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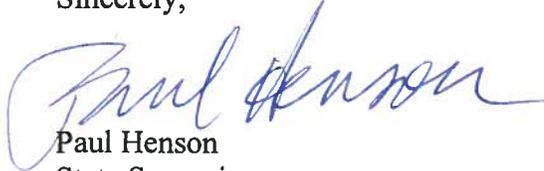
SUBJECT: Formal Consultation on the Continued Operation of the Pacific Coast Groundfish Fishery as Governed by the Pacific Coast Groundfish Fishery Management Plan and Implementing Regulations at 50 CFR Part 660 [FWS *reference*: 01EOFW00-2012-F-0086].

Dear Ms. Lockhart:

This letter and enclosed Biological Opinion (BO) responds to your request for formal consultation with the U.S. Fish and Wildlife Service (Service) pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq.*), as amended (Act). At issue in this consultation are the effects from the continued operation of the Pacific Coast Groundfish Fishery along the coasts of Washington, Oregon, and California within Federal waters and their effects on the federally endangered short-tailed albatross (*Phoebastria albatrus*), marbled murrelet (*Brachyramphus marmoratus*), California least tern (*Sterna antillarum browni*), southern sea otter (*Enhydra lutris nereis*), and the federally threatened bull trout (*Salvelinus confluentus*) and its designated critical habitat. Your request for formal consultation was received in our office on January 17, 2012. Because some information was missing in the original Biological Assessment (BA), formal consultation was not initiated until July 30, 2012. Our conclusion for formal consultation is that implementation of the activities as described within the BA would not jeopardize the continued existence of short-tailed albatross. We also concurred with your BA that the proposed action is not likely to adversely affect the marbled murrelet, California least tern, southern sea otter, bull trout, nor bull trout critical habitat.

If you have any questions regarding this BO, please contact Bridgette Tuerler at (503) 231-6956, or Jody Caicco at (503) 231-6179.

Sincerely,



Paul Henson
State Supervisor

Enclosure: BO

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Biological Opinion
Regarding the Effects of the Continued Operation of the Pacific Coast Groundfish Fishery
as Governed by the Pacific Coast Groundfish Fishery Management Plan and Implementing
Regulations at 50 CFR Part 660 by the
National Marine Fisheries Service

on

California Least Tern (*Sterna antillarum browni*),
Southern Sea Otter (*Enhydra lutris nereis*),
Bull trout (*Salvelinus confluentus*),
Marbled Murrelet (*Brachyramphus marmoratus*), and
Short-tailed Albatross (*Phoebastria albatrus*)
(FWS Reference Number 01EOFW00-2012-F-0086)

Prepared by the Oregon Fish and Wildlife Office
U.S. Fish and Wildlife Service
Portland, Oregon



Paul Henson, Ph.D., State Supervisor

11/21/12

Date

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INTRODUCTION

This document transmits the U.S. Fish and Wildlife Service's (USFWS) Biological Opinion (BO) based on our review of the continued operation of the Pacific Coast Groundfish Fishery (Fishery) described below that are proposed for continued operations by the National Marine Fisheries Service (NMFS) along the coasts of Washington, Oregon, and California within Federal waters and their effects on the federally endangered short-tailed albatross (*Phoebastria albatrus*), marbled murrelet (*Brachyramphus marmoratus*), California least tern (*Sterna antillarum browni*), southern sea otter (*Enhydra lutris nereis*), and the federally threatened bull trout (*Salvelinus confluentus*) and its designated critical habitat. This document was prepared in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). NMFS's January 17, 2012, request for formal consultation was received by the USFWS on January 17, 2012.

The USFWS concurs with NMFS that the proposed action is not likely to adversely affect marbled murrelet, California least tern, southern sea otter, bull trout nor bull trout critical habitat. A brief rationale for each concurrence is presented in Appendix A. These species and critical habitat will not be considered further in the consultation.

This BO is based on the following major sources of information: The January 17, 2012, Biological Assessment of continued operations of the Pacific Coast Groundfish Fishery (BA); the Recovery Plan for the Threatened Short-tailed Albatross (USFWS 2008, entire); Short-tailed Albatross (*Phoebastria albatrus*) 5-Year Review (USFWS 2009, entire); Estimated bycatch of Marine Mammals, Seabirds, and Sea Turtles in the US West Coast Commercial Groundfish Fishery, 2002-2009 (Jannot et al. 2011, entire); the Pacific Coast Groundfish Fishery Management Plan and implementing regulations at 50 CFR Part 660; our files; and informal consultation between NMFS and USFWS staff.

CONSULTATION HISTORY

In 2008, representatives of the USFWS Regional Office in Portland, Oregon, met at the NMFS facilities in Seattle with NMFS managers and council to discuss an amendment to the subject Fishery Management Plan (FMP). NMFS made a commitment to pursue a plan level consultation at that time.

On April 11, 2011, a short-tailed albatross was killed by a Pacific Coast Groundfish Fishery vessel's longline fishing gear. Specifically it was killed by a fixed demersal long-line vessel from the limited entry sablefish fishery approximately 65 kilometers off the Oregon coast.

On Friday, July 15th, 2011, the USFWS Regional Office in Portland, Oregon, received a telephone voicemail from NMFS' Sustainable Fisheries Program reporting the April 11, 2011, take (mortality) of short-tailed albatross via fixed demersal long-line sablefish fishing vessel off Astoria, Oregon.

On July 27, 2011, the USFWS received via email from NMFS' Sustainable Fisheries Program a copy of the observer report that recorded the taking of a short-tailed albatross off the Oregon

coast by a vessel operating under the authority of the Groundfish FMP. On August 4, 2011, the Fishing Vessel Owners' Associated advocated to the Pacific Fishery Management Council for regulatory changes implementing the use of streamer lines (Alverson 2011, entire).

On August 25, 2011, the USFWS provided NMFS comments on the draft BA.

On August 31, 2011, the USFWS received a request from NMFS for formal consultation, under the Act, on effects of the Groundfish FMP on the endangered short-tailed albatross.

On September 26, 2011, the USFWS sent an email to NMFS acknowledging the consultation request from NMFS. The USFWS informed NMFS at the time that the consultation package was not complete and we requested an updated consultation package at that time.

On October 12, 2011, the USFWS sent an email to NMFS that contained our full review of the August 31, 2011, consultation package.

On January 17, 2012, a final BA was submitted by NMFS to USFWS.

On February 16, 2012, the consultation assignment was transferred from the Regional Fish and Wildlife Office, to the Oregon Fish and Wildlife Office.

On March 29, 2012, the USFWS sent a letter requesting additional information. Additional information was obtained through informal communications, including emails.

On July 30, 2012, formal consultation was officially initiated by this office, upon concurrence with NMFS that all available information had been obtained.

At the June PFMC meeting, 2012, Tim Roth, USFWS Representative on the Pacific Fishery Management Council (PFMC), informed the PFMC that USFWS was going to be requesting mandatory streamer line use on large commercial longline vessels as part of the Reasonable and Prudent Measures, and Terms and Conditions that are included in this BO.

At the September PFMC meeting, 2012, NMFS and USFWS briefed the Groundfish Advisory Panel on the draft Reasonable and Prudent Measures and Terms and Conditions in the draft USFWS and NMFS BOs. The Groundfish Advisory Panel submitted a report to the PFMC that supported the mandatory use of streamer lines on commercial longline vessels 55 feet and larger (Pacific Fishery Management Council 2012a, entire). Additionally, the Groundfish Management Team reviewed information from the draft BOs and supported both the mandatory streamer line regulations and the forming of a Pacific Coast Groundfish and Endangered Species Workgroup (Pacific Fishery Management Council 2012b, entire).

BIOLOGICAL OPINION

1.0 DESCRIPTION OF THE PROPOSED ACTION

The proposed action is the continued operation of the Pacific Coast Groundfish Fishery as governed by Pacific Coast Groundfish Fishery Management Plan and implementing regulations at 50 CFR Part 660. The Pacific Coast Groundfish Fishery is diverse and includes over 90 different fish species in the Pacific Coast Groundfish Fishery Management Plan that are caught by multiple commercial and recreational fisheries using many different gear types, except purse seines. Gill nets are used in California, but use is restricted to below latitude 38°N, which is near Point Reyes.

The target species of the fishery include the following:

- Rockfish (*Sebastes* complex). The plan covers 64 different species of rockfish.
- Flatfish (*Pleuronectiformes* complex). The plan covers 12 species of flatfish.
- Roundfish. The six species of roundfish included in the fishery management plan are lingcod (*Ophiodon elongatus*), cabezon (*Scorpaenichthys marmoratus*), kelp greenling (*Hexagrammos decagrammus*), Pacific cod (*Gadus macrocephalus*), Pacific whiting (hake) (*Merluccius productus*), and sablefish (*Anoplopoma fimbria*).
- Sharks and skates. The six species of sharks and skates are leopard shark (*Stegostoma fasciatum*), soupfin shark (*Galeorhinus galeus*), spiny dogfish (*Squalus acanthias*), big skate (*Raja binoculata*), California skate (*Raja inornata*), and longnose skate (*Raja rhina*).
- Other species. These include ratfish (*Hydrolagus coliei*), finescale codling (*Antimora microlepis*), and Pacific rattail grenadier (*Coryphaenoides acrolepis*).

The NMFS manages/regulates the fishery in partnership with the PFMC and the states of California, Oregon, and Washington. The management framework for the fishery, which is described in the Pacific Groundfish Fishery Management Plan, includes a variety of fixed elements and routine management measures that may be adjusted through a biennial harvest specifications process and in season management actions. The management measures are intended to constrain the total fishing mortality to within Annual Catch Limits set for individual species or species complexes. Additionally, they are designed to achieve other goals and objectives that pertain to socioeconomics and equitable utilization of the resource. The current fishery management strategy is focused on rebuilding eight overfished species in the fishery. In general, because of the level of co-occurrence of species in the fishery, this means that fishing for most healthy species is limited by measures designed to rebuild the overfished species.

Regulations for the groundfish fishery are recommended by the PFMC and implemented by NMFS. NMFS may disapprove recommendations if they find they are inconsistent with implacable law. Active management of the fishery began in the early 1980's with the establishment of optimum yields for several managed species and vessel-trip limits for widow rockfish, and sablefish. The objective of trip limits has been to slow the pace of landings to maintain year-round fishing, processing, and marketing opportunities. Since the 1980's, regulations have evolved to further separate individual groundfish species for management

purposes and have led to the current use of cumulative two-month trip limits for most species. Cumulative trip limits are a specified weight of fish that can be landed during a particular time period. Beginning in 2011, commercial trawl fisheries are managed under a catch-shares program. Under this program, the total allowable catch in the Fishery is divided into shares that are controlled by fishermen. These shares, which represent the number of pounds available to catch, can be caught at the vessel's convenience throughout the season. The catch share program is intended to increase the Fishery's net economic benefits, create individual economic stability for participants, provide full utilization of the trawl sector groundfish allocation, consider environmental impacts, and achieve individual accountability of catch and bycatch.

Implementation of the catch shares program may change fishing patterns from historical norms. The program may incentivize fishermen to increase fixed gear effort in patterns that deviate from current levels. The magnitude of this deviation is not predictable; however, NMFS and the PFMC actively monitor fishing effort and produce periodic reports that will be available for monitoring of the Pacific Coast Groundfish Fishery.

The fishery is extensively monitored, including NMFS observer programs that monitor catch and discard at sea. The At-Sea Hake Observer Program places fishery observers on all vessels that process Pacific hake at-sea. The at-sea hake sector consists of eight to fourteen catcher-processor vessels and motherships, along with the associated catcher vessels, that begin fishing in mid-May of each year and continue until the hake quota is reached or until bycatch caps are met. All at-sea hake vessels (catcher-processors and motherships) over 125 feet are required to carry two observers, while vessels under 125 feet carry only one. As of January 2011, all catcher vessels delivering to at-sea processor vessels require 100% observer coverage as well.

Non-hake groundfish sectors are observed by a NMFS observer program, which was established in May 2001, by NMFS in accordance with the Pacific Fishery Management Plan (50 CFR Part 660) (50 FR 20609). This regulation requires that all vessels that catch groundfish in the U.S. Exclusive Economic Zone (EEZ) from 3 to 200 miles offshore carry an observer when notified to do so by NMFS or its designated agent. NMFS Observer Program observers are stationed along the U.S. west coast from Bellingham, Washington to San Diego, California.

The observer program covers the following Pacific Coast Groundfish Fishery sectors (percent of landings observed in 2009):

- At-sea Pacific hake catcher-processor (100%);
- At-sea Pacific hake mothership (100%);
- At-sea Pacific hake tribal (100%);
- Commercial limited access non-midwater trawl (23.1%);
- Commercial fixed gear limited access sablefish primary (tier endorsed)(8.7%);
- Commercial fixed gear limited access non-primary sablefish (non-endorsed and daily trip limit sectors)(2.4%); and,
- Commercial fixed gear open access daily trip limit (2.7%).

The longline fisheries of the Pacific Coast Groundfish Fishery are within the fixed gear sectors. More information on each of these sectors is available in annual reports available at:

www.nwfsc.noaa.gov/research/divisions/fram/observer/. Unobserved Pacific Coast Groundfish Fishery sectors include Tribal groundfish (non-hake), recreational, research, and non-groundfish fisheries that incidentally catch groundfish.

The NMFS Observer Program summarizes data collected from the U.S. West Coast Commercial Groundfish Fishery, 2002 -2009 (Jannot et al. 2011, entire). The U.S. West Coast Commercial Groundfish Fishery report includes the above Pacific Coast Groundfish Fishery sectors plus the additional fisheries sectors (percent of landings observed in 2009):

- Commercial state-permitted shrimp trawl (6.0%);
- Commercial limited access non-midwater trawl – targeting California halibut (6.0%);
- Commercial open access non-midwater trawl – targeting California halibut (0.7%); and,
- Commercial fixed gear state-permitted nearshore (Oregon/California)(4.3%).

The BA's Risk Assessment for the short-tailed albatross relies on data collected for a surrogate species, black-footed albatross (*Phoebastria nigripes*), from the NMFS Observer Program (Jannot et al. 2011, page 56). The Risk Assessment also includes foreseeable changes to the Pacific Coast Groundfish Fishery resulting from implementation of a catch shares program.

The NMFS has been working with fishermen and Washington Sea Grant to reduce the potential for seabirds to be injured or killed by the fishery (Table 1). Washington Sea Grant initiated a voluntary streamer line distribution pilot program with Tribal fisheries in 2009 and the major longline ports in the Oregon and Washington NMFS Observer Program in 2010. Streamer lines inhibit seabirds from attacking and ingesting baited hooks and drowning. Outreach includes training in proper use of streamer lines.

Table 1. The number of streamer lines distributed to the Pacific Coast longline vessels. Some vessels use more than one streamer line so the total number of vessels equipped with streamer lines is unknown.

Year	Federal	Tribal	Total
2009	52	115	167
2010	52		52
2011	2		2
Total	106	115	221

Fishermen have responded well to this outreach by using the streamer lines. Increased usage is anticipated as outreach efforts continue and more lines are made available. While it is not yet known with precision how seabird mortality rates are affected, the results are likely to be that fewer seabirds are killed. The NMFS Observer Program began documenting the use and characteristics of seabird avoidance gear on fixed gear vessels in 2009, and this information should be available for future analyses of bycatch of short-tailed and black footed albatross (*Phoebastria nigripes*) in future years (Jannot et al. 2011, page 29).

On July 25, 2012, NMFS provided financial support to Washington Sea Grant to continue research, outreach to the longline industry, and the construction and distribution of bycatch reduction devices. Outreach includes training in proper use of streamer lines.

1.1 Action Area

The action area is defined in the implementing regulations for section 7 at 50 CFR 402 as, "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action."

The portion of the fishery regulated and managed by NMFS occurs in Federal waters off the west coast with the fishery management area formally defined by regulation at 50 CFR 660.11 subpart C as:

"the Exclusive Economic Zone off the coasts of Washington, Oregon, and California between 3 and 200 nm offshore, and bounded on the north by the Provisional International Boundary between the U.S. and Canada, and bounded on the south by the International Boundary between the U.S. and Mexico. The inner boundary of the fishery management area is a line coterminous with the seaward boundaries of the States of Washington, Oregon, and California (the "3-mile limit"). The outer boundary of the fishery management area is a line drawn in such a manner that each point on it is 200 nm from the baseline from which the territorial sea is measured, or is a provisional or permanent international boundary between the U.S. and Canada or Mexico."

Although the consulted-on action of the continued operations of the Pacific Coast Groundfish Fishery regulated by NMFS occurs only between 3 and 200 nautical miles off the coast, fishing vessels will be transiting through the coastal waters to reach the EEZ and therefore coastal waters are included in the action area. Groundfish Fishery in state waters are regulated by state regulations and although the state works in collaboration with the PFMC, state Fishery Groundfish Fishery is not interrelated to, nor interdependent with the proposed action. As the states' groundfish fisheries do not depend on the Federal groundfish fishery for their justification, the two fisheries are not interrelated. Also, the state-managed groundfish fisheries do have independent utility apart from the action under consultation, and thus is not interdependent with the federal action. Therefore, the effects of state-managed groundfish fisheries, which occur in state waters, are not analyzed as part of the proposed action. Potential effects of state-managed fisheries are, however, considered in the analysis of cumulative effects. As the use of interrelated and interdependent is often confusing, as in this case, guidance that we follow from our Endangered Species Consultation Handbook, 1998 has been provided.

The Act's implementing regulations [50 CFR § 402.02] refer to the action under consultation as the "larger action", which has proven to be confusing when applied to cases of modification to an existing project. Instead of keeping the inquiry on whether other activities (this case state groundfish fishery) are interrelated to or interdependent with the modification (Federal Pacific Coast Groundfish Fishery), people sometimes unintentionally and inappropriately shift the focus to an inquiry on whether the modification itself (consulting on the Federal Pacific Coast

Groundfish Fishery) is interrelated to or interdependent with the "larger" action or project (collaborative effort in the management of the groundfish fishery).

Our Endangered Species Consultation Handbook (USFWS and USDC NMFS 1998, page 4-26) further goes on to say "As a practical matter, the analysis of whether other activities are interrelated to, or interdependent with, the proposed action under consultation should be conducted by applying a "but for" test. The biologist should ask whether another activity in question would occur "but for" the proposed action under consultation. If the answer is "no," that the activity in question would not occur but for the proposed action, then the activity is interrelated or interdependent and should be analyzed with the effects of the action. If the answer is "yes," that the activity in question would occur regardless of the proposed action under consultation, then the activity is not interdependent or interrelated and would not be analyzed with the effects of the action under consultation." Would state-managed groundfish fishery "not occur but for" or "regardless" of the Federal Pacific Coast Groundfish Fishery? State groundfish fishery would occur regardless of the Federal Pacific Coast Groundfish Fishery. Therefore, the state-managed groundfish fishery is not interrelated to, or interdependent with, the proposed action.

2.0 FRAMEWORK FOR JEOPARDY ANALYSES

In accordance with policy and regulation, the jeopardy analysis in this Biological Opinion relies on four components: (1) the *Status of the Species*, which evaluates the short-tailed albatross's range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the short-tailed albatross in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the short-tailed albatross; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the short-tailed albatross; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the short-tailed albatross.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the short-tailed albatross's current status, taking into account cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the range-wide survival and recovery needs of the short-tailed albatross.

3.0 STATUS OF THE SHORT-TAILED ALBATROSS (*Phoebastria albatrus*)

3.1 Taxonomy and Species Description

The short-tailed albatross is a large pelagic bird with long, narrow wings adapted for soaring just above the water surface. It is the largest of the three albatross species in the North Pacific: others are the Laysan albatross (*Phoebastria immutabilis*), the black-footed albatross (*Phoebastria nigripes*). The short-tailed albatross has a body length of 33-37 inches (84-94 centimeters (cm)) and a wingspan of 84-90 inches (213-229 cm). Adults have a white head and body and golden cast to crown and nape. The tail is white with a black terminal bar. A disproportionately large

pink bill distinguishes it from other North Pacific albatrosses and its hooked tip becomes progressively bluer with age. Juveniles of the species are blackish-brown, progressively whitening with age. Short-tailed albatross are also the only North Pacific albatross that develops an entirely white back at maturity (USFWS 2008, page 1).

3.2 Listing Status

The short-tailed albatross was federally listed as endangered throughout its range, including the United States, on July 31, 2000 (65 FR 147:46643-46654, USFWS 2000, entire). At the time of listing, designation of critical habitat was determined to be not prudent (65 FR 147:46651-46653). The Short-tailed Albatross Recovery Plan was finalized in 2008 (USFWS 2008, page i).

3.3 Historic and Current Distribution

Historically, the short-tailed albatross was probably the most abundant albatross in the North Pacific, with 14 known breeding colonies in the northwestern Pacific and also potentially in the North Atlantic (Olson and Hearty 2003, entire). However, from the late 1800's, millions were hunted for feathers, oil, and fertilizer (USFWS 2008, page 3), and by 1949, no birds were observed breeding and the species was thought to be extinct. The species began to recover during the 1950s, and currently occurs throughout the North Pacific Ocean.

Today, breeding colonies exist on two small islands in the western Pacific. Torishima, a Japanese island that is an active volcano, is estimated to contain 80-85% of the existing breeding population. The breeding colony in the Senkaku (or Diaoyutai) Islands is in disputed ownership among China, Japan and Taiwan, and is politically difficult to access. In 2002 the short-tailed albatross breeding population on the Senkakus was estimated to be 260 birds by Dr. Hasegawa (NMFS 2002, page 1). In 2008, 10 chicks were translocated to a former colony site on Mukojima, a nonvolcanic island, south of Torishima in the hope re-establishing a colony on this island. All chicks in this group survived to fledging. From 2009 through 2012, 15 chicks per year have been moved to Mukojima and reared to fledging. All but one have fledged successfully.

In 2011 and again in 2012, a short-tailed albatross pair hatched and successfully reared a chick on Midway Atoll, at the northwestern end of the Hawaiian Archipelago. The hatching in 2011 marking the first confirmed hatching of a short-tailed albatross outside of the islands surrounding Japan in recorded history. Prior to that, observations of infertile short-tailed albatross eggs and reports from the 1930s suggested that short-tailed albatross may have nested on Midway Atoll in the past.

3.4 Life History

The short-tailed albatross is a colonial, annual breeding species; each breeding cycle lasts about eight months. Birds may breed at five years of age, but first year of breeding is more commonly at six. Birds arrive on Torishima in October, but as many as 25 percent of breeding age adults may not return to the colony in a given year. A single egg is laid in late October to late November, and is not replaced if destroyed. Bi-parental incubation lasts 64 to 65 days.

Hatching occurs from late December through January (Hasegawa and DeGange 1982, page 811). Chicks begin to fledge in late May into June. There is little information on timing of breeding on Minami-Kojima.

Nest sites may be flat or sloped, with sparse or full vegetation. Nests consist of a concave scoop about two feet (0.61 m) in diameter on the ground lined with sand and vegetation. Tickell (1975) described the nests as scoops in volcanic ash lined and sometimes built up with grass, page 127.

Parents alternate foraging trips that may last two to three weeks while taking turns incubating the egg. When one bird is foraging, the other stays on the nest without eating or drinking. Eggs hatch in late December and January. For the first few days after hatching, the chick is fed on stomach oil, which is very rich in calories and Vitamin A. This oil also provides a source of water once metabolized. Soon after hatching, the chicks are fed more solid food, such as squid and flying fish eggs. During the first few weeks after hatching, one adult broods the chick and the other forages at sea. Later, when the chick can regulate its body temperature, both parents leave their chick, while they forage simultaneously. When chicks are left alone without a parent, they are at the post-guard stage.

By late May or early June, the chicks are almost fully grown, and the adults begin abandoning the colony site (Hasegawa and DeGange 1982, page 808). The chicks fledge soon after the adults leave the colony (Austin 1949, page 286). By mid-July, the breeding colony is empty. Non-breeders and failed breeders disperse earlier from the breeding colony, during late winter through spring (Hasegawa and DeGange 1982, page 808). There is no detailed information on timing of breeding on Minami-Kojima.

Short-tailed albatross are monogamous and highly philopatric to nesting areas (they return to the same breeding site year after year). Chicks hatched at Torishima return there to breed. However, young birds may occasionally disperse from their natal colonies to attempt to breed elsewhere, as evidenced by the appearance of adult birds on Midway Atoll that were banded as chicks on Torishima (Richardson 1994, pages 35-36). In summer (the nonbreeding season), short-tailed albatross disperse widely throughout the temperate and subarctic North Pacific Ocean (Sanger 1972, page 192; Suryan et al. 2007, page 9).

3.5 Habitat Description

3.5.1 *Dispersing and Foraging Habitat*

While the short-tailed albatross range encompasses the North Pacific from approximately latitude 15°N to the Bering Sea, the short-tailed albatross appear to prefer waters shallower than 1,000 m that are associated with continental shelves.

Short-tailed albatross forage on squid, small fish (including bonitos [*Sarda* sp.], flying fishes [*Exocoetidae*] and sardines [*Clupeidae*]), flying fish eggs, and crustaceans [subphylum *Crustacea*].

3.5.2 *Breeding Habitat*

Short-tailed albatross nest on isolated, windswept, offshore islands, with restricted human access.

On Torishima, most birds nest on a steep site containing loose volcanic ash (Tsubamezaki), however, a new colony on a vegetated gentle slope (Hatsunezaki) is growing rapidly. Nesting at the eroding Tsubamezaki site may be an artifact of where commercial harvest did not occur, due to difficulty of access for humans. Torishima, where vegetated, is dominated by a clump-forming grass, *Miscanthus sinensis* var. *condensatus*. The grass helps to stabilize the soil, provide protection from weather, and acts as a beneficial visual barrier between nesting pairs that minimizes antagonistic interactions. In addition, it allows for safe, open takeoffs and landings.

3.6 Threats

3.6.1 Natural Events

Torishima, the main short-tailed albatross breeding colony, is an active volcano. There were minor and major eruptions throughout the 20th century, and as recently as 2002. It is estimated that a catastrophic eruption during the breeding season could kill up to 54% of the short-tailed albatross population. In addition to outright deaths, volcanic eruptions have the potential to reduce breeding habitat by destroying vegetation (USFWS 2008, page 17).

Intense storms accompanied by high winds and heavy rains have reduced breeding habitat on Torishima in the past. Additionally, years with intense storm activity correspond to years with lower breeding success.

3.6.2 Commercial Fishing

Albatross, like many seabirds, attack baited hooks of both pelagic and demersal longlines after the hooks are deployed; if they get hooked or snagged, they are likely to be injured or pulled underwater with the rest of the gear and drowned (USFWS 2008, page 20). Interactions with trawls may occur when seabirds fly behind vessels or float in offal plumes that trail beyond vessels. Individuals can strike the trawl cables (warps) or the sonar cable (third wire) attached to the net or become entangled on the outside of nets towed at or near the surface; the former in particular are very unlikely to be detected as they do not show up on the vessels deck to be sampled (USFWS 2008, page 22).

At least one short-tailed albatross has been killed incidentally in the Russian driftnet fishery (USFWS 2008, page 23). Information from foreign fisheries is incomplete (USFWS 2008, page 24).

In U.S. waters, there were two reported fishery-related mortality of short-tailed albatross in the 1980's. The first bird was found dead in a fish net north of St. Matthew Island, Bering Sea, in July 1983. The second was killed in October, 1987, by a halibut vessel in the Gulf of Alaska. Both mortalities were reported by fishermen (USFWS 2008, page 20). Since 1990 fisheries observers have reported eight short-tailed albatross mortalities in Alaska's fisheries and one in the Pacific Coast Groundfish Fishery. Seven mortalities occurred in demersal longline groundfish fisheries; and the two mortalities from the IFQ sablefish fishery did not have gear type indicated (Table 2).

Table 2. Known short-tailed albatross mortalities associated with North Pacific and west coast fishing activities since 1983.

Date	Fishery	Observer program	In sample *	Bird age	Location	Source
7/15/1983	Net	No	n/a	4 months	Bering Sea	USFWS (2008, page 20)
10/1/1987	Halibut	No	n/a	6 months	Gulf of Alaska	USFWS (2008, page 20)
8/28/1995	IFQ sablefish	Yes	No	1 year	Aleutian Islands	USFWS (2008, page 18)
10/8/1995	IFQ sablefish	Yes	No	3 years	Bering Sea	USFWS (2008, page 18)
9/27/1996	Hook-and-line	Yes	Yes	5 years	Bering Sea	USFWS (2008, page 18)
4/23/1998	Russian salmon drift net	n/a	n/a	Hatch-year	Bering Sea, Russia	USFWS (2008, page 18)
9/21/1998	Pacific cod hook-and-line	Yes	Yes	8 years	Bering Sea	USFWS (2008, page 18)
9/28/1998	Pacific cod hook-and-line	Yes	Yes	Sub-adult	Bering Sea	USFWS (2008, page 18)
7/11/2002	Russian ?	n/a	n/a	3 months	Sea of Okhotsk, Russia	Yamashina Institute of Ornithology (YIO, 2011, page 1)
8/29/2003	Russian demersal longline	n/a	n/a	3 years	Bering Sea, Russia	YIO (2011, page 1)
8/31/2006	Russian ?	n/a	n/a	1 year	Kuril Islands, Russia	YIO (2011, page 1)
8/27/2010	Cod freezer longline	Yes	Yes	7-year old	Bering Sea/Aleutian Islands	NOAA (2010, page 1)
9/14/2010	Cod freezer longline	Yes	Yes	3-year old	Bering Sea/Aleutian Islands	NOAA (2010, Page 1)
4/11/2011	Sablefish demersal longline	Yes	Yes	1-year old	Pacific Ocean/Oregon	Consultation History, page 5
10/25/2011	Cod freezer longline	Yes	Yes	1-year old	Bering Sea	NOAA (2011, page 1)

* "In sample" refers to whether a specimen was in a sample of catch analyzed by a fisheries observer

3.6.3 Invasive Species

Black rats (*Rattus rattus*) were introduced to Torishima at some point during human occupation. The effect of these rats on short-tailed albatross is unknown, but rats are known to feed on chicks and eggs of other seabird species (Atkinson 1985), and there have been numerous efforts to eradicate rats to protect other seabird colonies (Taylor et al. 2000, page 151).

3.6.4 *Disease and Parasites*

Diseases and parasites are not currently adversely affecting short-tailed albatross. Tick parasites, feather louse and a carnivorous beetle have been documented infesting short-tailed albatross on Torishima, although not recently (USFWS 2008, page 27). No diseases have been documented in short-tailed albatross. Although, they could be vulnerable to avian influenza, West Nile virus, fungal and bacterial infections.

3.6.5 *Predation*

Shark predation is documented among other albatross species, but has not been observed for short-tailed albatross (USFWS 2008, page 27). This predation would likely be in the form of sharks preying upon fledgling short-tailed albatross as they depart their natal colony.

3.6.6 *Oil Pollution*

There is potential for oil spills to occur in the action area which could affect short-tailed albatross. Oil contamination can adversely affect short-tailed albatross either through acute toxicity from being directly oil or as a result of chronic or sublethal exposure to low levels of oil. Petroleum exposure may: (1) compromise seabirds' thermoregulation through fouling of feathers; (2) cause direct toxicity through ingestion (e.g., during preening); (3) contaminate the birds' food resources; (4) reduce prey availability from toxic effects on prey species; and (5) cause embryotoxic effects (USFWS 2008, page 26, USFWS 2009, pages 48-49).

3.6.7 *Plastic Pollution*

The presence of plastics in the North Pacific is a serious threat to albatrosses. Plastics are likely eaten when they are mistaken for food, or have flying fish eggs adhering to them. Plastics likely reduce chick survival when they are fed to chicks prior to their ability to regurgitate. This can clog the digestive tracts, leading to the eventual starvation of chicks. Another possible consequence of plastics ingestion is the transfer of toxic compounds to short-tailed albatross (USFWS 2008, page 26, USFWS 2009, pages 49-50).

3.6.8 *Contaminants*

Albatrosses at Torishima, including short-tailed albatross, have higher concentrations of pollutants in eggs, pectoral muscles and stomach oil than albatrosses in other parts of the North Pacific. Possible consequences of this contamination are shell thinning (from pesticides), disruption of physical and embryonic development, and reproductive inhibition from exposure to organochlorines and heavy metals (USFWS 2008, page 25).

3.6.9 *Climate Change*

USFWS (2008, pages 18-19) cites two major studies documenting climate change. The authors suggest that climatic change would shift the range of short-tailed albatross prey items northward increasing energetic costs to foraging birds. Additionally, USFWS suggests climate change would likely cause shifts in vegetation on the main breeding colony at Torishima.

3.6.10 *Nesting Habitat Destruction*

Non-native plants, such as shrubs, can limit or destroy suitable nesting habitat on breeding islands. Although there is currently no known invasive plant problem on Torishima, accidental

introduction remains a threat. Catastrophic events listed under Natural Events above, can change habitat at breeding colonies. These events can result in permanent loss of habitat.

3.7 Recovery Plan Delisting Criteria

The short-tailed albatross may be delisted under the following conditions:

- The total breeding population of short-tailed albatross reaches a minimum of 1000 pairs; (population totaling 4000 or more birds);
AND
- The 3-year running average growth rate of the population as a whole is $\geq 6\%$ for ≥ 7 years;
AND
- At least 250 breeding pairs exist on 2 island groups other than Torishima, each exhibiting $\geq 6\%$ growth for ≥ 7 years;
AND
- A minimum of 75 pairs occur on a site or sites other than Torishima and the Senkaku Islands.

3.8 Recovery Actions

The Recovery Plan for Short-tailed Albatross (USFWS 2008, pages 41-51) recommends the following Recovery Actions:

- (1) Support ongoing population monitoring and habitat management on Torishima
- (2) Monitor the Senkaku population
- (3) Conduct telemetry studies to determine at-sea habitat use
- (4) Establish one or more nesting colonies on non-volcanic islands
- (5) Continued research on fisheries operations and mitigation measures
- (6) Conduct other research that will facilitate recovery
- (7) Conduct other management-related activities
- (8) Conduct outreach and international negotiations as appropriate
- (9) Develop models and protocols as needed

Specific to Recovery Action Five, the NMFS and USFWS in U.S. waters are working with the commercial fishing industry to minimize injury and mortality of this endangered seabird. NMFS's 2004 revised seabird bycatch regulations require Alaska longline vessels over 55 feet to deploy paired streamer lines while setting gear, while Alaska longline vessels 26-55 feet are usually required to deploy one streamer line while setting gear (USFWS 2009, page 56). The West Coast Fisheries for Highly Migratory Species also established bycatch reduction measures with NMFS through formal consultation (USFWS 2004a, pages 101-103).

3.9 Population

A species thought to be extinct in the 1940s, the short-tailed albatross population has since increased to 3,441 birds (Table 3). The short-tailed albatross population is increasing at about 6.5 % per year (USFWS 2008, page 19).

Table 3. Short-tailed albatross Population Estimates – October 19, 2012 - Paul Sievert's estimates from a deterministic population model.

2009-2010 Breeding Season				
Cohort	Unit	Torishima	Senkakus	Total
Breeders	Eggs	448 (446 actual)	105	553
	Pairs	597	131	728
	Birds	1194	262	1456
Non-breeders	Birds	1177	307	1484
Total	Birds	2371	569	2940
2010-2011 Breeding Season				
Cohort	Unit	Torishima	Senkakus	Total
Breeders	Eggs	481 (481 actual)	116	597
	Pairs	642	145	787
	Birds	1284	290	1574
Non-breeders	Birds	1265	342	1607
Total	Birds	2549	632	<u>3181</u>
2011-2012 Breeding Season				
Cohort	Unit	Torishima	Senkakus	Total
Breeders	Eggs	518 (512 actual)	129	647
	Pairs	690	161	851
	Birds	1380	322	1702
Non-breeders	Birds	1360	379	1739
Total	Birds	2740	701	<u>3441</u>

4.0 ENVIRONMENTAL BASELINE

The environmental baseline is defined as “the past and present impacts of all Federal, state or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State and private actions which are contemporaneous with the consultation in process [50 CFR 402.02].”

4.1 Short-tailed Albatross

The action area is within the range of the short-tailed albatross. Short-tailed albatross are using the action area to forage and disperse. No breeding habitat is located within the action area. Within the action area the short-tailed albatross recovery plan documents usage primarily along the continental shelf margin from northern Washington to northern California (USFWS 2008, page 13).

Sightings by the NMFS Observer Program have documented use down to Monterey Bay, California (Figure 1). Currently, no formal surveys for the species exist for the waters of the

action area, and no estimate of density for the area is available. While the apparent increase in sightings of the species along the west coast correlates to known increases in the species' range-wide population, the increase in trained observers and bird enthusiasts available to document sightings of the species confounds any attempt to extrapolate the available sighting data into a precise estimate of population size or density within the affected area. As the population trajectory is increasing for the short-tailed albatross, we can also expect the use of the action area for sub-adult and adult foraging and dispersal to increase.

The BA provides the following summary of Pacific Coast Groundfish Fishery and interactions with short-tailed albatross: since 2002, there have been three interactions reported between short-tailed albatross and the Pacific Coast groundfish fishery (Figure 2). From 2002-2009, there were two observed fishery interactions with short-tailed albatross reported by the NMFS Observer Program. Both interactions in 2002 were recorded opportunistically as "feeding on catch only" and were not recorded as resulting in mortality. In 2011, a single short-tailed albatross was reported caught and killed by longline gear in the limited entry sablefish fishery approximately 65 kilometers off the Oregon Coast.

Sightings of short-tailed albatross in the West Coast NMFS observer programs are relatively common compared to some other fisheries. For example, in Hawaiian longline fisheries, 100% observer coverage has yielded 16 sightings over the last 11 years--one in 2000, two in 2004, three in 2007, three in 2008, three in 2009, and four in 2010. Considerably lower observer coverage in the West Coast NMFS Observer Program has yielded 95 short-tailed albatross sightings over the last 11 years--four in 2001, 14 in 2002, five in 2003, five in 2004, five in 2005, four in 2006, three in 2007, two in 2008, 16 in 2009, 18 in 2010, and 19 through July 2011. The higher rate of sightings along the west coast compared to Hawaii is consistent with the species' primary use of continental shelf margins when not nesting.

In addition to the Pacific Coast Groundfish Fishery, additional short-tailed albatross threats include: other regulated fisheries, oil pollution, plastic, and contaminants. No mortality of short-tailed albatross is known to have occurred in the action area from these other threats.

4.2 Factors Affecting the Species' Environment Within the Action Area

The Pacific Coast Groundfish Fishery has killed one known short-tailed albatross due to hooking and drowning on a longline hook. Additionally trawl and sonar cables are a possible hazard to short-tailed albatross, although no known injury or mortality in the action area has occurred due to birds striking these wires. No additional harm to short-tailed albatross is known to occur from any other regulated (Federal, State or other Nation) or non-regulated fishery in the action area.

Although the Recovery Plan only mentions possible prey base changes due to climate change (USFWS 2008, page 19), we are including information on fishing and prey. The Pacific Coast Groundfish Fishery does not harvest short-tailed albatross prey. Impacts to short-tailed albatross prey from other fisheries in the action area are not known. A recent global analysis of seabird response to forage fish depletion in 16 seabird species found a general pattern of breeding success being fairly stable above a threshold of prey abundance, but was impacted below that threshold (Cury et al. 2011, entire); the threshold approximated one-third of the maximum prey

biomass observed in long-term studies. This study suggests that many seabird species are resilient to some level of prey depletion.

The Recovery Plan does mention derelict gear from fisheries as a potential threat to short-tailed albatross (USFWS 2008, page 30), although there is no information on the extent of derelict gear in the action area, except for Puget Sound in Washington. There has been no documented harm to short-tailed albatross from derelict gear.

Although predation by sharks is a known source of mortality for some species of albatross, especially for recently fledged juveniles near breeding islands, and may be a source of predation for short-tailed albatross, the actual effect of predation for this species in the action area is poorly understood. Sharks may scavenge albatross that have been already injured or killed by longline fishing methods within the action area, but the actual effect of this activity on short-tailed albatross cannot be quantified at this time. Other sources of predation (crows, cats, rats) previously documented for the nesting islands are not expected to be of consequence within the action area.

Within the action area, oiling of short-tailed albatross due to spills occurring in the marine environment remains a risk. This risk is most prevalent in areas subject to offshore drilling, tanker transport of crude oil, or shipping lanes. To date, there have been no documented circumstances of oil contamination of this species rising to the level of injury or mortality of short-tailed albatross in the action area, so it is not possible to quantify the risk to the species, or the interaction of the proposed action with this threat.

The rate at which short-tailed albatross ingest or otherwise interact with plastics in the action area may also be a factor affecting the species' survival, but at this time is not quantifiable. The distribution of disposed plastics in the open ocean is unknown but presumed to be ubiquitous, therefore having the potential to affect albatross throughout the action area. As the population of short-tailed albatross increases in the future, this problem may increase. However, the extent of this problem and its synergistic effect with the proposed action is unknown at this time.

State governments do manage fisheries that are occurring in the action area. The NMFS Observer program does include state managed fisheries. Although as with the Pacific Coast Groundfish Fishery, coverage is not a 100 percent. The NMFS Observer Program, coverage from 2002-2009, has observed no harm to short-tailed albatross from state fisheries (Jannot et al. 2011, page 56). No fishing by other nations is occurring in the action area.

Recreational fishing may result in some risk to short-tailed albatross within the action area, but this risk is unknown at this time. To date, there have been no documented observations of short-tailed albatross having been wounded or killed by this method. However, there would seem to be a similar problem as with longline fishing in the risk of seabirds becoming wounded or killed by hooking on fishing gear, albeit at a much smaller scale. Therefore, there is no quantitative estimate of the risk of mortality of this species from this activity in the action area.

Hazen et al. (2012, entire) looked at predicted habitat shifts of Pacific top predators in a changing climate. They concluded that within the west coast EEZ, chlorophyll is estimated to increase and

the area is expected to remain a high biodiversity area into the future (Hazen et al. 2012, page 4). They also caution that as offshore habitat decreases or becomes less accessible, there may be increased use in the upwelling-driven California Current Marine Ecosystem leading to greater competition among top predators, and also a higher risk of anthropogenic impacts such as shipping traffic and fisheries bycatch (Hazen et al. 2012, page 4).

4.3 Short-tailed Albatross Recovery Plan

Specific to the action area the Recovery Plan for Short-tailed Albatross recommends continued research on fisheries operations and mitigation measures (Recovery Action Five). Great progress has been made in developing seabird bycatch avoidance measures that minimize seabird bycatch in Alaska demersal longline fisheries. This work needs to be continued, and further research needs to be conducted on other aspects of commercial fisheries (e.g. pelagic longline and trawl fisheries) (USFWS 2008, page 48).

4.4 Black-footed Albatross (*Phoebastria nigripes*)

Because short-tailed albatross take has been too rare to accurately quantify levels of take in the Pacific Coast Groundfish Fishery, we are using the black-footed albatross as a surrogate species for estimating injury and mortality of short-tailed albatross.

The black-footed albatross is closely related to the short-tailed albatrosses, as they are in the same family Diomedidae (albatrosses) and genus (*Phoebastria*). Although the short-tailed albatross is larger than the black-footed albatross, they are similar in size. The black-footed albatross wingspan is 76 to 85 inches (in) (193 to 216 cm) (USFWS 2011, page 62506), only slightly shorter than the short-tailed albatross wing span of 84-90 in (213 to 229 cm).

The black-footed albatross overlaps the action area to a similar extent as the short-tailed albatross (Figure 1 and 2). This is to be expected as they both use areas of coastal upwelling or convergence for foraging throughout the north Pacific (USFWS 2001, page 62509; USFWS 2008, pages 7 and 11). Black-footed albatrosses are surface feeders and scavengers (USFWS 2011, page 62507). Both birds are able to locate food using well-developed eyesight and sense of smell and feed at the ocean surface or within the upper three feet (one meter) by seizing, dipping or scavenging. Both birds consume flying fish eggs, crustaceans and squid.

As these birds use the same foraging habitat and habits, they are both susceptible to impacts from the Pacific Coast Groundfish Fishery (USFWS 2011, page 62541).

The current black-footed albatross worldwide population estimate, with most recent counts from the 2010 nesting season, is approximately 67,215 breeding pairs (USFWS 2011, page 62510). Based on a Leslie matrix model 67,215 breeding pairs would represent over 300,000 black-footed albatross (USFWS 2011, page 62510).

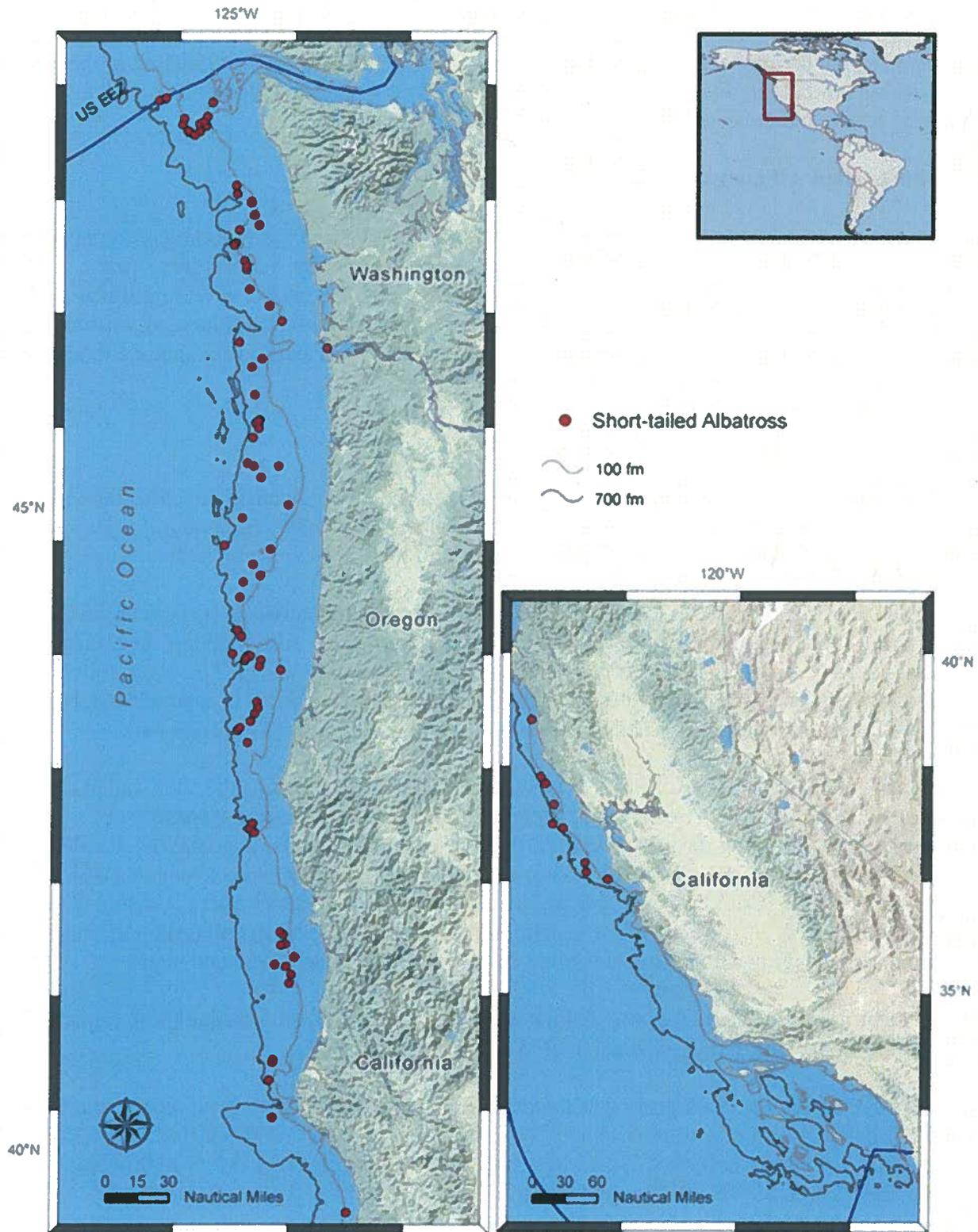


Figure 1. Geographic distribution of opportunistic sightings of short-tailed albatross by the NMFS Observer Program from 2001-July 2011.

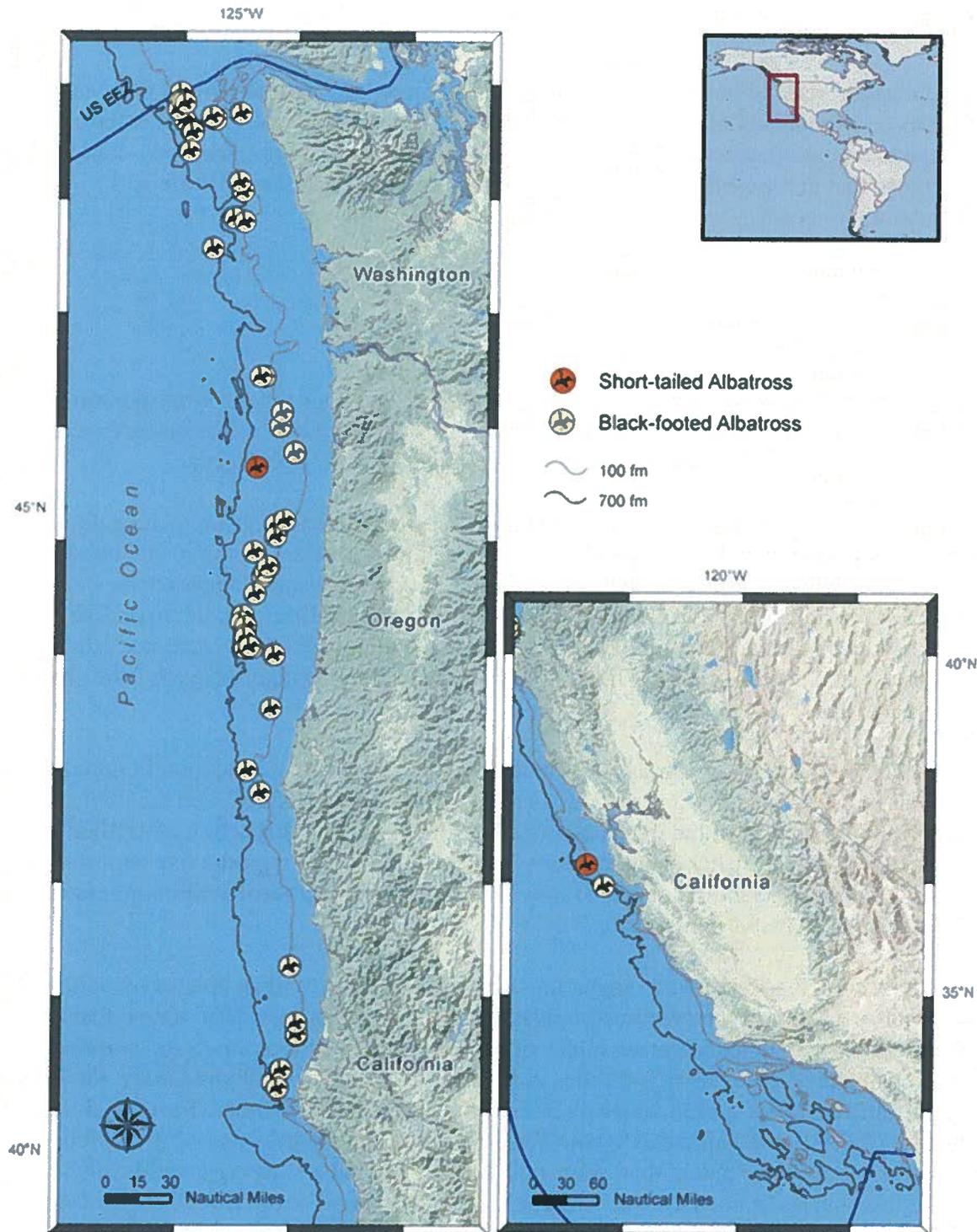


Figure 2. Geographic distribution of black-footed mortality and short-tailed albatross interactions by the NMFS Observer Program and the At-Sea Hake Observer Program from 2002-2009 (Adapted from Jannot et al. 2011, page 36).

5.0 EFFECTS OF THE ACTION

Effects of the action refer to the permanent or temporary direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated and interdependent with that action that will be added to the environmental baseline. Indirect effects are those that are caused by the proposed action, occur later in time, but are still reasonably certain to occur.

6.0 EFFECTS TO SPECIES

6.1 Short-tailed Albatross

As was documented by the bycatch event in 2011 and described above in the Consultation History section, vessel and gear interactions with the Pacific Coast Groundfish Fishery are likely to result in mortality of short-tailed albatross from entanglement in fishing gear.

The anticipated adverse effects of the proposed action on short-tailed albatross include direct mortality, or injury likely leading to mortality. Birds attempting to steal bait may be hooked, pulled underwater as the mainline is set, and drowned. Birds may sustain injuries from interactions with baited hooks during the process of setting and hauling back the main line, which could seriously impair their ability to fly or forage, and may result in mortality. Birds may sustain injuries, which could seriously impair their ability to fly or forage, or death from striking the trawl/sonar wires.

An indirect effect expected to occur as a result of the proposed action is reduction in population growth rate as a result of lost future reproductive success of the birds killed, and the temporary loss of reproductive success of the mates of any adult birds killed by this action. A further indirect effect of albatross-fisheries interactions is the lowered future reproductive and survival potential suffered by those individuals who may suffer short- or long-term debilitating injuries that do not necessarily result in mortality.

The NMFS BA contained a risk assessment that estimated 0.8 short-tailed albatross would be killed per year as a result of the continued operations of the Pacific Coast Groundfish Fishery. Because observed short-tailed albatross injury or mortality has been too rare to serve as the basis for accurately quantifying levels of mortality in the Pacific Coast Groundfish Fishery, the Risk Assessment relies on black-footed albatross as a surrogate species to estimate the annual mortality rate of short-tailed albatross by the Pacific Coast Groundfish Fishery. Black-footed albatross are much more abundant than short-tailed albatross, and annual observed levels of mortality of this species in Pacific Coast Groundfish Fishery have ranged from 0-48 birds/year from 2002-2009, with estimated total mortality ranging from 0-91 birds/year for this period (Jannot et al. 2011, page 56). Black-footed albatross are similar to short-tailed albatross in size and feeding behaviors, as well as their patterns of distribution (Figure 1 and 2), making them a reasonable proxy for the much less numerous short-tailed albatross.

To estimate the bycatch mortality of black-footed albatross from the Pacific Coast Groundfish Fishery Jannot et al. (2011, pages 29 and 30) obtained the bycatch ratios by calculating the

number of mortalities divided by the catch weight recorded in observer data. Bycatch ratios were then expanded to the fleet-wide level based on the total catch or landings from each sector. The assumption that bycatch is proportional to fishing effort has not been tested and could bias results if invalid.

6.2 BA Risk Assessment

The following risk assessment is from the BA with modifications:

The NMFS Observer Program observers have been deployed aboard vessels since 2001 to document fisheries interactions with protected species, collect fishery-related information, and conduct biological sampling. The likelihood of a hooked seabird being observed is a function of observer coverage, the prioritization of the observers' duties onboard the vessels, and the observation skills and reporting accuracy of these individuals (USFWS 2004a, page 73; NMFS 2011, page 61).

Some groundfish fishery sectors (i.e., non-nearshore fixed gear/limited entry sablefish endorsed) have had less than 100% observer coverage from 2002-2009, so observed interactions were expanded beyond the observer coverage (~9-37% of landings) to estimate fleet-wide interactions (Jannot et al. 2011, pages 43-45). This makes estimation of mortality of rare species, such as short-tailed albatross, very difficult, because estimates based on a combination of low observer coverage and small numbers observed mortality are typically highly uncertain (Jannot et al. 2011, page 31). Obtaining a reliable estimate of mortality when the observed number of mortality is zero or one is particularly problematic, and the West Coast NMFS Observer Program does not attempt to estimate a fishery wide mortality level in such situations.

Even with 100% observer coverage, all interactions might not be recorded because birds that become hooked on gear may only be injured, if hooked and drowned they may fall off before the gear is hauled back to the surface, birds hitting a trawl/sonar wire may only be injured, or birds hitting the trawl/sonar wires may be killed but not collected in the trawl nets, and thus these are all situations where harm to albatross would not be observed. These "drop-offs" of dead carcasses along with post-hooking or striking mortality of birds that initially survived, are often referred to as "unseen mortality." Previous modeling efforts (USFWS 2004b, pages 27-28; NMFS 2011, pages 61-63) included a correction factor of 31% for drop-offs citing studies of pelagic longline fisheries (Ward et al. 2004, page 193; Gilman et al. 2005, page 39). Ward et al. (2004) demonstrated that drop-off rates in pelagic longline fisheries may underestimate seabird mortality by as much as 45% on the portions of a set that have soaked the longest, page 193. At present, drop-off rates for demersal longline fisheries have not been estimated for observed fisheries or for demersal longline fisheries in general. In addition, the ratio of observed to unobserved mortality in trawl fisheries is also unknown, but there is likely to be unobserved mortality. To account for uncertainty in this factor, a range of correction factors from 0 to 45%, including the 31% used previously (USFWS 2004b, pages 27-28; NMFS 2011, pages 61-63) was used in the BA to bracket estimates of short-tailed albatross mortality from the Pacific Coast Groundfish Fishery.

The short-tailed albatross mortality (T) estimate for the Pacific Coast Groundfish Fishery is calculated as follows (following the approach of NMFS 2011, pages 62-63):

$$T = M \times A \times N$$

Where:

M = Fishing mortality of surrogate species (black-footed albatross) = (annual mean estimated number of black-footed albatross mortality in observed fisheries) + (annual mean estimated number of black-footed albatross in observed fisheries * drop-off adjustment) / black-footed albatross global population estimate. The resulting number represents the proportion of the entire surrogate species' population that is killed annually by the observed fisheries.

A = correction factor to account for differences in distribution between the two species

N = short-tailed albatross population estimate

The 43.75 birds/year fishery-caused mortality rate for black-footed albatross is based on the 8-year (2002-2009) average of the estimated annual mortality of black-footed albatross by the observed fisheries reported in Jannot et al. (2011, page 56). This mortality rate is then adjusted upward by a drop-off or removal rate of 31% (USFWS 2004b, pages 27-28; NMFS 2011, pages 61-63), and divided by the estimated 2009 black-footed albatross population size of 245,234 birds (NMFS 2012, page 149 of Attachment 1).

$$M = (43.75 + 43.75 \times 0.31) / 245,234 = 0.00023 / \text{year}.$$

When previously applied in Hawaiian fisheries, the at-risk area fraction (A) was a multiplier that accounted for the fraction of the short-tailed albatross range that overlaps with the fisheries of interest. In the case of the Hawaiian longline fisheries, the black-footed albatross ranged completely overlapped with the fishery in question, so the at-risk fraction (0.245) was simply derived by dividing the longline fisheries area by the short-tailed albatross range. In our case, black-footed and short-tailed albatross ranges both overlap with the action area to a similar extent and both species are traveling distances to enter the area, thus no multiplier is needed to account for differences between the species.

$$A = 1$$

N is the most recent population estimate for short-tailed albatross, 2012, which is 3,441 (Table 3).

Therefore,

$$T = M \times A \times N$$

$$T = 0.00023 \times 1 \times 3,441$$

$$T = 0.8$$

The estimated short-tailed albatross mortality in the observed fisheries is 0.8 individuals/year.

6.3 Sensitivity of Risk Assessment

This estimate can be influenced by uncertainty in the bycatch estimates of black-footed albatross, the assumed drop-off rate, and the population sizes of the two species. Here, we evaluate the sensitivity of the estimate to the first two sources of uncertainty. Using the lower 90% (21.13/year) and upper 90% (93.5/year) confidence limits for mean annual bycatch estimates of black-footed albatross and a range of drop-off rate scenarios results in a range of values of short-tailed albatross mortality (T) between 0.30 and 1.90 (Table 7).

Table 7 -- Sensitivity analyses of the influence of varying bycatch drop-off rates and black-footed bycatch estimates on estimates of T for short-tailed albatross. Drop-off rates from discussion in NMFS (2011, page 61) and mean annual black-footed albatross bycatch rates for 2002-2009 from Jannot et al. (2011, Page 56) were incorporated into calculations of M for black-footed albatross and then T for short-tailed albatross.

Drop-off rate	T (short-tailed albatross/year)		
	Estimate	Lower 90% short-tailed albatross confidence limit	Upper 90% short-tailed albatross confidence limit
0%	0.61	0.30	1.31
27%	0.78	0.38	1.67
31%	0.80	0.39	1.72
45%	0.89	0.43	1.90

Several additional factors could also potentially bias this estimate. Exposure to risk could be affected by time spent over the year in the Pacific Coast Groundfish Fishery areas as opposed to open ocean areas where transiting largely occurs. Exposure could be influenced by temporal overlap of the fisheries and short-tailed albatross presence off the west coast.

Most importantly, the estimates presented here are predicated on black-footed albatross being used as a surrogate for short-tailed albatross. This assumes that the two albatross species have the same mortality rates in the fisheries in question, the same distribution throughout the area (i.e., of the total populations of each species, the same proportion of each species occurs within the Pacific Coast Groundfish Fishery area), the same behavior with respect to interacting with vessels (taking bait, etc.), and the same mortality rate once hooked or otherwise impacted. We think in general these are valid assumptions due to the similarities of these species in size, distribution and feeding behavior.

As additional data are collected or compiled and analyzed (e.g., black-footed albatross bycatch estimates for 2010 and 2011), it may be possible to explore additional methods to estimate short-tailed albatross mortality. For example, it may be possible to use ratios of short-tailed albatross/black-footed albatross abundance in the action area or the mortality ratio of the two species in other fisheries to obtain another semi-independent estimate of short-tailed albatross mortality. Higher levels of observer coverage would also be valuable for improving mortality estimates of this and other rare species. With greater observer coverage, data on the observed

mortality of short-tailed albatross could provide a more direct check on the mortality estimate derived from the above model.

The level of mortality estimated using this proxy method, 0.8/year, is generally consistent with the observed mortality (considering the level of observer coverage) and is reasonable given the frequency of occurrence of short-tailed albatross near the Pacific Coast Groundfish Fishery (Figure 1 and 2).

The short-tailed albatross mortality estimates presented here are based on black-footed albatross bycatch data collected largely in the absence of seabird bycatch mitigation measures. While some longline vessels in the groundfish fishery use streamer lines and other seabird avoidance gear voluntarily, organized efforts promoting the use of streamer lines have only begun in the last two years. Washington Sea Grant initiated a NMFS-supported streamer line distribution pilot program with Tribal fisheries in 2009 and the major longline ports in the Oregon and Washington NMFS Observer Program in 2010 (Washington Sea Grant 2011, entire). The NMFS Observer Program observers began documenting the use and characteristics of seabird avoidance gear on fixed gear vessels in 2009, and this information should be available for analyses of bycatch of short-tailed and black footed albatross in future years (Jannot et al. 2011, page 29).

With an increasing short-tailed albatross population (N), interactions with fisheries are likely to increase (T). As there is no completion date to the proposed action, reinitiation is expected if new information demonstrates that future mortality estimates exceeds our expectations. Bycatch reduction measures will assist in keeping the risk to the short-tailed albatross low, but we like to note that the above analysis is sensitive to an increasing short-tailed albatross population (N). If the short-tailed albatross population continues to increase, adverse effects from the proposed action may exceed our estimates, and reinitiation of consultation would be expected.

As noted in the proposed action, NMFS Observer Coverage is not complete for all sectors of the Pacific Coast Groundfish Fishery; additional NMFS observer coverage is low for most covered sectors. There is a potential that our analysis is an underestimate of the harm to short-tailed albatross. Our expectation is that this uncertainty in our analysis will be reduced for future analyses. As such, there is a need to compute the level of coverage needed to predict black-footed albatross or short-tailed albatross interactions with this Fishery within a reasonable tolerance.

6.4 Non-adverse Effects

The Pacific Coast Groundfish Fishery does not target prey of short-tailed albatross. Trophic models presented in the Risk Assessment that NMFS completed suggest that the Fishery is unlikely to affect short-tailed albatross prey and in fact may positively affect the abundance of squid and small fishes through removal of their predators.

Other than interactions with fishing vessels discussed above, additional disturbance from transiting vessels or vessels fishing with pots is not expected to cause harm to short-tailed albatross (USFWS 2008, page 30).

Lost fishing gear, including pots, does have the potential for entanglement hazards (USFWS 2008, page 30). Because this Fishery focuses on groundfish, the netting is designed to sink and it is more likely to sink rather than to remain suspended. In the high-energy environment of the open ocean, the time over which derelict nets remain suspended may be shorter when compared to a lower energy environment like the inner Puget Sound (NRC 2007, page 15). No known harm to short-tailed albatross has occurred due to derelict gear from the Pacific Coast Groundfish Fishery.

The Pacific Coast Groundfish Fishery vessels, as all vessels in the action area, are not allowed to dispose of plastics, oil or other contaminants into the ocean. They are allowed to dispose of biodegradable items into the ocean, but these should not adversely affect the short-tailed albatross if consumed.

6.5 Consistency with Recovery Plan

Specific to the action area the Recovery Plan for short-tailed albatross recommends continued research on fisheries operations and mitigation measures to reduce take (Recovery Action Five). NMFS is currently supporting research with Washington Sea Grant to develop measures that will reduce bycatch of short-tailed albatross specific for the Pacific Coast Groundfish Fishery. Additionally NMFS support of Washington Sea Grant includes outreach to the longline industry, and the construction and distribution of bycatch reduction devices. Outreach includes training in proper use of streamer lines.

Although, USFWS, NMFS and PFMC have been in discussions to reduce negative interactions between fisheries and short-tailed albatross, the proposed action does fall short in the intent of Recovery Action Five, in that it has no mandatory mitigation measures.

6.6 Population Effects

The operation of the Pacific Coast Groundfish Fishery is imposing additional (non-natural) mortality on short-tailed albatross. The mortality from Pacific Coast Groundfish Fishery is very likely to be higher than the one mortality observed in the past 28 years (Table 2), and based on the black-footed albatross surrogate model, is likely ~1/year and unlikely to be >2/year.

In addition to directly reducing the population size, harm of these individual short-tailed albatross will also result in a reduction to the population growth rate as a result of lost future reproductive success of the birds killed, and the temporary loss of reproductive success of the mates of any adult birds killed by this action. A further indirect effect of albatross-fisheries interactions is the lowered future reproductive and survival potential suffered by those individuals who may suffer short- or long-term debilitating injuries that do not necessarily result in mortality.

The Short-tailed Albatross Recovery Plan reported that a population decline would occur if an additive mortality of 5-6% above current conditions was to occur (USFWS 2008, page 19). At a population of 3,441 birds, that is 173-207 birds per year above current mortality (rounded up). At an estimated one mortality per year from the continued operation of the Pacific Coast

Groundfish Fishery, this is less than 0.58 percent of the additional mortality level required to cause a decline in the species' population (1 mortality a year /173 additional yearly mortality needed x 100). Therefore, the proposed action will not appreciably reduce the likelihood that the short-tailed albatross population will survive.

The current growth rate of the short-tailed albatross population is estimated at 6.5 to 8 percent (USFS 2009, page 18), and this is occurring with the operation of the Pacific Coast Groundfish Fishery. Mortality from the Pacific Coast Groundfish Fishery has and will prevent killed birds from producing young and contributing to recovery. Given that the population has increased at a rapid rate while this Fishery was occurring, and that the current estimated annual mortality is one bird yearly, it is the USFWS's opinion that the proposed action will not appreciably reduce the likelihood of the short-tailed albatross population to recover.

Short-tailed albatross mortality and population growth rate will need to be monitored into the future to ensure that the Pacific Coast Groundfish Fishery stays within expected impacts to the species. Mortality from the Pacific Coast Groundfish Fishery is likely to change due to fishery changes, such as changes in fishing effort or gear type, and better observer coverage. Mortality may increase with a growing short-tailed albatross population, and may decrease with additional streamer line use. The population growth rate is likely to change due to changes in threats, and it is likely to slow as the population grows (for example, due to resource limitations).

Additionally, implementation of streamer lines and other sea bird bycatch reduction measures will help reduce the likelihood of a short-tailed albatross will be injured or drowned from commercial longline hooks. We believe seabird bycatch reduction methods will help to keep short-tailed albatross mortality at a low level in this Fishery, even with a growing short-tailed albatross population in this fishery and others.

7.0 CUMULATIVE EFFECTS

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

Whereas the action area includes state waters, the continued operation of state fisheries is being considered for cumulative effect to short-tailed albatross. Additionally state fisheries occasionally occur in the EEZ, such as the pink shrimp fishery. This situation occurs when a specific fishery is not regulated by the NMFS, is regulated by the state and the targeted species overlaps with the EEZ.

There is no documented harm to short-tailed albatross due to state fisheries. As with the Pacific Coast Groundfish Fisheries, we looked towards information from the NMFS Observer Program and information on harm to black-footed albatross in the action area.

The NMFS Observer Program report included data for the following state fisheries sectors, 2002-2009 (Jannot et al. 2011, pages 43-45):

- Commercial state-permitted shrimp trawl (6.0%);
- Commercial limited access non-midwater trawl – targeting California halibut (6.0%);
- Commercial open access non-midwater trawl – targeting California halibut (0.7%); and,
- Commercial fixed gear state-permitted nearshore (Oregon/California)(4.3%).

Unobserved fisheries include Tribal (non-hake), state fisheries not listed above, non-regulated fisheries, recreational, and research.

The harm of black-footed albatross has been zero in the eight years of observer data collected on state fisheries. The analysis of a risk assessment using the black-footed albatross for a surrogate for the short-tailed albatross is not possible as zero multiplied by any number is zero.

If we scaled down the analysis of the EEZ (3-200 nautical miles off shore) to the state waters (0-3 nautical miles), the level of expected harm would be 1.5 percent of the harm expected in Federal waters, based on area only. Based on expected harm of about one short-tailed albatross killed per year from the proposed action in Federal waters, 1.5 percent equates to an estimated mortality of 0.015 short-tailed albatross a year or about one short-tailed albatross every 66 years.

The short-tailed albatross is a continental shelf edge specialist. They can be relatively common nearshore, but only where upwelling hotspots occur (Piatt et al. 2006, page 7). From observer data on the west coast the short-tailed albatross appears highly associated with the breaking of the continental north from the Monterey Bay area of California (Figure 1). Within the action area, the continental shelf break occurs minimally in state waters (0-3 miles off shore).

Therefore, we have determined that due to the short-tailed albatross preferring the area of the continental shelf break and that the area of state waters, where the majority of state fishing is occurring, that there is a potential for harm, but it is extremely small.

A potential for oil spills exists in the action area which could affect short-tailed albatross. Vessels that have sunk or been damaged in the action area may periodically release oil from fuel tanks. Historically, oil spills have occurred along the west coast of North America from a variety of sources, including shipwrecks and oil well blowouts. To date, no known deaths of short-tailed albatross can be directly attributable to oil contamination, although a significant threat exists.

Discarded plastic cigarette lighters and light sticks that drift away from longline gear, among other plastic debris, float in the water column and are consumed by seabirds while they are foraging. The ingestion of plastic may compromise seabirds and result in dehydration and starvation, intestinal blockage, internal injury, or exposure to dangerous toxins (Sievert and Sileo 1993, page 214). Both Laysan and black-footed albatross that occur within Hawaiian waters have been documented to be impacted by plastic debris.

Derelict gear will continue to accumulate in the action area, as long as fisheries continue to lose fishing gear. As cumulative effects includes all other non-federal fishing, some gear types are expected to float and pose a threat to short-tailed albatross. Although in the high energy environment that the short-tailed albatross uses, open ocean, the time derelict gear remains

suspended may be shorter than in protected environments such as the Puget Sound in Washington (NRC 2007, page 15). No known harm to short-tailed albatross has occurred due to derelict gear.

Climate change is not expected to reduce the biodiversity in the west coast EEZ (Hazen et al. 2012, page 11). Therefore, climate change is not expected to directly impact prey availability for short-tailed albatross. There may be indirect effects from climate change due to more top predators moving into the action area to take advantage of this stable area of biodiversity. Increase in top predators may lead to greater competition for prey and/or may result in more predation from sharks. Sharks may scavenge albatross that have been already injured or killed within the action area, but the actual effect of this activity on short-tailed albatross cannot be quantified at this time. The potential impact to short-tailed albatross from greater competition for prey also cannot be quantified at this time. Therefore, USFWS is unable to predict the extent that climate change will have on short-tailed albatross within the action area.

As the potential harm to short-tailed albatross from state fisheries and other threats in the action area are extremely small, USFWS does not believe that cumulative impacts change the expected population growth rates from those discussed above.

8.0 CONCLUSION

After reviewing the current status of the short-tailed albatross, the environmental baseline for the action area, the effects of the proposed action on the short-tailed albatross, and the cumulative effects, it is the USFWS's biological opinion that the activity, as proposed, is not likely to jeopardize the continued existence of the short-tailed albatross.

Our findings are based on the following assumptions and factors: (1) the proposed action is likely to result in interactions between short-tailed albatross and Pacific Coast Groundfish Fishery causing injury or mortality to individuals attempting to steal bait from hooks during longline setting and haulback, or from striking trawl cables or the sonar cable; (2) calculations of the rate at which injuries or mortalities are likely to occur from Pacific Coast Groundfish Fishery, based on a closely related surrogate species (the black-footed albatross), indicate that approximately one or fewer short-tailed albatross is likely to suffer injury or death per year in the action area; (3) other methods of fishing not covered by the NMFS Observer Program proposed to be implemented through the proposed action have a very low likelihood of adverse effects rising to the level of significant injury or death to the short-tailed albatross; and (4) the estimated rate of injury or death of the species will not preclude the survival or recovery of the species, nor substantially delay the rate at which the species could recover in the absence of this injury or mortality.

This conclusion is consistent with the Short-tailed Albatross Recovery Plan which states that the short-tailed albatross are not declining due to seabird bycatch in commercial fisheries (USFWS 2008, page 19). Although the plan does state that it is important that we continue to make efforts to acquire adequate seabird bycatch information from all fisheries within the range of the short-tailed albatross, so that we can detect which fisheries may begin to have deleterious population-level effects upon this species in the future (USFWS 2008, page 20).

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 attempt to engage in any such conduct. Harm is further defined by the USFWS 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 USFWS 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, carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2) of the Act, take that is incidental to and not intended as part of the agency action is not considered to be a prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by NMFS so that they become binding conditions of any grant or permit issued to any applicant, as appropriate, for the exemption in section 7(o)(2) to apply. NMFS have a continuing duty to regulate the activities covered by this Incidental Take Statement. If NMFS (1) fails to assume and implement the terms and conditions or (2) fails to require cooperators to adhere to the terms and conditions of the Incidental Take Statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, NMFS must report the progress of the action and its impact on the species to the USFWS as specified in this Incidental Take Statement. [50 CFR §402.14(i)(3)]

9.0 AMOUNT OR EXTENT OF TAKE

The USFWS anticipates a yearly average of one short-tailed albatross could be taken as a result of this proposed action. The incidental take is expected to be in the form of short-tailed albatross killed from longline hooks or trawl cables.

The USFWS anticipates an unknown percent of incidental take of short-tailed albatross will be difficult to detect for the following reasons: 1) animals that become hooked on gear may fall off wounded or dead before observed and bird strikes of cables may result in injured or dead birds that are not captured in the trawl nets, and thus not observed; and 2) due to potential noncompliance with reporting. However, the expected level of take of short-tailed albatross can be anticipated by loss of a surrogate species, black footed albatross. A relationship of anticipated take can be made as both species use the same habitat within the action area and are subjected to the same threats. Estimated black footed albatross take is based on landing (fishing effort) and observer recorded take.

The extent of take of short-tailed albatross will be assessed by documented takes and by assessing effects to a surrogate species (black-footed albatross). The extent of take of the short-

tailed albatross documented by either approach is expected to be within the limits defined in the effects analysis in this biological opinion (i.e., a yearly average take of one short-tailed albatross). As actual levels of take are expected to vary from year to year, the average take average should not exceed two over a two-year period. A floating two year period beginning at the time this BO is signed will be used to quantify the two-year actual take average¹. Take estimates based on the surrogate species approach will be based on a two-year reporting period that will be established by the Pacific Coast Groundfish and Endangered Species Workgroup. The first update of estimate take will occur before the end of 2015.

10.0 EFFECT OF THE TAKE

In the accompanying biological opinion, the USFWS determined that this level of anticipated take is not likely to result in jeopardy to the species.

11.0 REASONABLE AND PRUDENT MEASURES

The USFWS believes the following reasonable and prudent measures (RPM) are necessary and appropriate for NMFS to minimize take of short-tailed albatross:

RPM 1: NMFS shall minimize the risk of short-tailed albatross interacting with hooks and lines. Because short-tailed albatross are caught and killed by baited hooks in longline fisheries, minimization measures shall be employed to reduce the likelihood that they will attack the baited hooks.

RPM 2. NMFS shall establish a multi-stakeholder, Pacific Coast Groundfish and Endangered Species Working Group as an advisory body to the NMFS and USFWS for the purposes of reducing risk to short-tailed albatross. This group will work toward eliminating data gaps and facilitate adaptive management to minimize and avoid take of short-tailed albatross.

RPM 3: NMFS shall monitor and report all observed, reported and estimated take, based on the surrogate approach, of short-tailed albatross interactions with longline fishing vessels and gear, and report on the efficacy of avoidance and minimization measures.

RPM 4: NMFS shall facilitate the salvage of short-tailed albatross carcasses taken by longline fishing vessels. Because of their rarity and unique life history traits, every effort should be made to retain short-tailed albatross carcasses for scientific and educational purposes.

12.0 TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the NMFS must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are nondiscretionary.

¹ When the first take occurs, after the signing of this BO, a two-year period will be observed for further take. After two years pass, the two-year window for counting take will be moved to the next occurring take.

Terms and conditions include monitoring, review, reporting, (see 50 CFR 402.14(i)(3)) and disposition of specimens (see 50 CFR 402.14(i)(1)(v)).

T&C 1 for RPM 1: NMFS shall promulgate regulations to mandate the use of streamer lines in the commercial longline fishery of the Pacific Coast Groundfish Fishery for non-tribal vessels 55 feet length or greater. NMFS shall encourage the continuation of the voluntary efforts for smaller vessels to use streamer lines. Regulations shall be developed by NMFS for compliance and should follow the Alaska streamer line regulations for Federal waters. Regulations shall be implemented as soon as practical, but initiation of implementation shall not exceed a two-year period after issuance of this biological opinion. NMFS shall continue to provide assistance to the Tribes with implementation of streamer use on tribal vessels, and shall encourage and assist with the development of Tribal regulations requiring streamer use as information and resources become available.

This T&C is expected to be the starting place for an adaptive management process that shall continue to implement RPM 1. It is expected that new information and research shall reveal new or improved methods of reducing bycatch of short-tailed albatross that are safe and effective for the Fishery to use. If during the adaptive management process it is determined that this T&C should be updated, the BO shall be amended, as appropriate.

T&C 2 for RPM 1: NMFS shall ensure continued delivery of training workshops on vessel instructions for proper use of streamer lines. Additional topics that shall be covered in training include:

- (1) Status of short-tailed albatross population and observations of the species in the vicinity of the Pacific Coast Groundfish Fishery fishing area.
- (2) Short-tailed albatross notification requirements (see T&C 2 for RPM 3).
- (3) Disposition of short-tailed albatross specimens (see T&C 1 for RPM 4).

T&C 1 for RPM 2: NMFS shall develop and lead a Pacific Coast Groundfish and Endangered Species Workgroup. Working group development shall entail:

- (1) NMFS shall identify preliminary membership² for a Pacific Coast Groundfish and Endangered Species Workgroup (PCGW) within eight months of opinion issuance.
- (2) Within three months of opinion issuance, NMFS shall invite PFMC and USFWS to provide points of contact, participate in the Pacific Coast Groundfish and Endangered Species Workgroup, and help develop terms of reference for the workgroup (see 4. below). NMFS shall request response within six months of opinion issuance.
- (3) The Pacific Coast Groundfish and Endangered Species Workgroup shall at a minimum convene on a biennial basis to consider all new information (see T&C 3 for RPM 3).
- (4) The PCGW members shall recommend and NMFS shall adopt the final terms of reference for the PCGW, ideally within 12 months of opinion issuance. These terms shall document the purpose and structure of the group, the basis for key recommendations,

² Membership is subject to change based on technical needs, constituent interest, Council direction, etc.

staff points of contact and their roles and responsibilities, resources needed to accomplish the workgroup purpose, and a breakdown of anticipated work schedules (e.g., for biennial reporting and completing a future consultation following a PCGW recommendation to reinitiate).

(5) Recommendations shall be made available to NMFS, USFW and PFMC.

T&C 2 for RPM 2: With NMFS as lead, the Pacific Coast Groundfish and Endangered Species Workgroup shall be an advisory group responsible for review of new information and developing recommendations regarding changes to the Pacific Coast Groundfish Fishery that shall reduce risk of harm to short-tailed albatross. Example recommendations may include developing new analyses or reports, changes to sampling protocols, additional conservation measures to implement, updating species risk assessments, and advise if reinitiation is warranted.

This process is in compliance with the June 14, 2012, Memorandum of Understanding (MOU) between NMFS and USFWS to promote the conservation of migratory bird populations (NMFS and USFWS 2012, pages 3, 8 -10).

T&C 1 for RPM 3: NMFS shall update the Pacific Coast Groundfish Observer Program to include specific guidance for endangered or threatened species, namely:

- (1) Include the requirement to prioritize monitoring of the deployment of longline gear to document the efficacy of the streamer lines in minimizing interactions with short-tailed albatrosses.
- (2) Biological sampling – interactions: update to include requirements for disposition of short-tailed albatross specimens (see T&C 1 for RPM 4 & Disposition of specimens).
- (3) Derelict gear – collect data on all gear lost at seas, including gear type, location of the loss, and if loss from vessel or at sea.
- (4) NMFS shall provide the USFWS an opportunity to review and approve updated observer instructions prior to implementation.
- (5) The results of endangered species monitoring, including monitoring of derelict gear, shall be used by NMFS in a biennial report (see T&C 3 for RPM 3 below).

T&C 2 for RPM 3: Implement regulation changes that require mandatory notification by fishers to USFWS Law Enforcement (see next paragraph for contact information by state) and NMFS' Sustainable Fisheries Division, Assistant Regional Administrator (206-526-6150) when take of an endangered or threatened seabird occurs. Regulations should also specify that if an observer is on board, they shall complete notification requirements.

Washington's USFWS Law Enforcement Office is located at 510 Desmond Dr. SE, Suite 102, Lacey, WA 98503; phone: 360-753-7764. Oregon's USFWS Law Enforcement Office is located at 9025 SW Hillman Court, Suite 3134, Wilsonville, Oregon 97070; phone: 503-682-6131.

California's USFWS Law Enforcement Office is located at 2800 Cottage Way, W-2928; Sacramento, California 95825; Phone: 916-414-6660.

T&C 3 for RPM 3: NMFS shall complete a biennial report to be submitted to State Supervisor, USFWS, 2600 SE 98th Ave, Suite 100, Portland, OR 97266, and to the Pacific Coast Groundfish and Endangered Species Workgroup. The report shall include any pertinent new information and document effects of the Pacific Coast Groundfish Fishery on endangered or threatened species:

- (1) NMFS shall include the following data when monitoring predicted fishery interactions in order to provide fleet-wide short-tailed albatross take estimates on a biennial basis.
 - i. Current available data from short-tailed albatross telemetry work.
 - ii. NMFS Groundfish observer program's data on all observed short-tailed albatross vessel and gear interactions and information on injured and killed short-tailed albatross.
 - iii. Any additional reports by other NMFS managed fisheries operating in the action area of short-tailed albatross vessel and gear interactions and information on injured and killed short-tailed albatross.
 - iv. Pacific Coast Groundfish Fishery fishing effort.
 - v. NMFS Groundfish observer program's data on all observed black-footed albatross vessel and gear interactions and information on injured and killed black-footed albatross. This is to continue the use of this species as an analytical surrogate for short-tailed albatross.
- (2) NMFS shall report on the type and spatial and temporal characteristics of derelict gear observed while implementing the fisheries. This includes gear lost while fishing and other observed derelict gear at sea.
- (3) NMFS shall report on vessel operator training efforts.

T&C 4 for RPM 3: NMFS shall update the BA's risk assessment for short-tailed albatross as recommended by the Pacific Coast Groundfish and Endangered Species Workgroup or when reinitiation of consultation is required.

T&C 5 for RPM 3: NMFS shall consult with the working group to consider methods for accounting for take of short-tailed albatross in unobserved fisheries.

T&C 6 for RPM 3: NMFS should not drop below current levels of observer coverage unless an analysis has been completed that shows lower levels of observer coverage is acceptable for estimating harm to black-footed or short-tailed albatross.

T&C 1 for RPM 4: NMFS shall disseminate the following short-tailed albatross disposition instructions to fishers and observers within the Pacific Coast Groundfish Fishery.

- (1) If a dead, injured, or sick short-tailed albatross individual is located, call USFWS 503-231-6179 for handling and disposition instructions. If an observer is on board, they shall be responsible for the disposition of dead, injured, or sick birds, otherwise the boat captain shall be responsible.

- (2) Care should be taken in handling sick or injured specimens to ensure effective treatment and in the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured short-tailed albatross or preservation of biological materials from a dead animal, the boat captain or observer has the responsibility to carry out instructions provided by USFWS to ensure that the specimen is not unnecessarily disturbed.
- (3) Live birds must be retained in a safe location. Release overboard shall occur if it looks normal and exhibits all of the following traits: the bird is capable of holding its head erect, and the bird responds to noise and motion stimuli; the bird breathes without noise; the bird can flap both wings, and it can retract the wings to a normal folded position on the back; and the bird is capable of elevating itself to stand on both feet, with its toes pointed in the proper direction (forward); and it is dry.
- (4) Injured or sick albatross are to be retained in a safe location.
- (5) Dead short-tailed albatross must be frozen immediately, with identification tags attached directly to the carcass, and a duplicate identification tag attached to the bag or container holding the carcass. Ideally, the specimen should be frozen at -40 degrees Fahrenheit. Identification tags must include all of the following information: species, date of mortality, name of vessel, location (latitude and longitude) of mortality, observer or captain's name (or both), and any band numbers and colors if the specimen has any leg bands. Leg bands must remain attached to the bird.
- (6) If the bird is retained alive or dead, it must be surrendered as soon as possible as directed by the USFWS.

The USFWS believes that a yearly average of one short-tailed albatross will be incidentally taken as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the USFWS the need for possible modification of the reasonable and prudent measures.

The USFWS will not refer the incidental take of any federally listed migratory bird (in this case, short-tailed albatross) for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712), if such take is in compliance with the terms and conditions (including amount and/or number) specified herein.

13.0 CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by implementing conservation programs for the benefit of endangered and threatened

species. Conservation recommendations are discretionary agency activities designed to minimize or avoid adverse effects of a proposed action on listed species or designated critical habitat, to assist in the implementation of recovery plans or to obtain information.

The USFWS believes the following conservation recommendation will reduce the impact of the proposed action on short-tailed albatross within the action area:

1. Calculate observer coverage level within the Pacific Coast Groundfish Fishery that will provide adequate data to predict harm to black-footed albatross within a reasonable tolerance.
2. Calculate observer coverage level within the Pacific Coast Groundfish Fishery that will provide adequate data to predict harm to short-tailed albatross within a reasonable tolerance.
3. Observer coverage for the Pacific Coast Groundfish Fishery should be kept at or above a level that allows adequate data collection to accurately predict harm of short-tailed albatross.

In order for the USFWS to be kept informed of actions that minimize or avoid adverse effects or benefit listed species or their habitats, the USFWS requests notification regarding the implementation of any conservation recommendation.

14.0 REINITIATION NOTICE

This concludes formal consultation on the actions outlined in your Biological Assessment. 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 maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agencies' 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 that was not considered in this BO; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending re-initiation of formal consultation.

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APPENDIX A

1.0 CALIFORNIA LEAST TERN

The California least tern (*Sterna antillarum browni*) is the smallest of the North American terns and is found along the Pacific Coast of California, from San Francisco southward to Baja California. Critical habitat has not yet been designated for this species.

This species occurs in the part of the action area that will be subjected to boat traffic associated with the proposed action. Interactions with boat traffic are not identified as threats to the species within the Recovery Plan for the California Least Tern. The direct impact from boat traffic may affect, but are not likely to adversely affect California least terns.

California least tern are surface feeding birds, preying on a variety of small fishes in shallow waters. When breeding, they forage within a few hundred meters of the colony in waters < 18 m deep. The BA's Risk Assessment estimates that small pelagic fish are expected to increase in their abundance due to continuation of the Pacific Coast Groundfish Fishery. NMFS concluded that the indirect impacts from this Fishery may affect, but are not likely to adversely affect California least terns.

The USFWS concurs with NMFS that the proposed action is not likely to adversely affect California least terns, because adverse interactions with vessels and forage depletion are extremely unlikely to occur.

2.0 SOUTHERN SEA OTTER

Southern sea otters (*Enhydra lutris nereis*) are the smallest species of marine mammals in North America. They occupy nearshore waters along the mainland coastline of California from San Mateo County to Santa Barbara County. A small colony of southern sea otters also exists at San Nicolas Island, Ventura County, as a result of translocation efforts initiated in 1987. Critical habitat has not yet been designated for this species.

This species occurs in the part of the action area that will be subjected to boat traffic associated with the proposed action. Interactions with boat traffic are not identified as threats to the species. The direct impact from boat traffic may affect, but are not likely to adversely affect Southern sea otters.

The Pacific Coast Groundfish Fishery does not appear to compete with sea otters for prey species. Trophic models presented in the BA's Risk Assessment suggest that the Fishery is unlikely to affect the sea otters due to food web interactions. The indirect impacts from this Fishery may affect, but are not likely to adversely affect Southern sea otters.

The USFWS concurs with NMFS that the proposed action is not likely to adversely affect southern sea otters, because adverse interactions with vessels and forage depletion are extremely unlikely to occur.

3.0 BULL TROUT

Bull trout (*Salvelinus confluentus*) are members of the family Salmonidae and are a char native to Washington, Oregon, Idaho, Nevada, Montana and western Canada. This species and its critical habitat occur in the part of the action area that will be subjected to boat traffic associated with the proposed action. Interactions with boat traffic are not expected. Indirect impacts to bull trout's food base, which includes forage fish (USFWS 2010, page 63931), may occur. The BA's Risk Assessment estimates that small pelagic fish are expected to increase in their abundance due to continuation of the Pacific Coast Groundfish Fishery.

No habitat modifications will occur with the proposed action.

The USFWS concurs with NMFS that the proposed action is not likely to adversely affect bull trout, because adverse interactions with vessels and forage depletion are extremely unlikely to occur.

4.0 BULL TROUT CRITICAL HABITAT

Critical habitat was designated for bull trout in 2010. Marine waters, including coastal rivers, estuaries, and nearshore waters, provide bull trout access to a productive forage base and to overwintering areas protected from extreme flow events. The "marine" foraging, migration, and associated overwintering habitats are important to bull trout in the Olympic Peninsula for maintaining diversity of life history forms and for providing access to productive forage areas. Critical habitat is designated for a very narrow band of shallow water off the Washington coast, and does not occur within the EEZ.

Boat traffic through critical habitat will not modify critical habitat. Indirect impacts to primary constituent element number three, which includes an abundant food base of forage fish (USFWS 2010, page 63931), may occur. The BA's Risk Assessment estimates that small pelagic fish are expected to increase in their abundance due to continuation of the Pacific Coast Groundfish Fishery.

The USFWS concurs with NMFS that the proposed action is not likely to adversely affect bull trout critical habitat, because adverse interactions of primary constituent elements with vessels and forage depletion are extremely unlikely to occur.

5.0 MARBLED MURRELET

The marbled murrelet (*Brachyramphus marmoratus*) is a small long-lived diving seabird that nests mainly in canopy of mature and old-growth coniferous forests. Marbled murrelets have a naturally low reproductive rate. Murrelets spend most of their lives in the marine environment where they forage and consume a diversity of prey species, including small fish and invertebrates.

Marbled murrelets usually feed in shallow, near-shore water less than 98 feet (30 m) deep (Huff et al. 2006, page 19), but are thought to be able to dive up to depths of 157 feet (47 m) (Mathews

and Burger 1998, page 71). During the breeding season, marble murrelets are usually found within five miles from shore off of Washington, just over three miles off shore from of Oregon and within two miles from shore off of California (Huff et al 2006, pages 33 and 41). Although little information is available on marbled murrelet distribution outside the breeding season, limited information on winter/non-breeding non-breeding season distribution suggests they disperse and can be found farther from shore (Strachan et al. 1995, page 247).

The marbled murrelet distribution overlaps to some extent with the fishing operations of the Pacific Coast Groundfish Fishery, particularly outside the nesting season. In addition, throughout the year transiting vessels pass through waters occupied by murrelets. Fishing vessels and personnel on the vessels may disturb foraging and loafing murrelets; however, we do not anticipate that the effects will be measurable, as marbled murrelets should be able to move away from these disturbances without adverse effects.

Fishing gear types that have been identified in the Recovery Plan and/or subsequent five year reviews as affecting murrelets include: gill nets, purse seine and hooks from sport fisheries (USFWS 1997, page 56; McShane et al. 2004, page 2-15 and 5-23, USFWS 2009, page 66). This Fishery does not include the use of purse seines.

Extensive marbled murrelet mortality has occurred from gill-net fishing (USFS 1997, page 58). The Pacific Coast Groundfish Fishery does include gill-nets but only in CA below latitude 38°N and beyond three miles from the coast. As murrelets occur closer to the coast in California, there is no anticipated murrelet overlap with the use of gill-nets associated with the continued operations of the Pacific Coast Groundfish Fishery. USFWS does acknowledge that we know little about winter distribution. Reinitiation would be required if we learn that marbled murrelets are occurring beyond three miles in California, overlapping with Pacific Coast Groundfish Fishery gill net use, as this would change the risk assessment.

Marbled murrelet mortality from hooking with fishing lures and entanglement with fishing lines from sport fisheries appears to occur sporadically in localized areas (McShane et al. page 5-23). Overlap of marbled murrelets with the Pacific Coast Groundfish Fishery's sport/recreational fisheries sector is expected in Washington from three to five miles offshore and in Oregon just beyond three miles offshore. Some hooked marbled murrelets can be unhooked and released alive, significantly increasing their chance of survival. However, the recreational bottom fishing that is part of the proposed action does not focus on concentrations of murrelet prey fish, and it is unlikely that marbled murrelets would be exposed to the sport/recreational fishing of ground fish in federal waters.

Affects to marbled murrelets have not been detected with other gear types and are not expected. Other gear types may be deployed at depths that are not in the foraging range of marbled murrelets or marbled murrelets may be able to see the gear due to large diameter of the netting and avoid it within areas where they forage.

Therefore, direct effects from fishing and transiting vessels may affect but are not likely to adversely affect marbled murrelets.

Marbled murrelets prey on a variety of small fishes and invertebrates. The BA's Risk Assessment using trophic modeling found that small pelagic fish and large zooplankton are expected to increase in their abundance with continuation of this Fishery. The small fish marbled murrelets consume include juvenile rockfish, a targeted species complex for the Pacific Coast Groundfish Fishery. Rockfish are also predicted to increase in abundance, by the Risk Assessment. Therefore, the indirect impact from this Fishery may affect, but is not likely to adversely affect marbled murrelets.

Impacts from derelict fishing gear (nets and pots) are a newly-recognized threat to marbled murrelets (USFWS 2009, page 60). The threat from derelict fishing nets appears to be high in the Puget Sound and San Juan Islands (parts of Conservation Zone 1, along with the Strait of Juan de Fuca) and the severity of the threat in this conservation zone is high. The Pacific Coast Groundfish Fishery does not occur in any of the conservation zones, as defined in USFWS 1997, pages 125-130. As stated above, there is some overlap of this Fishery and marbled murrelets elsewhere, and derelict gear can drift into marbled murrelet habitat. In the high-energy environment of the open ocean where the Pacific Coast Groundfish Fishery occurs, the time over which derelict nets remain suspended may be shorter when compared to a lower energy environment like the inner Puget Sound (NRC 2007, page 15). The USFWS' 2009 status review, page 60, anticipated the presence of derelict fishing nets along the coasts of Oregon and California to be limited, based on the lack of near-shore net fisheries and the high energy environment. Within the Puget Sound where the threat from derelict gear is considered high, no marbled murrelets have been documented in any derelict nets recovered (USFWS 2009, page 60). As this Fishery focuses on groundfish, the netting is designed to sink and it is more likely to sink rather than to remain suspended. Therefore, we do not anticipate that murrelets will become entangled in derelict gear from this Fishery.

The USFWS concurs with NMFS that the proposed action is not likely to adversely affect marbled murrelets, because adverse interactions with vessels and gear, and forage depletion are extremely unlikely to occur.

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