, pers. comm., 2002). In addition, females lay only a single egg, which is not replaced if destroyed. Breeding success (the percent of eggs laid that result in a fledged chick) varies between 60-70 percent, but is likely lower in years of volcanic activity or severe weather during the breeding season.

a. Direct Effects

As mentioned above, the short-tailed albatross is (or has been) adversely affected by a number of factors, including harvest, volcanic eruptions, monsoons, take in commercial fisheries, and entanglement with derelict fishing gear. In addition, we believe that take is likely to have occurred due to disease, parasites, predation, introduced species such as rats and cats, and contaminants (oil contamination, plastics ingestion). Threats considered most relevant to the present consultation include commercial fisheries and contaminants. These are discussed in detail below:

(1) Reduction in Food Supply

Studies indicate that the reproductive success of some avian species is reduced when commercial fishing occurs within the species' foraging area during the breeding season. For example, survival of Magellanic penguin (*Spheniscus magellanicus*) chicks in the Falkland Islands, (where commercial fishing is allowed within the species' foraging range) is 0.7 chicks per nest, as compared with 1.4 chicks per nest on Magdalena, where a buffer to commercial fishing is maintained in the colony vicinity (International Penguin Conservation Web Site – <http://www.penguins.cl>). This impact of fisheries to reproductive success would likely be heightened for flightless species, such as penguins, whose potential foraging distance from the colony area is limited. We consider the effects of commercial fishing governed by the BSAI and GOA FMPs to be discountable to the forage base of the short-tailed albatross at this time for a number of reasons. First, the albatross are naturally very strong and wide-ranging fliers, not restricted to a limited foraging area. Second, the subject fisheries are located a sufficient distance from the birds' breeding islands in Japan that it is unlikely the albatross focus their foraging efforts during the breeding season in the areas where these fisheries occur. Third, the albatross'

diet is believed to consist primarily of squid, shrimp, crustaceans, and surface-feeding fish. The demersal and trawl fisheries considered in the current consultation do not target these species. Finally, the high population growth rate and fledgling survival rate would indicate that the species is not food-limited during the energetically-demanding reproductive period or at other less energetically demanding times throughout the year.

(2) Longline Fisheries

The NMFS determined, and the Service concurred, that the continued implementation of the BSAI and GOA FMPs for the groundfish fisheries will continue to provide an available food source in the form of offal and bait that attracts short-tailed albatross to fishing operations, where they sometimes come into contact with fishing gear and are accidentally injured or killed. During hook-and-line operations, birds are attracted to the baited hooks when the gear is being set. These birds may become hooked at the surface, and then dragged underwater, where they drown. The probability of a bird being caught is a function of many interrelated factors including: type of fishing operation and gear used; length of time fishing gear is at or near the surface of the water; foraging techniques of the bird; water and weather conditions; size of the bird; availability of food (including bait and offal); and physical condition of the bird (molt, migration, health). Hook-and-line fishing operations are actions implemented under the programmatic BSAI and GOA FMPs, and the effects have been previously analyzed in the following Service BOs; which are incorporated here by reference:

- (1) Effects of Establishing an Interim Exemption Program for Marine Mammals, and Related Fishing Activities (July 3, 1989);
- (2) 1995 BSAI and GOA Total Allowable Catch Specifications (February 7, 1995);
- (3) 1997 BSAI and GOA Total Allowable Catch Specifications (February 19, 1997)
- (4) 1999-2000 Hook-and-line Groundfish Fishery in the BSAI and GOA areas (March 19, 1999);

In the Bering Sea, the hook-and-line Pacific cod fishery overlaps with short-tailed albatross sightings primarily along the Aleutian chain, and to a lesser extent, along the shelf edge. A large portion of the short-tailed albatross sightings are recorded during the short-tailed breeding season (November to May). These sightings may represent primarily immature and non-breeding birds, or may indicate that breeding birds make extensive foraging trips from the colony site. Most of the recorded take of short-tailed albatross has occurred in the northern portion of the shelf edge in the BS, despite relatively fewer sightings there, compared to the Aleutians. With one exception, the takes were of juvenile or sub-adult (i.e., non-breeding) individuals (NMFS 2002c).

NMFS (2002a) estimates the average longline fishing industry bycatch of all seabirds (from 1993 to 2001) at 14,390 birds per year for the BSAI and 1,039 birds per year for the GOA. An estimated average of 211 black-footed and 664 Laysan's albatrosses were taken per year for this same period, but bycatch of these species has been generally decreasing in more recent years. Estimated incidental catch of short-tailed albatrosses during this same period was one in the BSAI and zero in the GOA.

In the GOA, the short-tailed albatross has been sighted almost exclusively along the shelf edge, although this may reflect the bias of the observer's platforms. Two recorded takes of the

short-tailed albatross have occurred in the northern GOA, near Unimak Pass and Middleton Island.

Despite significant international initiatives in recent years to address this problem globally, there is still little information on the magnitude of this potential threat in foreign fisheries in the north Pacific Ocean and Bering Sea. In the northwestern Pacific Ocean, longline fishing is conducted by vessels from China, Japan, the Republic of Korea, Russia and Taiwan Province of China. Distant water longline fleets, such as those from Japan, Russia, Korea, and Taiwan, traverse the waters of the north Pacific Ocean in search of swordfish and tuna. Clearly, the Japanese longline fishing fleet represents a tremendous amount of fishing effort that in many instances overlaps with the currently known foraging range of the short-tailed albatross.

Understanding foreign distant water fishing fleet effort is an integral part of analyzing the threat of foreign longline fishing activities to the short-tailed albatross. However, in many fisheries, fishermen may not be required to report seabird bycatch, may not be able to identify seabirds, or may have significant dis-incentives to do so for fear of consequences to the future of the fishery. To our knowledge, numbers and rate of seabird bycatch by foreign vessels is not reported.

Pelagic longline fishing conducted in the vicinity of the Hawaiian Islands by the United States, within the range of the short-tailed albatross. The amount and likelihood of take in this fishery is difficult to determine because of the low rate of observer coverage (Formerly 5 percent of fishing time observed, it increased to 20% following a March 30, 2001 court decision involving sea turtle protection). In addition, preliminary satellite telemetry information suggests that the waters exploited by this fishery are not commonly used by short-tailed albatross (R. Suryan, Oregon State University, pers. comm. November 2002). There have been no takes of short-tailed albatrosses reported by observers in this fishery, but unreported takes may occur. Black-footed and Laysan albatrosses are taken in this fishery; in 1996, an estimated total 625 Laysan albatrosses (0.276 birds/1000 hooks) and 1189 black-footed albatrosses (0.083 birds/1000 hooks) were taken in this fishery (Food and Agriculture Organization of the United Nations recent Circular No. 937, 1998). In a recent BO, the Service anticipated take of one short-tailed albatross per year associated with the Hawaii-based longline fishery (U.S. Fish and Wildlife Service 2002).

As indicated under Conservation Measures above, U.S. groundfish fisheries in Alaska are monitored by fishery observers who collect data on seabird bycatch. According to NMFS' 1997 regulations, vessels in the 60- to 124-ft LOA range and all vessels equal to or larger than 60 ft LOA using pot gear are required to carry groundfish observers during 30 percent of their fishing days. Vessels not using pot gear greater than 124 ft LOA, require 100 percent observer coverage. In addition, shoreside processors that process 500–1,000 mt of groundfish in a monthly period require 30 percent observer coverage, and those that process more than 1,000 mt require 100 percent coverage. Additional observer coverage is also required for vessels and processors participating in management programs involving vessel-specific fishery quotas, such as the Western Alaska CDQ program or the AFA pollock fisheries. The groundfish fisheries in the BSAI and GOA are managed on a real-time basis using weekly production data from processors coupled with observer data on retained and discarded groundfish and prohibited species catch.

Reports of seabird bycatch are also occasionally received directly from fishermen. There were two reported fishery-related takes of short-tailed albatrosses in the 1980s. The first bird was found dead in a fish net north of St. Matthew Island in July 1983. The second bird was taken by a vessel fishing for halibut in the Gulf of Alaska in October of 1987.

Since 1993, (when fishery observers began reporting bird mortalities by species) there have been five reported takes of short-tailed albatrosses in Alaska's fisheries. Two of these reported takes occurred after the initial seabird avoidance measures were required by regulation (in 1997). The reported takes include:

- 1) a juvenile taken in the Individual Fishing Quota sablefish fishery in the western Gulf of Alaska south of the Krenitzin Islands on August 28, 1995;
- 2) a 3-year-old bird taken in the Individual Fishing Quota sablefish fishery in the Bering Sea on October 8, 1995;
- 3) a 5-year-old bird taken in the hook-and-line BSAI fishery on September 27, 1996;
- 4) an 8-year-old bird taken in the cod hook-and-line fishery in the Bering Sea on September 21, 1998; and
- 5) a sub-adult bird taken in the cod hook-and-line fishery in the Bering Sea on September 28, 1998.

On October of 2001 and January of 2002 observers noted an albatross in the observed samples, but the birds were not retained, and species identification could not be confirmed. Due to the circumstances at the time of observation (weather, lighting, duration of observation), there was insufficient evidence to determine whether these were short-tailed albatrosses. Such events underscore the importance of retaining all albatrosses until species identification is confirmed.

There are numerous factors that can affect whether or not a rare short-tailed albatross will be hooked on longline gear. As the population of these albatross continues to increase, one might expect an increased probability of hooking. Conversely, as the effectiveness and use of seabird avoidance measures continues to improve, one might expect a reduced probability of hooking. The probabilities of these "opposing forces" are difficult to estimate. One approach would be to consider the known and reported takes of short-tailed albatross that have occurred in the observed portions of the haul since 1997, when seabird avoidance regulations were first implemented in the BSAI and GOA groundfish fisheries. Two birds were reported taken in 1998.

Estimates of bird mortality must take into account the frequency of observer coverage. Observers are not active on all vessels at all times; therefore, the bird mortalities noted in the observed sample must be "expanded" to estimate the "true" amount of bird mortality. The annual expansion factor is calculated by the ratio of annual estimated bird mortality divided by the actual number of birds observed taken annually (data presented in NMFS 2002a). The average annual expansion factor for 1997 to 2001 can be derived by summing the expansion factors for each year and dividing by the total number of years. For the period since 1997 (when seabird avoidance measures were first required), the annual average expansion factor calculated by this method is 4.4 in the Bering Sea and 8.7 in the Gulf of Alaska (K. Rivera, National Marine Fisheries Service, pers. comm., 2003). The difference in the expansion factors for the two areas relates to differences in observer coverage, thus in the proportion of total hauls sampled, in the BSAI versus

the GOA fishery.

Since 1997, when seabird avoidance regulations were first implemented in the BSAI and GOA hook-and-line groundfish fisheries, there have been two reported takes of short-tailed albatross in the observed portions of the haul; both occurred in 1998. Applying an expansion factor of 4.4 to these two short-tailed albatross mortalities (both occurred in the Bering Sea) results in a total estimated mortality of 8.8 birds over the 5-year period from 1997-2001, or 1.76 birds (rounded to two birds) per year.

To summarize, the best available information indicates that the total take of short-tailed albatrosses in the GOA and BSAI hook-and-line fisheries since 1997 has been two birds per year. This represents about 0.12% of the current total population. If the anticipated take from Alaska's trawl fishery, Pacific halibut fishery and Hawaii's longline fishery are included, the total of 4.4 short-tailed albatross taken per year in these combined fisheries represents 0.26%, or just over one-quarter of 1 percent, of the current total population.

Effectiveness of Deterrence Devices: As indicated in Appendix 1, NMFS' proposed recommendations for seabird deterrence devices require paired streamer lines for all vessels over 55 feet in length within the U.S. EEZ. Vessels 26 to 55 feet in length would be required to use a single streamer line, buoy bag, or some combination (depending on location and rigging – See Appendix 1 for full details). As indicated in Melvin *et al.* (2001), paired streamer lines were found to be highly effective, reducing seabird bycatch by 88 to 100 percent in both years (1999 and 2000), and in all regions and fleets that were included in this study. The paired streamer lines create essentially a “moving fence” that precludes seabird attacks, with no effect on catch rates of target fish species. Single streamer lines were slightly less effective, reducing seabird bycatch by 96 percent and 71 percent for the sablefish and Pacific cod fisheries respectively. Melvin *et al.* (2001) also noted that Laysan albatross attacked baited hooks five times more often when single streamer lines were used than when paired streamer lines were deployed.

Melvin *et al.* (2001) did not test the effectiveness of buoy bags. However, in a study conducted by the International Pacific Halibut Commission, buoy bags were found to reduce seabird attacks by about 50 percent (Trumble 1999). Because larger vessels and catcher-processors are responsible for the majority of seabird bycatch (see for example Stehn 1999), the requirement for the more effective paired streamer lines on larger vessels is appropriate.

(3) Trawl Fisheries

In some trawl fisheries, equipment mounted on the trawl net sends signals to the vessel to monitor net performance. This is most important in midwater fisheries, but is employed in some bottom-trawl fishing applications as well. There are two primary methods for gathering net performance information and sending this information to equipment on the vessel bridge. One method employs an underwater echo-sounder on the headrope of the trawl net to determine the height of the headrope above the ocean bottom and the opening depth of the net itself. This system can also detect whether fish pass above or below the echo-sounder, thus showing where the fish are in relation to the net in the water column. This system is generally referred to as either an echo-sounder or a net sonde by fishermen. The signal is sent to the vessel acoustically through the

water column, where it is received by a hydrophone that is either a side-deployed towed transducer or one that is mounted to the hull of the vessel. The system rarely, but sometimes, employs a transducer wire towed from the rear of the vessel.

The other system is typically known as trawl sonar. This equipment is also mounted to the headrope and is sometimes referred to as the “suitcase.” The system provides information straight up and down, as the echo-sounder does, but it also sweeps side to side and can provide a 360 degree picture of the net, water column, and target fish (Figure 3). This system provides much better information regarding how the net is deployed and saves fishermen a great deal of time and effort because they can either fine-tune the net performance while towing, or realize early on that there is a major problem and bring the gear back to the surface. The trawl sonar is hard-wired to the vessel through a cable typically known as the third wire. Signals sent over this third wire are superior to those sent acoustically, as the third wire carries more information, sends a constant signal, and is not susceptible to disturbance from ambient noise or noise from the vessel itself.

Either system can deploy cables outboard of the vessel. Seabirds attracted to offal and discards from the ship may either strike the hard-to-see cable while in flight, or get caught and tangled in the cable while they sit on the water, due to the forward motion of the vessel. When the cable or third wire encounters a bird sitting on the water, the bird can also be forced underwater and drown. On-board observations of birds (including Laysan albatross) colliding with either of these cables have been made by both researchers and observers. Some birds that strike vessels or fishing gear may fly away without injury, while others may be injured or killed.

The main distinction between the two systems is the different location of the transducer cables and third wires. The net sonde transducer wires are deployed from the side of the ship and can be very close to where offal is discharged. There, they are not so likely to be hit by flying birds, but very likely to encounter swimming birds. Alternatively, transducer wires can be suspended from relatively long outriggers; this gets them out of the offal discharge area, but puts them more into the birds’ flying zone. In contrast, trawl sonar cables (third wires) are deployed from the center of the stern, above the main deck, and can be above the water for longer distances. Thus, they are more likely to intersect the birds’ flying zone than the concentration of swimming birds feeding on offal. These differences in location are likely to affect the probability and mechanism of bird strikes.

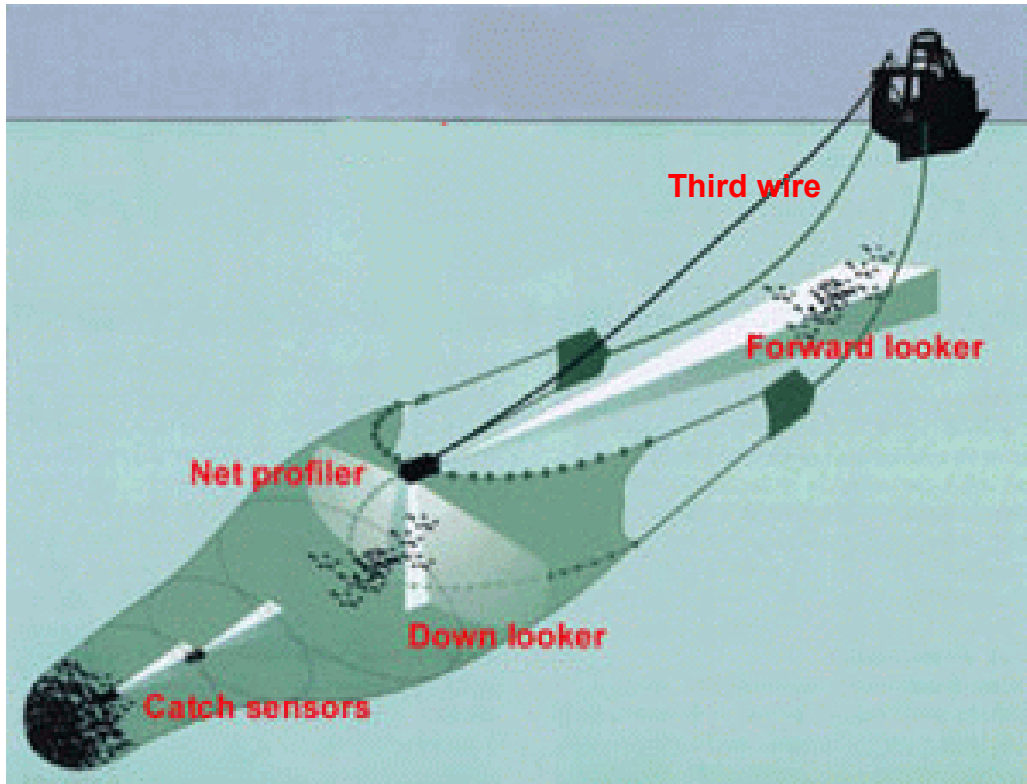


Figure 3 - Generalized depiction of trawl sonar system

In some southern hemisphere fisheries, most notably in the CCAMLR (Commission for the Conservation of Antarctic Marine Living Resources) area of the southern hemisphere, outboard transducer and third wire cables have been outlawed for a number of years due to bird collision problems, and have been replaced by wireless (through-the-hull) transducers. However, the wireless systems have not totally eliminated the seabird-trawler collision problem there. A recent report from the southern hemisphere indicates that a 30- to 40-vessel trawl fishery around the Falkland Islands resulted in take of approximately 900 albatrosses between mid-September and late December, 2002 (Graham Robertson, Australian Antarctic Division, pers. comm. 2002). These birds were killed from collisions not with third wires, but with the larger cables running to the trawl doors.

To date, information on seabird interactions with transducer or third wire cables in Alaska has not been collected systematically. NMFS (2002a) reports that the 3000+ *ad hoc* observation records by NMFS-certified observers from 1993 to 2001 include 25 definitive reports of birds specifically striking or being drowned by the 'third wire' on trawl gear, and one report of birds striking the main trawl cables. Many of the observer notes were not about the third wires, and all observations may not have been recorded, so encounter rates cannot be calculated from this information. The third wire incidents that were noted involved some 92 birds, including about 30 northern fulmars and 19 Laysan albatross (NMFS 2002a; USFWS Observer Notes Database). Researchers have made similar reports.

There are presently no standardized observer data on seabird mortality from trawler third wire collisions in Alaskan waters, making assessment of potential incidental take of short-tailed albatross from this source mere guess-work at this time. Direct collection of seabird-third wire interaction data is problematic, for several reasons. Any birds killed by third wire collisions would most likely not be recorded in the observers' sampling of the trawl haul, as it is unlikely that such birds would make their way into the trawl net. Some trawlers are configured such that an observer's safety would be compromised were he or she to monitor the third wire during the tow, because direct observations would place the observer immediately below the net cables or expose them to heavy seas. Also, observer effort on trawlers is already fully allocated, and to monitor trawl third wire cables while gear is being towed may require abandoning some existing observer duties, or adding an additional observer to the trawl vessel. To address these difficulties, NMFS has initiated a pilot study to determine whether video monitoring could be applied to this problem. NMFS is also gathering information on the scope of third wire use in Alaskan groundfish trawl fisheries, and the total effort expended. If video monitoring proves useful, further studies would be initiated to monitor the frequency and nature of trawl third wire interactions with seabirds. NMFS has also recently been awarded a North Pacific Research Board grant to further investigate third wire-seabird interactions. The frequency and effects of such interactions will be re-evaluated as data from these studies become available, and further consultation will be conducted, if appropriate.

To date, striking of trawl vessels or gear by the short-tailed albatross has not been reported by observers. A large part of the trawl effort in the GOA extends from the Shumagin Islands to eastern Kodiak and to the north; there have been few sightings of short-tailed albatross inside of the shelf edge in the GOA. The vast majority of the trawl effort occurs in the BSAI and is concentrated between Unimak Pass and the Pribilofs, and to the north and northwest of Unimak Island, over an extensive area of shelf waters (Figure 5). Short-tailed albatross have been sighted in these areas, but since the majority of sightings come from observers aboard fishing vessels, these are not independent observations. One short-tailed albatross tracked by satellite telemetry was located numerous times in the vicinity of Umnak and Unalaska Islands during July and August of 2001 (R. Suryan, Oregon State University, pers. comm. 2002). At the present time, the probability of short-tailed albatross collisions with third wires or other trawl vessel gear in Alaskan waters cannot be assessed; however, given the available observer information and the observed at-sea locations of short-tailed albatrosses relative to trawling effort, the possibility of such collisions cannot be completely discounted.

(b) Indirect effects.

(1) Contaminants

Another potential threat to short-tailed albatross is damage or injury from oil contamination, which could result in direct toxicity, and/or could interfere with the birds' ability to thermoregulate. Oil spills can occur in many parts of the short-tailed albatross' marine range. Oil development has been considered in the past in the vicinity of the Senkaku Islands (Hasegawa 1981, *in litt.*). This industrial development would introduce the risk of local marine contamination due to blow-outs, spills, and leaks related to oil extraction, transfer and transportation. Historically, short-tailed albatrosses rafted together in the waters around Torishima (Austin 1949), and small groups of

individuals have occasionally been observed at sea (Service, unpublished data). An oil spill in an area where individuals are rafting could affect the population significantly. The species' habit of feeding at the sea surface makes them vulnerable to oil contamination. Hasegawa (1984) has observed some birds on Torishima with oil spots on their plumage.

The accidental release of petroleum products (see below for Steller's eider) could also have possible indirect effects to short-tailed albatross. However these effects are anticipated to be less for albatross, due to the albatross' wider range and more pelagic habitats.

Consumption of plastics may also be a factor affecting the species' survival rates. Albatrosses consume plastics at sea, presumably mistaking them for food items, or in consuming marine life such as flying fish eggs, which are attached to floating objects. Hasegawa (pers. comm.) reports that short-tailed albatrosses on Torishima commonly regurgitate large amounts of plastic debris. Plastics ingestion can result in injury or death to albatross, if sharp plastic pieces cause internal injuries, or through reduction in ingested food volumes and dehydration (Sievert and Sileo 1993). Auman (1994) reports that Laysan albatross chicks found dead in the colony had significantly greater plastic loads than chicks killed by vehicles (it was assumed that albatross chicks killed by vehicles represented a random sample). Hasegawa (pers. comm.) has observed a large increase in the occurrence of plastics in birds on Torishima over the last 10 years, but the effect on survival and population growth is not known. Plastics may be dumped from fishing or other vessels, or may originate from onshore locations.

(2) Vessel Strikes

Vessel strikes by seabirds in flight has been reported by fishery observers. Of the over 3000 opportunistic observation records in the USFWS, Anchorage Observer Notes Database from 1993 to 2001, there are 674 reports of birds found on the vessel, or birds striking the vessel or rigging. Of these, 117 records are definitive reports of birds striking the vessel (total of 3811 birds involved), and 25 are reports of a total of 41 birds striking the rigging. The main species involved in vessel strikes were northern fulmars, Laysan albatross, storm petrels, and crested auklets, and for all vessel strikes, almost half of the birds were killed or injured. Dick and Donaldson (1978) documented over 6,000 crested auklets (*Aethia cristatella*) landing aboard a crab-fishing vessel near Kodiak Island, Alaska on 18 January 1977. The boat had bright fishing lights on, and the crew feared they might capsize as their center of gravity shifted under the weight of the birds. After the crew finally realized that their outside lights attracted the birds and turned them off, the accumulation of birds dissipated.

While this is a dramatic example, the authors note that "almost every fisherman with two or more years of experience can relate instances where hundreds of seabirds flew onto his vessel, often during a storm, though the conditions of such occurrences seem to vary" (Dick and Donaldson 1978). Where time of day was noted, most of the bird-vessel interactions occurred at night, and where weather was recorded, it was usually snowing, rainy or foggy. Birds are especially prone to strike vessels during storms or foggy conditions when bright deck lights are on, which can disorient them.

While most of the seabird species attracted to the longlines are diurnal (such as albatrosses),

seabirds, including Procellariiformes are attracted to lighted vessels at night wherever fisheries occur, even hundreds of miles from colonies (Cherel *et al.* 1996; Ryan and Watkins 1999; Weimerskirch *et al.* 2000). Mitigation measures for reducing seabird bycatch in the longline fisheries from several countries acknowledge that birds are attracted to lights and require minimal vessel light use at night for this reason (see for example, National Oceans Office - Australia web site: <http://www.oceans.gov.au/>). Organizations working on reducing seabird bycatch, such as BirdLife International - Seabird Conservation Programme, include in their general recommendations for avoiding seabird bycatch in longline fisheries to keep deck lighting to a minimum (without compromising safety) and all deck lights should be *shaded and be directed towards the deck*. Implementation of this recommendation may be more feasible for fisheries in Alaska, where light is limited during the winter. (see web site: www.uct.ac.za/depts/stats/adu/seabirds/bycatch.htm).

In summary, relative to the continued implementation of the BSAI and GOA FMPs, the Service anticipates direct adverse effects to short-tailed albatross from: (1) incidental catch on baited hooks from longline fishing activities while the birds are surface feeding; and (2) collisions with vessels using trawl fishing gear with sonar transducer wire (third wire), and indirect effects from contaminants and vessel strikes.

2. Steller's Eider - Indirect effects

No direct effects to Steller's eiders are anticipated from continued implementation of the BSAI and GOA FMPs. The indirect effects to Steller's eider most pertinent to the present consultation result from commercial fishing and contaminants. As indicated below, these two threats are not completely separable in the case of this species.

Unlike short-tailed albatross, Steller's eiders do not follow fishing vessels at sea and are therefore unlikely to be adversely directly affected by hook-and-line or trawl operations. Within the commercial fishing industry, Steller's eider may be adversely affected by vessel-related petroleum releases, vessel strikes, and seafood processing in the vicinity of where these birds congregate.

a. Petroleum Spills

The Alaska Department of Environmental Conservation database of reported spills indicates that a minimum of 18,000 gallons of petroleum products tied to the commercial fishing/seafood processing industry were released into the marine environment between July 22, 1995 and March 24, 2000. The releases of petroleum logged in the database include spills associated with fueling facilities, the release of oil with bilge water, releases of lubricants and hydraulic oil (likely associated with maintenance activities), and the grounding and/or sinking of vessels.

Many of these spills have coincided with the anticipated concurrent presence of Steller's eiders. For example, approximately 175 gallons of petroleum spilled between March 16, 1998, and April 21, 1999, is attributable to the operations of Trident Seafoods at Sand Point². Up to 1,153 Steller's

²Although the Service recognizes that NMFS does not authorize activities/operations of shoreside processors, such as the Trident plant, these facilities would not be occurring but for the fishing activities that NMFS does authorize.

eiders have been documented near Sand Point during one recent survey event (Larned 2000).

Given the remoteness and immense geographic extent of the Aleutian Islands, it seems likely that many petroleum spills may go unreported. During the winter of 1999/2000 a Fish and Wildlife Service biologist was at Akutan Harbor on three occasions in conjunction with feasibility studies for a boat harbor. On each of these three separate site visits a spill was observed in Akutan Harbor, where up to 727 Steller's eiders were documented during one survey event (Larned 2000) and many more likely pass through during migration. None of these three spills was included in the ADEC data base of reported spills.

Based on their review, Day and Pritchard (2000) predict that at least 4,800 gallons of petroleum products will be released into the marine environment during an average year across the 10 harbors assessed within their study. Steller's eiders are anticipated to occur regularly at 8 of these harbors. Of these spills, many occur, or can be carried into, the wintering range of the Steller's eider. Based on the gregarious behavior of Steller's eiders, if the petroleum slick and the Steller's eiders coincide, a large number of birds will be adversely affected.

An abundance of experimental evidence indicates that almost all aspects of reproduction may be affected by the ingestion of petroleum. (Holmes 1984). Ingestion of petroleum may interfere with the normal sequence of hormonal changes necessary to maintain fecundity and ensure reproductive success (Holmes 1984).

In addition to the immediate, acute effects of an oil spill, spilled petroleum products can pose a chronic risk to Steller's eiders, from fuel oil trapped in the sediment. Based on a study by Trust *et al.* (2000), annual survival of female harlequin ducks was lower in areas oiled from the 1989 Exxon Valdez oil spill than in unoiled areas. This indicates that some species of sea ducks are vulnerable to the potential deleterious effects of oil exposure at least 9 years following a spill (Trust *et al.* 2000, Esler *et al.* 2000). Because Steller's eiders, like harlequin ducks, forage in nearshore areas and on similar organisms (Goudie and Ankney 1986, Bustnes *et al.* 2000, Fisher and Griffin 2000), they also are susceptible to the long-term effects of a spill.

The physical aspects of oiling can also adversely affect this species. Even slight petroleum contamination decreases insulation capability of feathers and can cause an increase in basal metabolism of 10 percent (Holmes 1984). Following exposure, the bird will be stressed further by an increase in metabolism, to compensate for heat loss, which will lead to a higher respiratory rate and subsequent water loss (Holmes 1984). Direct exposure in a cold marine environment, coupled with the toxic effects of any ingested petroleum, will likely result in mortality.

Release of petroleum into the marine environment both contaminates and reduces the availability of prey (Glegg 1999). Because Steller's eiders eat a wide variety of mollusks, including snails, as well as other invertebrates, the release of petroleum into their habitat can reduce their prey availability. For a species near its energetic threshold, reduced prey availability can result in mortality.

Day and Pritchard (2000) noted that most releases of petroleum occurred during fueling operations. Thus, it seems reasonable to conclude that the incidence of accidental petroleum spills

will increase or decrease, in direct relationship with the amount of vessel traffic and subsequent fueling operations in an area. Although the NMFS is not able to predict the number of vessels participating in the groundfish fisheries in future years, the DSEIS indicates that numbers seem to have decreased for most vessel types in both the BSAI and GOA from 1991 to 1999. This would imply a lessened effect, as the threat of oil spills relates to the number of fishing vessels from the BSAI and GOA groundfish fleet that operate (refuel, dock, offload cargo) in the nearshore environment within the range of Steller's eiders.

The Service has addressed effects to Steller's eiders resulting from vessel petroleum contamination in several previous consultations (USFWS 2001c, 2002b). We believe that these effects are more appropriately addressed in consultation with the Corps of Engineers (COE), Environmental Protection Agency (EPA), and the U.S. Coast Guard (USCG) than in this consultation, as the link between action and petroleum-related take is more directly tied to the actions facilitated by the COE, EPA, and USCG than to those facilitated by NMFS. Furthermore, the regulatory authorities of these agencies more effectively control the release of petroleum products into marine waters.

b. Vessel Strikes

Eiders may collide with vessels during adverse weather conditions or at night, when decks are lit with bright floodlights. Striking of vessels by eiders in Alaska has been documented but has not been quantified; however, there have been many observations of seabirds striking vessels, as indicated above. Information (largely anecdotal) on file (USFWS) indicates that Steller's eiders staging, molting, and wintering in close proximity to fishing vessels are at increased risk of striking vessels. In a recent BO, the Service estimated that one Steller's eider of the listed Alaska breeding population would be taken as a result of striking vessels fishing and transiting Nelson Lagoon, in association with expanding a bulk fuel facility in that area (USFWS 2002b).

c. Seafood Processing

Past and present impacts include the degradation of habitat due to the release of organic waste into nearshore marine waters and into bays. The addition of large quantities of organic material into relatively enclosed areas such as bays can increase biological oxygen demand and cause shifts in the structure of plant and animal communities in the eider's environment. Organic waste outfall can smother benthic communities, reducing benthic diversity, distribution and abundance (Sibley *et al.* 2001), thereby reducing foraging opportunities for Steller's eiders in the area affected by the outfall. This may be especially critical during the winter, when the birds' food reserves are low. It is unknown what effects actual consumption of the outfall may have on the species. Further, vessels concentrate in particular areas near seafood processors, increasing the chances for petroleum pollution, as described above.

3. Effects to Steller's Eider Critical Habitat

Figures 4 and 5 show the distribution of longline and trawl set observations, respectively, relative to eider critical habitat. The critical habitat for Steller's eiders on the Alaska Peninsula is designated primarily in lagoons and bays, where the eiders congregate during molting and overwintering. As can be seen, there is very little trawl or longline fishing activity in the immediate vicinity of this critical habitat; fishing activity is concentrated primarily along the shelf break, in

open waters to the north and west of the critical habitat area. From this information, we can conclude that there will be no direct disturbance effects from fishing activities covered in this consultation to the eiders or their critical habitat.

The FMP action that is the subject of this consultation should also have no direct effect on prey availability for Steller's eiders (a component of critical habitat). As mentioned above, these sea ducks feed primarily on a variety of gastropods, mollusks, and crustaceans found in near-shore marine waters. These marine invertebrates are clearly not targeted by the groundfish fishery under consideration in this consultation.

As indicated above, fisheries operations in the BSAI and GOA can negatively impact Steller's eiders and their habitat indirectly, through accidental release of petroleum products and through the discharge of byproducts of seafood processors into nearshore marine waters. The Service has recently conducted a consultation with the Environmental Protection Agency on the effects to Steller's eiders from their permitting of seafood processors in Alaska (USFWS 2001). In the associated BO, the Service concluded that the effects of this action (including the effects of organic discharges and accidental petroleum spills) did not reach the level of adverse modification of critical habitat or jeopardy to the species. Because the indirect effects to Steller's eiders and their habitat under consideration in the present consultation are virtually congruent with the effects considered in the consultation with EPA (i.e., the seafood processors would not be present but for the fisheries that supply the seafood), the same conclusion applies.

It is worth noting that in the Incidental Take Statement accompanying the EPA BO, the Service anticipated that a maximum of one (1) acre of Steller's eider wintering, molting, migration, and/or staging habitat may be taken by each seafood processor per year, as a result of *non*-petroleum-related activities. This incidental take is synonymous with that addressed in Section 2c above.

The Service believes that habitat effects resulting from seafood processor discharge are more appropriately addressed in an NPDES consultation with EPA than in a FMP consultation with NMFS, as the link between action and take is much more direct and the regulatory authorities of EPA more effectively control the effluent activities of the processors.

4. Cumulative Effects – Short-tailed Albatross and Steller's Eider

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this BO. Future Federal actions that are unrelated to the proposed action are not considered, because they require separate consultation pursuant to section 7 of the Act.

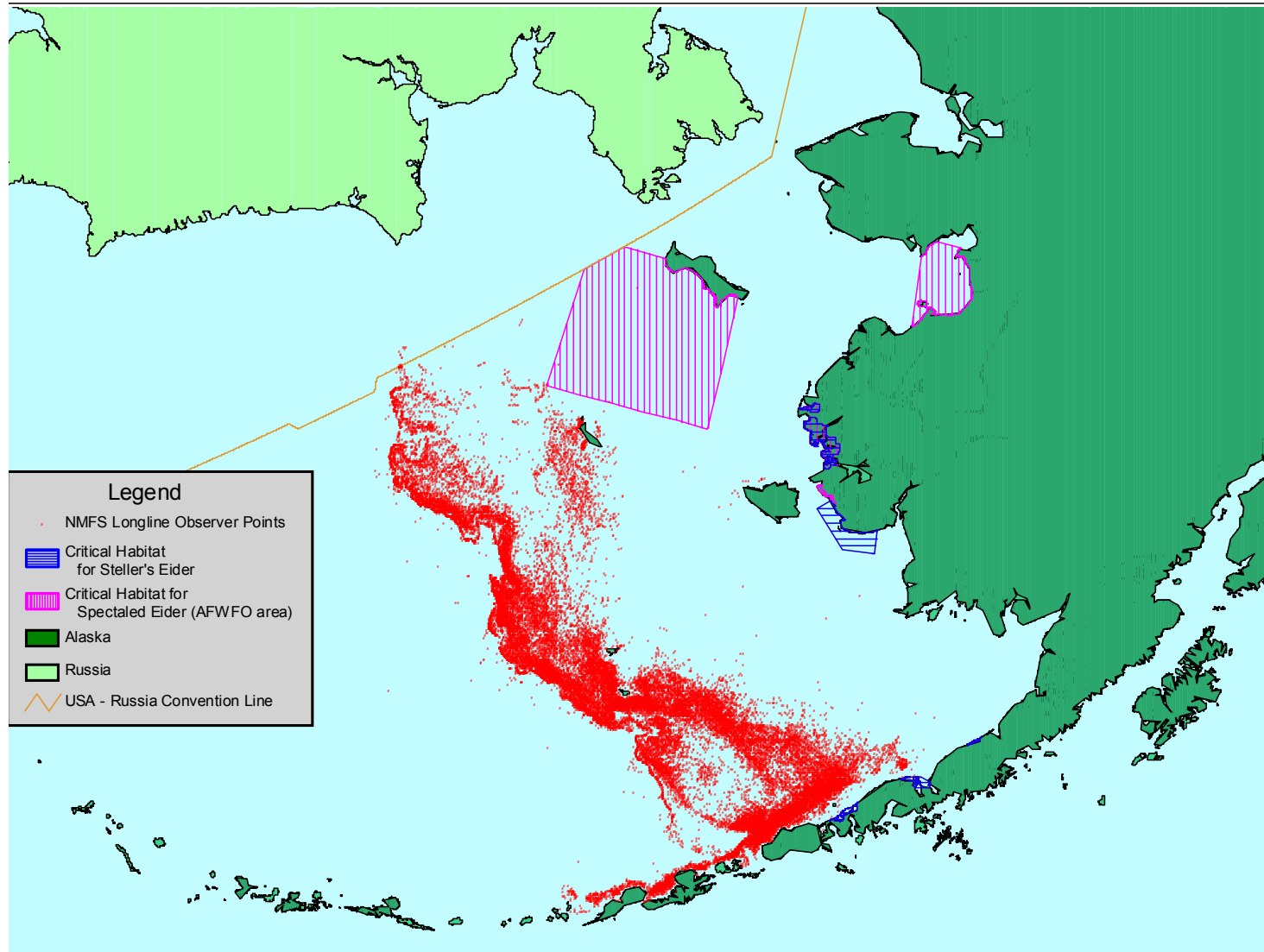


Figure 4 - NMFS longline observer points and eider Critical Habitat

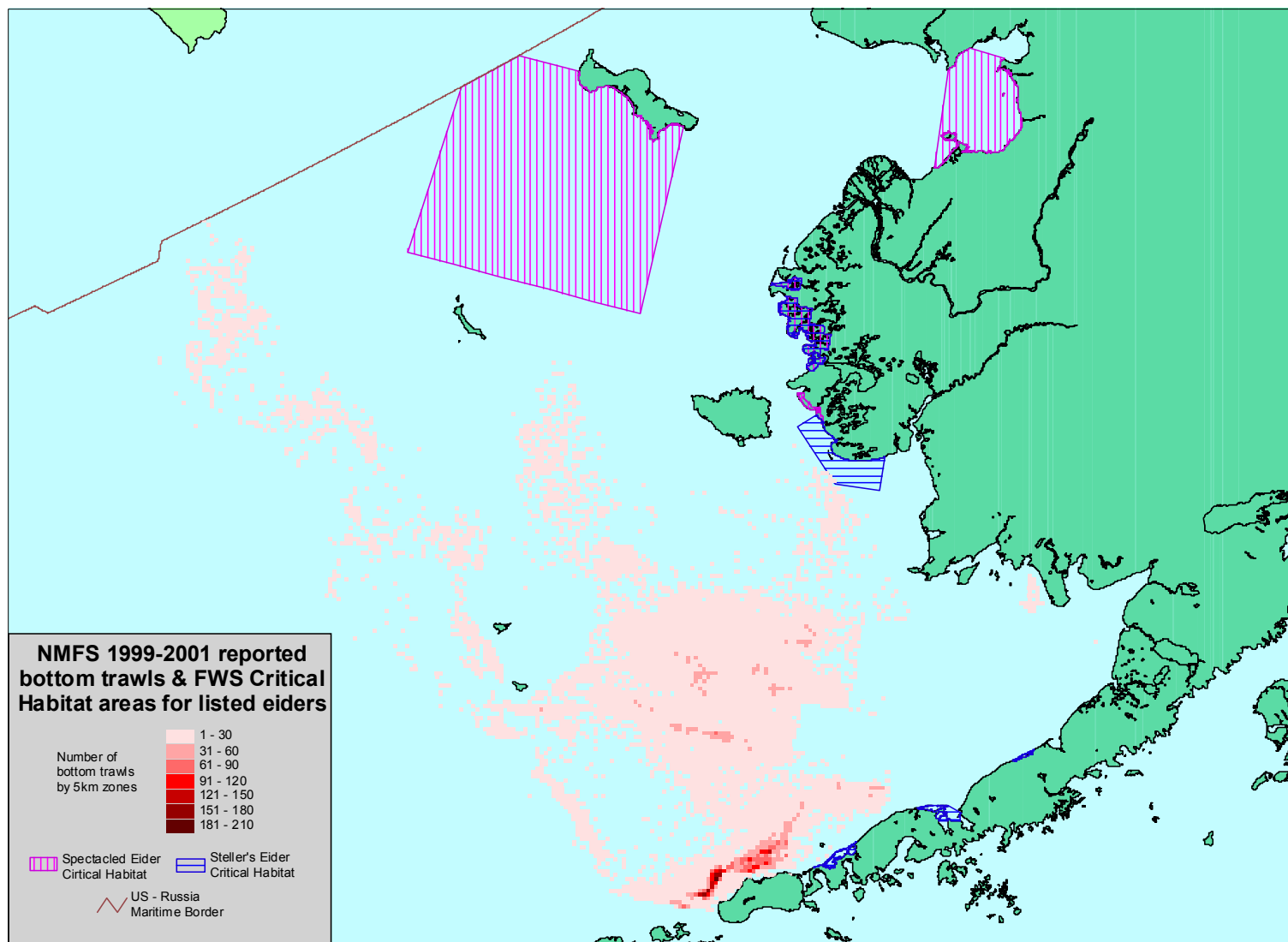


Figure 5-NMFS 1999-2001 reported bottom trawl locations

Some level of illegal take by subsistence and sport hunters in Alaska of the Steller's eider is reasonably certain to continue. In addition, some Steller's eiders eggs may continue to be collected for illegal trade purposes. The Service recently completed an intra-Service consultation on the subsistence harvest issue, and is presently conducting an intra-Service consultation on the Fiscal Year 03 Migratory Bird hunt.

There is some potential for oil spills not related to this proposed action to occur in the action area, which could affect short-tailed albatrosses and Steller's eiders, but the likelihood of such an occurrence is not known. Global oil transport occurs on a regular basis between numerous countries that would ship oil throughout the action area. Near Alaska, oil transport occurs from the terminus of the Trans-Alaska pipeline in Valdez, Alaska, to refineries along the shores of the U.S. West Coast and Texas year round. Fuel oils are transported through waters offshore of the Aleutian Islands and the Bering Sea to coastal Alaska communities, primarily during the open water season (i.e., when icing conditions permit).

Clam, abalone, octopus, squid, snail, scallop, geoduck clams, sea urchins, and sea cucumbers are harvested throughout Alaska (NMFS 2000). Of these, squid are the most likely prey of short-tailed albatrosses. Most of the catch of shellfish is taken from April to September, and they are taken by hand-picking, shovel, trawl, pot, and dredge gear. Harvest levels were relatively consistent through the 1980s, but have increased dramatically in amount and annual variation in the 1990s (NMFS 2000). There is currently no information on how the take of squid may impact short-tailed albatrosses.

Direct harvest of short-tailed albatrosses in Japan today is apparently rare. H. Hasegawa (pers. comm. November 2002) reports that some local Japanese fishermen in Izu and Ryukyu Islands hunt seabirds and may take some short-tailed albatrosses, but the likelihood of take and its magnitude are unknown. As indicated above, short-tailed albatrosses are designated in Japan as a Special National monument, and their direct take is forbidden (H. Hasegawa, pers. comm. November 2002).

Longline fisheries managed by the State of Alaska occur between 0 and 3 nautical miles from shore. For most groundfish fisheries, the Alaska Department of Fish and Game (ADF&G) issues Emergency Orders (EOs) for State waters that duplicate all NMFS groundfish fishery management actions. These EOs establish parallel fishing seasons, such that vessels may fish for groundfish in either State or Federal waters. Available data indicate that in 1995, the harvest of all groundfish in state-managed waters amounted to only slightly over half a percent of the harvest in Federally-managed waters. Thus, while the likelihood of take of short-tailed albatross in State-managed fisheries is smaller than in Federally-managed fisheries, the rate of take is unknown, due primarily to the lack of observer coverage on small vessels fishing within 3 miles of shore.

Steller's eiders, however, usually remain within about 400 meters of shore normally in water less than 10 meters deep (although they may also be found well offshore in shallow bays and lagoons or near reefs). Although the likelihood of incidental catch by baited hooks is small due to the foraging habitats of this species, there is the potential for collisions with fishing gear, wires, and vessels in State waters. Commercial fisheries using nets in near-shore waters (within 3 nm of

shore) may also impact Steller's eiders. At this time, information on potential conflicts with nets is not available. However, Steller's eiders are susceptible to entanglement in gill-nets (Zydalis and Skeiveris 1997). Therefore, any fishery employing gill nets in waters that are being used by Steller's eiders may result in take of this species. We are currently working with the Alaska Department of Fish and Game to determine the appropriateness of developing a Habitat Conservation Plan for fishing and other activities authorized by the State of Alaska in coastal waters.

Although the effects of other Federal actions are not considered as cumulative effects, it is worth noting that the Service has previously anticipated the incidental take of one short-tailed albatross per year in the Hawaii-based longline fishery (USFWS 2002), and one short-tailed albatross per year in Alaska's Pacific halibut fishery (USFWS 1998). The Service has also anticipated incidental take of 21 Steller's eiders over a projected 50-year life span of project activities in Nelson Lagoon (USFWS 2002b) and one Steller's eider per year through the collisions with the rigging/structures associated with the operation of seafood processors (USFWS 2001).

It is presumed that foreign hook-and-line fisheries in the North Pacific Ocean and Bering Sea will continue in the future. The effort expended in these fisheries, the spatial distribution of that effort, and the number of seabirds caught remains unknown; efforts are underway to obtain this information from several Pacific Rim Nations. Japan has drafted a National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries (submitted to FAO February, 2001) indicating that at least Japan, a major participant in north Pacific fisheries, is aware of the problem and plans to address the issue.

In the absence of a current level of impact or rate of take on which to base a prediction of future impacts from these foreign fisheries, we assume that there is no reason to anticipate that any future State, private or local actions will result in greater impacts to the Steller's eider and short-tailed albatrosses than those which are already occurring. In other words, we assume that the level of impacts from these sources will remain unchanged in the foreseeable future. As such, they represent the environmental baseline conditions within which the present action is considered.

5. Effects of Take to Population Performance:

a) Short-tailed albatross

A Population Viability Analysis (PVA) conducted by the Service in 2000, as part of a BO, relative to the Hawaiian longline fishery (USFWS 2000) indicates that while the Torishima Island short-tailed albatross population is resilient, impacts from fisheries represent a hurdle to reestablishing a large population with multiple breeding sites, the historic condition of this species. The PVA also indicates that relatively small increases in take, especially of adult birds, can slow population growth.

The Service, in conjunction with NMFS, has also developed a dynamic, individual-based, age-structured, stochastic model to simulate short-tailed albatross population dynamics and explore the effects of different hypothetical levels of incidental take (Cochrane and Starfield 1999). The

model indicates that the current estimated take level would have to be increased by 5-fold before 50% of their simulations fell below a 7% growth rate threshold. Their model further indicates that incidental take of between 9 and 14 birds per year over and above the currently documented longline fishery take would result in an additional 1 percent mortality of the population.

Cochrane and Starfield (1999) caution that because the short-tailed albatross are at high potential risk from catastrophic events such as a volcanic eruption on Torishima Island, an oil spill near their nesting grounds, or severe weather events, the effects of chronic incidental take associated with Alaska's fisheries could be more serious than their simulations portray. If the population was reduced catastrophically to very small numbers, or if fecundity or survival rates declined for other reasons, the ongoing level of incidental take from fisheries could have serious consequences for the reduced population. The risk of species decline due to volcanic or other events at Torishima will remain high until other nesting colonies are established.

The natural recovery rate for the short-tailed albatross appears high. The loss of two individual albatrosses per year at a population level of approximately 1700 birds represents a 0.1% decrease in population growth rate. However, the short-tailed albatross population has continued to grow since 1950, and is currently growing at a rate of 7 to 8 percent per year. In the absence of additional disturbances beyond those that have occurred in the last several decades (i.e., without catastrophic volcanic events), and assuming that habitat enhancement and management projects by the Japanese government will continue on the nesting grounds, the population can be expected to continue to recover, even with the current estimated level of fishery related mortality. The newly formed recovery team for this species will have to decide the appropriate target growth rate for the species.

b) Steller's eider

The natural resilience of the Steller's eider is not known. The decline of Steller's eiders that molt and overwinter in Alaska (i.e., the majority of the world population) appears to be continuing (Flint *et al.* 2000). Thus, the Steller's eider does not appear to be resilient enough to overcome the mortality factors causing its decline. This apparent lack of resilience may be due to the species' naturally low fecundity, coupled with the premature loss of adult birds from the effective population.

The natural recovery rate of Steller's eiders is not known. Recovery rate is a relative response and is tied, in large part, to traits of the species' life history. In general, long-lived species with low annual fecundity should have a relatively slow recovery rate as compared to a long-lived species with high annual fecundity. Based on the Steller's eider low fecundity [i.e., small clutch sizes, high variability in nesting attempts, and generally low nest success (Quakenbush *et al.* 1995, D. Solovieva *pers. com.* 2000)], this species would appear to have a naturally slow recovery rate. Increasing the loss of adult birds over natural conditions would further slow the recovery rate of this species.

When considering effects of implementation of the FMPs to Steller's eiders, a number of factors must be taken into consideration. For example, it should be noted that virtually no trawl or

longline fishing effort overlaps with areas of high Steller's eider concentration (see Figures 2, 4 and 5). The fisheries occur mostly along open water shelf break areas, whereas Steller's eiders concentrate mostly in lagoons and bays. Fishing vessel contact with Steller's eiders would occur primarily when the boats are re-fueling or off-loading in harbor areas. Also, any "take" of *listed* (Alaska-breeding) Steller's eiders associated with fuel spills would be small, because, as indicated above in section V.B, we estimate that only 4.2 percent of all Steller's eiders observed on the wintering grounds in Alaska are from the listed Alaska breeding population. Finally, it appears from the best available data that the number of fishing vessels has been decreasing in recent years, thus potentially decreasing the possibility of petroleum spill-related effects to Steller's eiders.

VII. CONCLUSION

After reviewing the current status of the short-tailed albatross and Alaskan breeding population of Steller's eider, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's BO that implementation of the programmatic BSAI and GOA FMPs for the groundfish fisheries, as proposed, is not likely to jeopardize the continued existence of either the short-tailed albatross or the Steller's eider, or result in adverse modification of critical habitat for Steller's eider. (No critical habitat has been designated for the short-tailed albatross.)

This conclusion is based on a number of factors, including:

For short-tailed albatross:

- (1) the species' current population growth rate;
- (2) the projected effect of fisheries-related take, as recently modeled (Cochrane and Starfield 1999);
- (3) the recent development and adoption by the fishing industry of improved seabird avoidance methods and devices; and
- (4) the continued protection of the main breeding colony on Torishima Island in Japan.

Based on our analysis of the above factors, the Service does not anticipate this proposed action would preclude the continued recovery and survival of the short-tailed albatross.

For Steller's eider and their critical habitat:

- (1) the lack of distributional overlap between areas of high Steller's eider concentration and observed longline and trawl fishing effort;
- (2) the recent decline in the number of fishing vessels participating in groundfish longline fisheries; and
- (3) the low number of Alaskan breeding ground birds likely to be affected.

Based on our analysis of the above factors, the Service does not anticipate this proposed action would preclude the recovery and survival of Steller's eiders, or result in the adverse modification of their critical habitat.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

Currently, the Service is unable to anticipate all possible circumstances related to continued implementation of FMPs, including programmatic actions or individual actions that might be developed in the future, that may involve take of the short-tailed albatross or Steller's eider. The best scientific and commercial data available are not sufficient to enable the Service to estimate accurately the amount or extent of take which may occur as a result of these programmatic actions. For this reason, and the fact that FMPs do not directly authorize actions that may result in take of the short-tailed albatross or Steller's eider, we are deferring the exemption of such take to future Federal actions that will occur under the FMP "umbrella." The Total Allowable Catch (TAC) consultation, which is now in process, is one such action.

As previously mentioned, the Service and NMFS will re-evaluate the effectiveness of this programmatic BO as new information becomes available, to ensure that continued implementation of the FMPs will not result in unacceptable effects to listed species or the ecosystems upon which they depend. In addition, if at any time information becomes available indicating that impacts are markedly different from those anticipated in this BO, formal consultation will be reinitiated with the National Marine Fisheries Service.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. Conservation recommendations pursuant to the proposed actions are included in the accompanying Biological Opinion on the TAC-setting process.

REINITIATION NOTICE

This concludes formal consultation on the proposed action. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary NMFS involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the NMFS action that may affect listed species or critical habitat in a matter or to an extent not considered in this BO; (3) the NMFS action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this BO; or (4) a new species not covered by this opinion is listed or critical habitat designated that may be affected by this action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take should cease pending reinitiation.

In the case of the BSAI and GOA FMPs, however, which have been amended many times, reinitiation of consultation may not be appropriate whenever a modification occurs to either FMP. Instead, NMFS should contact the Service as new information becomes available or as the FMP is modified, and the agencies will jointly determine whether such new information or management changes warrant a reinitiation of consultation.

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APPENDIX I - NMFS Proposed revisions to seabird avoidance measures in the hook-and-line fisheries off Alaska, February 7, 2003 (68 FR 6386)

NMFS proposes seabird avoidance measures that would apply to the operators of vessels using hook-and-line gear for (1) Pacific halibut in the IFQ and Community Development Quota (CDQ) management programs (0 to 200 nm), (2) IFQ sablefish in EEZ waters (3 to 200 nm) and waters of the State of Alaska (0 to 3 nm), except waters of Prince William Sound and areas in which sablefish fishing is managed under a State of Alaska limited entry program (Clarence Strait, Chatham Strait), and (3) Groundfish (except IFQ sablefish) with hook-and-line gear in the U.S. EEZ waters off Alaska (3-200 nm). Operators of all applicable vessels using hook-and-line gear would be required to comply with the following bird line requirements:

For Applicable Vessels Operating in Inside Waters (NMFS Area 649, NMFS Area 659, and State Waters of Cook Inlet):

- (1) A minimum of 1 buoy bag line of a specified performance standard would be required of vessels greater than 26 ft (7.9 m) LOA and less than or equal to 55 ft (16.8 m) LOA that are without masts, poles, or rigging;
- (2) A minimum of 1 buoy bag line of a specified performance standard is required of vessels greater than 26 ft (7.9 m) LOA and less than or equal to 32 ft (9.8 m) LOA and with masts, poles, or rigging;
- (3) A minimum of 1 streamer line of a specified performance standard is required of vessels greater than 32 ft (9.8 m) LOA and less than or equal to 55 ft (16.8 m) LOA and with masts, poles, or rigging; and
- (4) A minimum of 1 streamer line of a specified performance standard is required of vessels greater than 55 ft (16.8 m) LOA.

For Applicable Vessels Operating in the EEZ (not including NMFS Area 659):

- (1) A minimum of 1 buoy bag line of a specified performance standard and one other specified device is required of vessels greater than 26 ft (7.9 m) LOA and less than or equal to 55 ft (16.8 m) LOA that are without masts, poles, or rigging;
- (2) A minimum of 1 streamer line of a specified performance standard and one other specified device is required of vessels greater than 26 ft (7.9 m) LOA and less than or equal to 55 ft (16.8 m) LOA and with masts, poles, or rigging; and
- (3) Except for vessels using snap gear, a minimum of paired streamer lines of a specified performance standard is required of vessels greater than 55 ft (16.8 m) LOA.

For Applicable Vessels Using Snap Gear:

- (1) A minimum of 1 buoy bag line of a specified performance standard and one other specified device is required of vessels greater than 26 ft (7.9 m) LOA and less than or equal to 55 ft (16.8 m) LOA and that are without masts, poles, or rigging;
- (2) A minimum of 1 streamer line of a specified performance standard and one other specified device is required of vessels greater than 26 ft (7.9 m) LOA and less than or equal to 55 ft (16.8 m) LOA and with masts, poles, or rigging; and
- (3) A minimum of 1 streamer line of a specified performance standard is required of vessels greater than or equal to 55 ft (16.8 m) LOA and with masts, poles, or rigging.

Other seabird avoidance devices and methods include weights added to groundline, a buoy bag line or streamer line of specified performance standards, and strategic offal discharge to distract birds away from the setting of baited hooks, that is, discharge fish, fish parts (i.e. offal) or spent bait to distract seabirds away from the main groundline while setting gear.

Gear Performance and Material Standards

Current information indicates that bird deterrent devices must be carefully constructed with the deterrent purpose in mind if they are to be effective. Given the variability of vessel sizes and configurations in the hook-and-line fisheries off Alaska, a single set of specific construction standards for bird lines would not be universally effective or practical. To enhance the effectiveness and improve the enforcement of seabird avoidance measures, the proposed rule would specify the gear performance and material standards for larger vessels (vessels greater than or equal to 55 ft (16.8 m) LOA). Voluntary guidelines for gear performance and material standards for smaller vessels (vessels greater than or equal to 26 ft (7.9m) and less than 55 ft (16.8 m) LOA) are provided, and vessel operators are encouraged to comply with them.

Proposed Standards for Larger (Vessels Greater than 55 ft (16.8 m) LOA) Vessels

Paired Streamer Standard

NMFS proposes that larger vessels deploy a minimum of two streamer lines while setting hook-and-line gear. Preferably, both streamer lines will be deployed prior to the first hook being set. At least one streamer line must be deployed before the first hook is set and both streamers must be fully deployed within 90 seconds. An exception to this standard would exist in conditions of wind speeds exceeding 30 knots (near gale or Beaufort 7 conditions), where it would be acceptable to fly a single streamer from the windward side of the vessel. In winds exceeding 45 knots (storm or Beaufort 9 conditions), the deployment of streamer lines would be discretionary.

Further, streamer lines would have to be deployed in such a way that streamers are in the air for a minimum of 131.2 ft (40 m) aft of the stern for vessels under 100 ft (30.5 m) and 196.9 ft (60 m) aft of the stern for vessels 100 ft (30.5 m) or over.

For vessels deploying gear from the stern, the streamer lines would have to be deployed from the stern, one on each side of the main groundline. For vessels deploying gear from the side, the streamer lines would have to be deployed from the stern, one over the main groundline and the other on one side of the main groundline.

Materials Standard

NMFS proposes the following minimum streamer line specifications:

- (1) Length of 300 feet (91.4 m);
- (2) Spacing of streamers every 16.4 ft (5 m); and
- (3) Streamer material that is brightly colored, UV-protected plastic tubing or 3/8 inch polyester line or material of an equivalent density.

An individual streamer must hang attached to the mainline to 0.25 m above the waterline in the absence of wind.

Snap Gear Streamer Standard

For vessels using snap gear, a single streamer line (147.6 ft (45 m) length) deployed in such a way that streamers are in the air for 65.6 ft (20 m) aft of the stern and within 6.6 ft (2 m) horizontally of the point where the main groundline enters the water.

Guidelines for Standards for Smaller Vessels

For vessels greater than 26 ft (7.9 m) and less than or equal to 55 ft (16.8 m) LOA, a performance standard would be voluntarily implemented as guidelines. If new information becomes available suggesting revised standards for smaller vessels, then these revised standards could be proposed as regulatory requirements. Performance Guidelines for Bird Line Requirements are as follows:

Buoy Bag Line Standard

A buoy bag line (32.8 to 131.2 ft (10 to 40 m) length) is deployed so that it is within 6.6 ft (2 m) horizontally of the point where the main groundline enters the water. The buoy bag line must extend beyond the point where the main groundline enters the water.

Single Streamer Standard

A single streamer line must be deployed in such a way that streamers are in the air for a minimum of 131.2 ft (40 m) aft of the stern and within 6.6 ft (2 m) horizontally of the point where the main groundline enters the water.

Materials Standard

NMFS proposes the following minimum streamer line specifications:

- (1) Length of 300 feet (91.4 m);
- (2) Spacing of streamers every 16.4 ft (5 m); and
- (3) Streamer material that is brightly colored, UV-protected plastic tubing or 3/8 inch polyester line or material of an equivalent density.

An individual streamer must hang attached to the mainline to 0.25 m above the waterline in the absence of wind.

Snap Gear Streamer Guideline

For vessels using snap gear, a single streamer line (147.6 ft (45 m) length) deployed in such a way that streamers are in the air for 65.6 ft (20 m) aft of the stern and within 6.6 ft (2 m) horizontally of the point where the main groundline enters the water.

Proposed Offal Requirements

The offal discharge regulation would be amended to require that prior to offal discharge, embedded hooks would be removed from offal. Otherwise, scavenging birds could become hooked while feeding on discharged fish offal. Hooked birds could eventually suffer increased mortality.

WSGP researchers observed on some cod vessels the continual discharge of residual bait and in some cases the discharge of offal through dedicated chutes or pipes at the stern during the set, directly over baited hooks. This attracted birds into the area where baits were sinking, aggravating seabird interactions with the gear (WSGP final report). Eliminating such directed discharge of residual bait or offal over sinking longlines would reduce the attractiveness of this area to birds and thus reduce the likelihood of birds attacking the bait and becoming hooked and drowning.

See summary table of proposed seabird avoidance requirements, following page (Table A-1).

Table A-1 - Seabird Avoidance Gear Requirements, Based on Area, Gear, and Vessel Type

<p>If you operate a vessel deploying hook-and-line gear, other than snap gear, in NMFS Reporting Area 649 (Prince William Sound), 659 (Eastern GOA Regulatory Area, Southeast Inside District) or state waters of Cook Inlet, and your vessel is...</p>	<p>Then you must use this seabird avoidance gear in conjunction with requirements at § 679.24(e)...</p>
<p>>26 ft to 32 ft LOA</p>	<p>minimum of one buoy bag line</p>
<p>>32 ft to 55 ft LOA and does not have masts, poles, or rigging</p>	<p>minimum of one buoy bag line</p>
<p>>32 ft to 55 ft LOA and has masts, poles, or rigging</p>	<p>minimum of a single streamer line</p>
<p>>55 ft LOA</p>	<p>minimum of a single streamer line of a standard specified at § 679.24(e)(5)(ii)</p>
<p>If you operate a vessel deploying hook-and-line gear, other than snap gear, in the EEZ (not including Area 659), and your vessel is...</p>	<p>Then you must use this seabird avoidance gear in conjunction with requirements at § 679.24(e)...</p>
<p>>26 ft to 55 ft LOA and does not have masts, poles, or rigging</p>	<p>minimum of one buoy bag line and one other device¹</p>
<p>>26 ft to 55 ft LOA and has masts, poles, or rigging</p>	<p>minimum of a single streamer line and one other device¹</p>
<p>>55 ft LOA</p>	<p>minimum of paired streamer lines of a standard specified at § 679.24(e)(5)(iii)</p>
<p>Except for vessels operating in state waters of IPHC Area 4E, if you operate a vessel deploying hook-and-line gear, and it is snap gear, and your vessel is...</p>	<p>Then you must use this seabird avoidance gear in conjunction with requirements at § 679.24(e)...</p>
<p>>26 ft to 55 ft LOA and does not have masts, poles, or rigging</p>	<p>minimum of one buoy bag line and one other device¹</p>
<p>>26 ft to 55 ft LOA and has masts, poles, or rigging</p>	<p>minimum of a single streamer line and one other device¹</p>
<p>>55 ft LOA</p>	<p>minimum of a single streamer line of a standard specified at § 679.24(e)(5)(iv) and one other device¹</p>

Table A-1 Cont'd.

<p>If you operate a vessel deploying hook-and-line gear, other than snap gear, in IPHC Area 4E (not including state waters), and your vessel is...</p>	<p>Then you must use this seabird avoidance gear in conjunction with requirements at § 679.24(e)...</p>
<p>>26 ft to 55 ft LOA and does not have masts, poles, or rigging</p>	<p>minimum of one buoy bag line and one other device¹</p>
<p>>32 ft to 55 ft LOA and has masts, poles, or rigging</p>	<p>minimum of a single streamer line and one other device¹</p>
<p>>55 ft LOA</p>	<p>minimum of paired streamer lines of a standard specified at § 679.24(e)(5)(iii)</p>