ENVIRONMENTAL ASSESSMENT
for the Issuance of an Exempted Fishing Permit for Testing Integrated Weight Groundline as Seabird Avoidance Technique in the Hook-and-line Pacific Cod Fisheries in the Bering Sea and Aleutian Islands

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Abstract: This document is an Environmental Assessment (EA) of the potential impacts of issuing an exempted fishing permit (EFP) to allow for the testing of integrated weight groundline as a seabird avoidance measure in the hook-and-line Pacific cod fisheries in the Bering Sea and Aleutian Islands. The purpose of the EFP is to provide exemptions from seabird avoidance regulations and separate allocations of groundfish species and PSC limits during the experiment. The project is a continuation of experiments conducted by the University of Washington Sea Grant Program and is intended to provide a means to improve seabird avoidance measures in the BSAI longline fisheries. The analysis found no significant impacts on the human environment for this action.

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Executive Summary

The North Pacific Longline Association (NPLA) has applied for an Exempted Fishing Permit to conduct tests of an integrated weight groundline (IWG) as a seabird avoidance measure in the longline fisheries. This work would continue experiments conducted by the University of Washington Sea Grant Program. In 2002, four weightings of IWG were compared to a control with weighted line and no seabird deterrents in the sablefish fishery in the Aleutian Islands and the Pacific cod fishery in the Gulf of Alaska. Preliminary results suggested that 50g/meter line was the optimal IWG for operating in auto-bait longline systems and preventing interaction with seabirds.

This EFP would continue the Washington Sea Grant Program work by comparing the catch rates of all taxa, the abundance and behavior of seabirds, and the sink rate of groundlines among three mitigation treatments.

The project would begin on July 15, 2005 with a separate allocation to cover harvests by the two hook-and-line catcher/processors conducting the experiments, until the opening date of the BSAI hook-and-line Pacific cod fishery on August 15, 2005, at which time the vessels would operate under the 2005 TAC specifications. The experiments would continue until the close of the fishery.

The EFP is necessary to allow the applicant to develop and test hook-and-line gear with improved effectiveness at seabird avoidance with certain exemptions from gear requirements, prohibited species catch (PSC) limits, fish retention restrictions and requirements, and improved retention/improved utilization (IR/IU) requirements. The alternatives are limited to the status quo (Alternative 1) and the issuance of the EFP (Alternative 2). Alternative 2 would provide an EFP with exemptions from: (1) use of paired streamer lines during the control sets, (2) maximum retainable amounts of incidentally taken species, as specified at § 679.20(e), during the period July 15 to August 15, (3) and IR/IU requirements as specified at § 679.27. The total amount of groundfish allowed to be harvested is 3,508 mt, including a 2,612 mt limit on Pacific cod. Halibut mortality is limited to 34.4 mt. Tanner crab incidental catch is limited to 7,200 crab.

The environmental effects of Alternative 2 are limited to seabirds, groundfish, prohibited species, and marine mammals. The effects were determined to be insignificant.

Comparison of Alternatives and Selection of a Preferred Alternative

Alternative 2 had no significant impacts identified. Alternative 1 had no additional environmental impacts beyond those already identified in previous analyses, but Alternative 1 would not provide for the improved seabird avoidance measures in the hook-and-line fisheries of the BSAI. Because Alternative 2 has no significant adverse impacts identified and provides for the potential for improved seabird avoidance, Alternative 2 is the preferred alternative.

1.0 Introduction

The Alaska Region of the National Marine Fisheries Service (NMFS) issues exempted fishing permits (EFPs) to allow experimental activities that could benefit the groundfish fisheries and the environment but that would otherwise be prohibited under the groundfish fishing regulations. Before an EFP may be issued, the experimental design of activities to be conducted under the permit must be reviewed by the Alaska Fisheries Science Center, and the Regional Administrator must consult with the North Pacific Fishery Management Council (Council). An EFP is typically effective for no longer than one calendar year. For more information, see the regulations governing the application and review process for EFPs at 50 CFR 679.6.

EFPs for experimental activities that have the potential to impact the environment must comply with the requirements of the National Environmental Policy Act (NEPA) and have those activities analyzed. If the predicted impacts are not significant, no further analysis beyond an environmental assessment (EA) is necessary to comply with NEPA.

This EA evaluates the potential impacts of experiments proposed under an EFP applied for by the North Pacific Longline Association (NPLA) to conduct tests of an integrated weight groundline as a seabird avoidance measure in the longline Pacific cod fishery of the Bering Sea and Aleutian Islands (BSAI).

The University of Washington Sea Grant Program (WSGP) submitted the original EFP application for the proposed tests of IW groundline on May 14, 2004. NMFS published a notice of receipt of that application in the Federal Register on May 25, 2004 (69 FR 29701). In June 2004, the Council received a report on the proposed study of IW groundlines and, with support from the Council's Scientific and Statistical Committee (SSC), approved the EFP to WSGP. On February 18, 2005, the NPLA submitted an amendment to the EFP application, asking that the EFP be issued to the NPLA, instead of to the WSGP, and that the experiments be allowed to start on July 15, 2005, a month earlier than initially proposed. The applicant requested allocations to the vessels conducting the experiment to support fishing outside of the total allowable catch (TAC) and prohibited species catch (PSC) specifications until the opening of the Pacific cod fishery on August 15, 2005, at which time the vessels would begin operating under existing TACs and PSCs. NMFS published a notice of receipt of this amended application in the Federal Register on March 18, 2005 (70 FR 13174).

1.1 Purpose and Need

The purpose of the EFP is to authorize the NPLA's proposed tests by allowing the experimental fishing to begin a month earlier (July 15, 2005 instead of August 15, 2005); by allocating specified amounts of Pacific cod and bycatch species to participating vessels to support fishing prior to the effective opening of the directed Pacific cod longline fishery; by allowing the vessels to harvest Pacific cod beyond the total allowable catch and acceptable biological catch amounts specified for 2005; and by exempting the vessels from groundfish fishing regulations at 50 CFR 679.24(e)(4)(ii)(c)— the requirement for longline vessels greater than 55 ft (16.8 m) in length overall (LOA) to use paired streamer lines—and at 50 CFR 679.27—improved retention/improved utilization (IR/IU) requirements.

The experiments will require the participation of two longline vessels using auto-bait systems. The purpose of beginning the tests a month before the BSAI Pacific cod longline fishery opens to other vessels is to encourage vessel owners to volunteer their vessels for participation in the tests. The WSGP was unable to contract vessels to carry out the tests proposed for 2004 in the initial application. The earlier start date and separate groundfish and PSC allocations will presumably provide incentive for vessel owners to volunteer their vessels for participation in the experiments. Due to constraints of normal

fishing operations that would occur during the course of the experimental tests, vessel owners in 2004 were not able to participate in this cooperative research project during an open-access fishing season.

The need for such research into the effectiveness of IWG in reducing interactions between seabirds and the longline fisheries has been recommended in the Biological Opinion on the Effects of the Total Allowable Catch-Setting Process for the Gulf of Alaska and Bering Sea/Aleutian Islands Groundfish Fisheries to the Endangered Short-tailed Albatross (*Phoebastria albatrus*) and Threatened Steller's Eider (*Polysticta stelleri*) (USFWS 2003a) and the Programmatic Biological Opinion on the Fishery Management Plans for the Gulf of Alaska and Bering Sea/Aleutian Islands groundfish fisheries on the endangered short-tailed albatross (*Phoebastria albatrus*) and threatened Steller's eider (*Polysticta stelleri*) (USFWS 2003b). Those Biological Opinions recommend the continuing support of research efforts to develop state-of-the-art seabird deterrent devices for the fishing industry, such as integrated weight lines.

Although seabirds do not constitute "bycatch" under the Magnuson-Stevens Act's definition, efforts to reduce the incidental take of seabirds in fisheries are consistent with the Magnuson-Stevens Act's objective to conserve and manage the marine environment. Moreover, NMFS' guidelines for implementing the Magnuson-Stevens Act's national standards note that other applicable laws, such as the Marine Mammal Protection Act, and the Endangered Species Act (ESA), require that Councils consider the impact of conservation and management measures on living marine resources such as seabirds. NMFS' National Bycatch Strategy also addresses the need to reduce the take of migratory birds (*http://www.nmfs.noaa.gov/bycatchlimages/FINALstrategy.pdf*) and defines ''bycatch'' more broadly than the Magnuson-Stevens Act to explicitly include the incidental take of seabirds as ''bycatch.''

Description of the IW Groundline Evaluation Project

In 2002, four weightings of IWG (25g/m, 50g/m, 75g/m and 100 g/m) were compared to a control of no deterrent in the sablefish fishery in the Aleutian Islands and the Pacific cod fishery in the Gulf of Alaska. Preliminary results strongly suggest that 50g/meter line was the optimal IWG weighting. It was the most practical gear in terms of operational performance in auto-bait longline systems and it sank quickly beyond the range of seabirds.

Based on these initial results, WSGP proposed continuing this work by comparing the catch rates of all taxa, the abundance and behavior of seabirds and the sink rate of groundlines among three mitigation treatments: 50g/meter IWG, and un-weighted groundlines with and without paired streamer lines. The NPLA, in its amendment to the WSGP's initial application, proposes to conduct the experiments, with the work carried out on two longline catcher/processor vessels using mechanical baiting systems (auto-bait) in the Pacific cod fishery in the Aleutian Islands/Bering Sea regions during the Fall of 2005. The three mitigation treatments will be fished according to a random block design for the entire season. Daylight non-streamer line deployments will be made with a measuring line (80 meter line marked every 10 meters) deployed from one side of the vessel. Physical variables including wind speed and direction, current speed and direction, Beaufort Sea state, swell height, as well as time and date will be recorded for each set.

For approximately the first 30 days of the fishery, vessels will set 50% of the gear during daylight hours to allow for seabird observations during gear deployment. During this time, two sea samplers (i.e. trained data collectors) paid for by the project will be placed on each vessel. This level of staffing is necessary to collect data during both the haul and during the set in a 24 hour fishing operation. Providing cooperating vessels with sea samplers during the research activity compensates the vessel for altering fishing strategy due to the experimental design. Sea samplers with extensive longline experience will be employed. Each

vessel will also be provided with IWG by the project so as half the gear available for deployments is IWG gear. This gear will remain the property of the vessel at the end of the trials as a further incentive to cooperating vessels. Cooperating vessels will purchase at least two magazines of new un-weighted control gear to compare wear and strength of new control and new IWG at completion of the study.

Sea samplers will record data on CPUE of all species during the haul, and seabird abundance and seabird attack rates as the gear is deployed. Sink rates of the gear will also be determined periodically in this first month. The number of seabird attacks on baited hooks will be quantified by species and distance astern to the nearest ten meters for a ten minute period for each of the three treatments. Sea samplers will alternate attack rate samples to minimize fatigue. However, if Short-tailed Albatross (STAL) are observed immediately before or during the set, and if interaction between STAL and gear appears imminent, measures will be taken immediately to avoid an interaction (e.g. deploy paired streamer lines, distract with offal, etc.) for the duration of that deployment.

Groundline sink rates will be measured using time-depth recorders (TDR's; Wildlife Computers MK9's). These data will be used to estimate the distance astern at which the groundline reaches 2 meters (sink profile). The focus on sink rate to 2 meters is based on the diving capability of most seabirds taken in Alaska longline fisheries. Albatrosses, Northern Fulmars and gulls are the most common seabirds interacting with Alaska longline fisheries and exploit baits within 2 meters of the surface (Melvin et al. 2001).

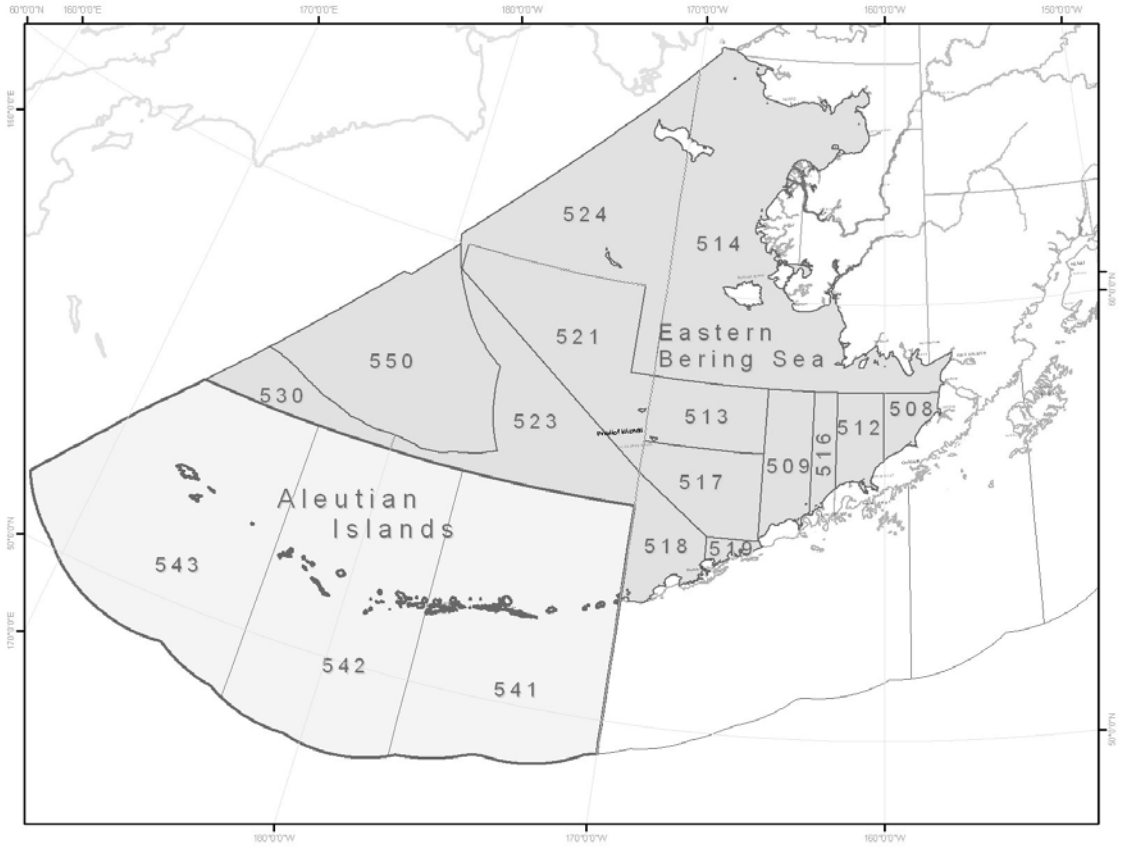
After the first month and during the open-access fishery and until the end of the fishing season, each of the same two vessels will carry its required observer. A single observer will be paid for by the vessel. During this time they will continue to set all three mitigation treatments according to a randomized block design, but with no constraints on when in the day deployments are made. The observer will sample the haul according to North Pacific Groundfish Observer Program protocols for each of the three mitigation treatments yielding CPUE data for all taxa. They will also document the wear and performance of IWG compared to un-weighted Fiskevegn Silverline (the current auto-bait industry standard). Controls of no deterrent will be discontinued in consultation with the USFWS, NOAA Fisheries, and industry after the first month if seabird bycatch becomes excessive. CPUE, attack rate, and seabird abundance data will be compared by mitigation treatment using standard parametric statistical techniques. Seabird bycatch rates will be compared using Generalized Linear Modeling techniques.

Council Action

At its April 2005 meeting, the North Pacific Fishery Management Council received reports from its Advisory Panel (AP) and Science and Statistical Committee (SSC) and indicated its support of the preferred alternative and recommended to NMFS that the EFP be approved. Based on an SSC recommendation, the Council requested that a fourth treatment be added to the experiment---one that would evaluate the potential interactions and additive effects of using both IWG and streamer lines simultaneously. The EFP applicant indicated that such a fourth treatment was possible and could be added to the experimental protocol. Thus the study will be comprised of 4 treatments: IWG without paired streamer lines, IWG with paired streamer lines, unweighted groundlines with paired streamer lines, and unweighted groundlines without paired streamer lines.

Project Area

Figure 1.1-1 Management areas in the Bering Sea and Aleutian Islands



2.0 Descriptions of Alternatives

For past EFP experiments dedicated to bycatch reduction, NMFS has exempted groundfish and prohibited species taken during the experiment from the annual total allowable catch (TAC) and prohibited species catch (PSC) limits (see 65 FR 55223, September 13, 2000) if there is no conservation concern and if such exemptions would facilitate experiments otherwise precluded by groundfish regulations (50 CFR part 600 and 679). To allow harvesting for the purpose of testing IW groundline as a seabird avoidance measure, this EFP, issued under the exempted fishing regulations at 50 CFR 679.6, would likewise exempt these experiments partly from the 2005 TAC and PSC limits. The alternatives for this action are limited to:

Alternative 1: No action alternative. The applicant's request for an EFP would be denied.

Alternative 2: Issue the EFP to allow the NPLA to continue experiments on seabird avoidance techniques in the Pacific cod longline fishery of the BSAI. The EFP would specifically exempt the experiments from the following regulations:

1. **§ 679.24(e)(4)(ii)(c).** These regulations require vessels greater than 55 ft (16.8 m) LOA fishing with hook-and-line gear in the EEZ to use a minimum of paired streamer lines as part of a seabird avoidance program. For controlled experimental purposes the EFP would allow the vessels conducting the experiments to deploy hook-and-line gear on specified sets without streamer lines, as specified in the EFP experimental plan.

2. **§ 679.20(e):** Maximum retainable amounts of incidentally taken species are specified in Table 11 for the BSAI. For the period from July 15, 2005, to August 14, 2005, the applicant will be exempt from these amounts for groundfish and will operate under separate allocations to cover incidental harvests (see Table 2.1 below).

3. **§ 679.21(d)(4)(iii)(C):** For the first month of operation (from July 15, 2005, to August 14, 2005), Pacific halibut and Tanner crab taken during the experiment will not be counted against their respective bycatch limits established the Pacific cod hook-and-line fisheries. The EFP would allow for up to 34.4 mt of halibut mortality (based on an 11% mortality rate0 and 7,200 count of Tanner crab. Halibut mortality from the project would create an additional burden on the Pacific cod hook-and-line industry, if the EFP halibut taken between July 15, 2005, and August 14, 2005, is counted toward the halibut PSC limits and triggers closure of the Pacific cod hook-and-line fisheries.

4. **§ 679.27** Improved Retention/Improved Utilization Program. Because strict adherence to the IR/IU regulations may create the need for the vessels to break from the experiment to offload fish or product, exemption from the IR/IU regulations is necessary. This will ensure that proscribed research schedules are not disrupted.

The EFP would allow experimental fishing to begin on July 15, 2005, a month prior to the opening date of the fall season for directed Pacific cod fishery with hook-and-line gear in the BSAI on August 15. The EFP would allocate specified amounts of Pacific cod and incidental catch of species to participating vessels, as shown in Table 2.1.

Table 2.1. Allocations to support fishing under the EFP from July 15, 2005, to August 14, 2005.

SPECIES	ROUND WT IN MT, EA VESSEL	ROUND WT IN MT, BOTH VESSELS
Cod	**1,306**	**2,612**
Halibut	**156**	**312**
Arrowtooth Flounder	**72**	**144**
Flathead Sole	**24**	**48**
Yellowfin Sole	**20**	**40**
Sculpin	**20**	**40**
Skates	**182**	**364**
Pollock	**12**	**24**
Total Groundfish	**1,754**	**3,508**
Tanner Crabs	**3,600 count**	**7,200 count**
***Halibut Mortality @ 11%**	**17.2 mt**	**34.4 mt**

3.0 Affected Environment

The NEPA documents listed below contain extensive information on the fishery management areas, marine resources, ecosystem, social and economic parameters of these fisheries and the harvest specifications. Rather than duplicate an affected environment description here, readers are referred to those documents. All of these are public documents and are readily available in printed form or over the Internet at links given in the references. Because this action is limited in area and scope, the description of the affected environment is incorporated by reference from the following documents:

Annual Harvest Specification EA. EAs have been written to accompany each new year's harvest specifications since 1991, with the exception of the 2001 harvest specifications, which were set by Congressional action at the 2000 levels (Public Law 106-554) and promulgated by emergency rule published in January 2001 without an accompanying NEPA analysis. The EA for the 2001 specifications was prepared in July 2001 (NMFS 2001a). The 2005-2006 harvest specifications were analyzed in an EA and a FONSI determination was made prior to publication of the rule (NMFS 2005). Additionally, the ecosystem considerations section of the Stock Assessment and Fishery Evaluation reports is included as Appendix C to the 2005-2006 harvest specifications EA (NMFS 2005). It contains summaries and pointers to recent studies and information applicable to understanding and interpreting the criteria used to evaluate significance of impacts that will result from alternative harvest quotas.

Alaska Groundfish Fisheries Programmatic Supplemental Environmental Impact Statement (PSEIS). The Final PSEIS for the groundfish fisheries off Alaska has been prepared and a Record of Decision issued to identify a preferred alternative for fishery management policy in the BSAI and GOA groundfish fisheries (NMFS 2004). Chapter 3 of the PSEIS contains a sweeping overview of the environmental and socio-economic resources associated with the groundfish fisheries in the EEZ off Alaska, and Chapter 4 analyzes four alternatives for setting TACs and ABCs at various levels, as well as alternative approaches to protecting seabirds species. For more information see the http://www.fakr.noaa.gov/sustainablefisheries/seis/default.htm website.

Section 7 Consultation - Biological Opinion on the Effects of the Total Allowable Catch-Setting Process for the Gulf of Alaska and Bering Sea/Aleutian Islands Groundfish Fisheries to the Endangered Short-tailed Albatross (*Phoebastria albatrus*) and Threatened Steller's Eider, September 2003 (USFWS 2003a).

Section 7 Consultation - Programmatic Biological Opinion on the effects of the Fishery Management Plans for the Gulf of Alaska and Bering Sea/Aleutian Islands groundfish fisheries on the endangered short-tailed albatross (Phoebastria albatrus) and threatened Steller's eider (Polysticta stelleri), September 2003 (USFWS 2003b).

Steller Sea Lion Final Supplemental Environmental Impact Statement and Section 7 Biological Opinion This SEIS analyzes the effects of the Steller sea lion protection measures on the human environment. An appendix to the document include the 2001 Section 7 Biological Opinion on the effects of the Steller sea lion protection measures on ESA listed Species. The opinion found that the protection measures were not likely to result in jeopardy of extinction or adverse modification or destruction of critical habitat for the western distinct population segment of Steller sea lions. (NMFS 2001b, 2003)

4.0 Environmental Consequences

This section forms the analytical basis for the issue comparisons across alternatives. As a starting point, Alternative 2 has the potential to affect one or more components of the human environment. The significance of those potential effects are determined by considering the environmental context and intensity of the action. The context in which the action will occur includes the specific resources,

ecosystem, and the human environment affected. The intensity of the action includes the type of impact (beneficial versus adverse), duration of the impact (short versus long term), magnitude of impact (minor versus major), and degree of risk (high versus low level of probability of an impact occurring). Further tests of intensity include: (1) the potential for compromising the sustainability of any target or nontarget species; (2) substantial damage to marine habitats and/or essential fish habitat; (3) impacts on public health or safety; (4) impacts on endangered or threatened species, or critical habitat of listed species; (5) cumulative adverse effects; (6) impacts on biodiversity and ecosystem function; (7) significant social or economic impacts; and (8) degree of controversy (NOAA Administrative Order 216-6, Section 6.02).

Differences between direct and indirect effects are primarily linked to the time and place of impact. Direct effects are caused by the action and occur at the same time and place. Indirect effects occur later in time and/or are further removed in distance from the direct effects (40 CFR 1508.27). For example, the direct effects of an alternative which lowers the harvest level of a target fish could include a beneficial impact to the targeted stock of fish, a neutral impact on the ecosystem, and an adverse impact on net revenues to fishermen, while the indirect effects of that same alternative could include beneficial impacts on the ability of Steller sea lions to forage for prey, neutral impacts on incidental levels of prohibited species catch, and adverse impacts in the from of economic distribution effects, for example, reducing employment and tax revenues to coastal fishing communities.

The section below contains an explanation of the significance criteria. The following ratings for significance are used: beneficial significance, adverse significance, insignificant, and unknown. Where sufficient information on direct and indirect effects is available, rating criteria are quantitative in nature. In other instances, where less information is available, the discussions and rating criteria used are qualitative in nature. In instances where criteria to determine an aspect of significance (significant adverse, insignificant, or significant beneficial) do not logically exist, no criteria are noted. These situations are termed “not applicable” in the criteria tables. An example of an instance where criteria do not logically exist, is the evaluation of the impact vector of incidental take on a declining stock of marine mammals. In that situation, an increase in take that caused a downward change in the population trajectory by greater than 10% is significant adverse. Any level below that which would have an effect on population trajectories is insignificant because the stock is continuing to decline regardless of fishery effects. There is no logical significant beneficial alternative (a reduction in take resulting in a beneficial effect on the population trajectory). Therefore, a criterion for significant beneficial is not applicable (NMFS 2003).

The rating terminology used to determine significance is the same for each resource, species, or issue being treated, however, the basic “perspective” or “reference point” differs depending on the resource, species, or issue being treated. The reference point relates to the biological environment. For each resource or issue evaluated, specific questions were considered in the analysis. In each case, the questions are fundamentally tied to the respective reference point. The generic definitions for the assigned ratings are as follows:

S+ Significant beneficial effect in relation to the reference point; this determination is based on interpretations of available data and the judgment of the analysts who addressed the topic.

I Insignificant effect in relation to the reference point; this determination is based upon interpretations of data, along with the judgment of analysts, which suggests that the effects are small and within the “normal variability” surrounding the reference point. When evaluating an economic or management issue it is used when there is evidence the alternative does not positively or negatively affect the respective factor.

S- Significant adverse effect in relation to the reference point and based on interpretations of data and the judgment of the analysts who addressed the topic.

U Unknown effect in relation to the reference point; this determination is made in the absence of information or data suitable for interpretation with respect to the question of the impacts on the resource, species, or issue.

NE No effect is anticipated from implementation of the action.

This EA incorporates by reference the specific significance criteria used in the EA for the 2005-2006 Harvest Specifications for the Alaska Groundfish Fisheries (NMFS 2005). See Section 4.1, significance analysis.

Environmental Components Potentially Affected

Because of the limited scope of activities authorized under the EFP, the experiments will not likely affect all environmental components of the BSAI. This project involves the taking of groundfish species, primarily Pacific cod, in the BSAI with hook-and-line gear. Although for most of the duration of the tests, fishing will be conducted under the 2005 TAC specifications, one month of fishing will be conducted outside of those restraints, but with separate allocations for groundfish and prohibited species harvests. Also, for statistical evaluation of the IWG, the experiments will require the use of control sets without seabird avoidance measures in use. These aspects of the project pose the potential to affect four components of the human environment: seabirds, groundfish, prohibited species, and marine mammals.

Table 4.1 Resources potentially affected by EFP Alternatives

	Potentially Affected Component							
Alternatives	Physical	Benthic Comm.	Groundfish	Marine Mammals	Sea-birds	Non specified Species	Prohib. Species	Socio economic
1	N	N	N	N	N	N	N	N
2	N	N	Y	Y	Y	N	Y	N

N = no impact beyond status quo anticipated by the option on the component.
Y = an impact beyond status quo is possible if the option is implemented.

The scope and duration of the EFP-authorized activities that would not be subject to the TAC specifications (and hence assessed in the 2005-2006 TAC Specification EA) are limited to directed Pacific cod hook-and-line fishing by two catcher-processor vessels for one month in the BSAI . The limited nature of these activities would likely preclude the tests from having any additional environmental, social, or economic effects.

Seabirds

The study poses the most potential for environmental impact on the subject of the study's experiments: seabirds. Fishery effects that may impact seabirds are direct effects of incidental take (in gear and vessel strikes), and indirect effects on prey (forage fish and fishery waste) abundance and availability, and benthic habitat (NMFS 2004d). ESA listed seabirds are under the jurisdiction of USFWS, which has

completed an FMP level (USFWS 2003a) and a programmatic BiOp (USFWS 2003b) for the groundfish fisheries and the setting of annual harvest specifications.

The BiOps concluded that the groundfish fisheries and the annual setting of harvest specifications were unlikely to cause the jeopardy of extinction or adverse modification or destruction of critical habitat for ESA listed birds.

Incidental take

The effects of incidental take of seabirds (from fishing gear and vessel strikes) are described in Section 3.7.1 of the PSEIS (NMFS 2004). Birds are taken incidentally in hook-and-line gear. Estimation of seabird incidental take from hook-and-line vessels is very straightforward because observers are able to see all gear-related mortalities from hook-and-line vessels.

The factors likely to affect the risk of seabird incidental catch are discussed in Section 3.7.1 of the PSEIS (NMFS 2004). In the longline fleet, if seabird avoidance measures used to prevent birds from accessing baited hooks are effective, then effort levels would probably be less of a critical factor in the probability of a bird getting hooked. New regulations became effective in February 2004. However, a sizeable portion of the longline fleet began, in January 2002, to use the seabird avoidance measures recommended by WSGP (Melvin, et al., 2001) and approved by the Council at its December 2001 meeting. While the incidental take of seabirds has exhibited some large inter-annual variations, it is worth noting that the overall take of seabirds was reduced by about 60% from 2001 to 2002. Continued collection of seabird incidental take data by groundfish observers will provide the data necessary to evaluate whether the rates continue to decrease.

For experimental purposes, the two catcher-processor vessels employed in the study will need to use controlled sets exempted from use of paired streamer lines by vessels over 60 ft LOA as normally required by the seabird avoidance regulations. This use of controlled sets without seabird avoidance measures may pose the potential to impact seabirds adversely. However, the EFP will mitigate the potential for interactions by carrying a condition that, if Short-tailed Albatross (STAL) are observed immediately before or during the set or if interaction with STAL appears imminent, measures be taken immediately to avoid such interaction (i.e., deployment of streamer lines, distraction of birds with offal) for the remainder of the deployment. In the event that a STAL is taken, the applicant will immediately stop the experiment and notify the USFWS and NOAA Fisheries of the need to reinitiate consultation.

Given this plan of action to protect against interactions or take with STAL and that the USFWS concurred with WSGP that the IWG experiments are not likely to adversely affect ESA-listed species, NMFS concluded an informal consultation with USFWS on February 23, 2005. The USFWS concurred with a NMFS determination that the IWG experiments are not likely to adversely affect ESA-listed species.

During Phase I of the EFP (July 15 to August 14, prior to the August 15 opening date of the ‘B’ season for directed Pacific cod fishery with hook-and-line gear in the BSAI) participating vessels will be required to carry 2 trained sea samplers, for the purpose of collecting data as outlined in the experimental protocol. The same vessels conducting the experiments during Phase II of the EFP (from August 15 until the close of the ‘B’ season) will be required to carry observers and fully comply with groundfish observer program regulations at 50 CFR Part 679.50 to ensure compliance with the above conditions. Staff from the North Pacific Groundfish Observer Program will also be onboard for parts of the experiment to assist.

With the mitigation conditions in place, the level of take is similar or less than baseline (i.e. that expected under the status quo alternative) and/or the level of take is not likely to have population level effects on species, thus, the effect of the EFP alternative on seabirds is determined to be insignificant.

Groundfish and Prohibited Species

For most of the duration of the tests, fishing conducted under the EFP will be carried out under the TAC specifications for the 2005 groundfish fisheries. During that time, the tests will pose no potential impacts beyond those evaluated in the 2005-2006 Harvest Specifications EA (NMFS 2005).

Fishing under the EFP, however, will begin one month prior to the start date of the fall Pacific cod hook-and-line fishery. As shown in Table 2.1, separate allocations of groundfish resources and prohibited species will be extended to the two vessels conducting the tests to cover fishing from July 15, 2005, to August 14, 2005.

Given that the experiment is designed to represent a Pacific cod directed fishery, Pacific cod will be the target species, with other groundfish species anticipated to be taken as incidental catch. The research will be conducted under the EFP's established protocols to investigate the effectiveness of the seabird bycatch reduction technique. Seabird catch is low on a per-haul basis, so sample sizes must be very high for researchers to be able to detect statistical differences between the control and experimental techniques. The vessels employed in the study are required to strictly follow the established research design and schedule, maximizing sample sizes.

The allocations for this EFP are therefore deliberately high, so the vessels will not be constrained in their fishing operations. The bycatch amounts of flathead sole, yellowfin sole, sculpin, and pollock have been set to accommodate the uncertainties of fishing in the summer. The allocations nevertheless represent very small amounts of the respective groundfish and prohibited species catch limits.

The amount of Pacific cod allocated for fishing under the EFP (2,612 mt) could result in an overall harvest in excess of the 2005-2006 TAC and ABC (Table 4.2). However, the estimated additional catch of Pacific cod would not approach the overfishing levels considered in the EA for the 2005-2006 Harvest Specifications (NMFS 2005). Precedent does exist for issuing EFPs that allow for groundfish harvest that exceeds both the TAC and ABC. An EFP approved by the Council and issued by NMFS in 2000 allowed for the harvest of 990 mt of groundfish for the purpose of developing a halibut excluder device for the cod trawl fishery (NMFS 2000). This amount exceeded the TAC (and ABC) (by ~0.51% of TAC) but did not approach the overfishing level. Given that the harvest of Pacific cod for purposes of this EFP is short-term, a one-time event, and represents a very small amount of the TAC (~1.3%), this amount is reasonably not expected to jeopardize the capacity of the stock to produce MSY on a continuing basis.

Table 4.2. 2005-2006 Overfishing Level (OFL), Acceptable Biological Catch (ABC), Total Allowable Catch (TAC), Initial TAC (ITAC), and CDQ Reserve Allocation of Pacific Cod in the BSAI. (Taken from 70 FR 8679, February 24, 2005, Table 1).

Area	OFL	ABC	TAC	ITAC	CDQ
BSAI	265,000	206,000	206,000	175,100	15,450

For incidental harvests of other groundfish species, the EFP allocations fall well below the maximum retainable percentages (Table 4.3). The following table compares the established retainable percentages for incidental harvest in the BSAI Pacific cod hook-and-line fisheries and the percentages represented by the EFP allocations.

Table 4.3 Retainable Percentages for BSAI Pacific Cod Fishery and Allocations for the EFP

Species	Retainable % (Table 11, 50 CFR 679)	Allocation under the EFP (mt)	% of P. cod harvest under the EFP
Arrowtooth Flounder	35%	144	5 %
Flathead Sole	20%	48	<2%
Yellowfin Sole	20%	40	<2%
Sculpin and Skates (Other Species)	20%	404	<16%
Pollock	20%	24	10%

Halibut

The International Pacific Halibut Commission (IPHC) is responsible for the conservation of the Pacific halibut resource. The IPHC uses a policy of harvest management based on constant exploitation rates. The constant exploitation rate is applied annually to the estimated exploitable biomass to determine a constant exploitation yield (CEY). The CEY is adjusted for removals that occur outside the commercial directed hook-and-line harvest (incidental catch in the groundfish fisheries, wastage in halibut fisheries, sport harvest, and subsistence use) to determine the commercial directed hook-and-line quota.

The 2005-2006 TAC Specifications EA discusses the IPHC's methods for determining and compensating for incidental catch of halibut and halibut mortality in the groundfish fisheries, as well as the criteria for determining bycatch and harvest levels of prohibited. The benchmark used to determine the significance of effects on halibut is whether or not incidental catch of halibut under the EFP would be reasonably expected to lower the total CEY of the halibut stock below the long term estimated yield of 80 million pounds.

The amount of halibut mortality projected for fishing under the EFP is 34.4 mt (a mortality rate of 11%). Because this amount is unlikely to meet the benchmark described above, the impact of fishing under this EFP is determined to be insignificant.

Levels of incidental catch of prohibited species in each fishery in 2004 were used to estimate the effects TAC levels set for each fishery on incidental catch levels of prohibited species under each alternative in the 2005-2006 harvest specifications EA (NMFS 2004). It was assumed for each fishery that an increase or decrease in TAC would result in a proportional increase or decrease in incidental catch, increases were not assumed to exceed PSC limitation where applicable. For all prohibited species, if under the alternative considered the incidental catch of prohibited species in the directed fisheries for groundfish was expected to increase or decrease by more than 50% from 2004 levels (chosen as the benchmark year for purpose of comparison) the effect was rated significantly adverse or beneficial, respectively. If under the alternative considered the incidental catch in the directed fisheries for groundfish was not expected to increase or decrease by more than 50% from 2004 levels the effect was rated insignificant, as incidental catch of prohibited species in the directed groundfish fisheries often varies over this range from year to year. If under the alternative considered insufficient information exists to estimate changes in harvest levels the effect was rated as unknown.

34.4 mt of halibut mortality during the first month of the project will have no effect on the taking of bycatch in the other groundfish fisheries because the halibut mortality will not be applied against the PSC limit. The Pacific cod hook-and-line fisheries bycatch of halibut will not be affected because the PSC

limit will not be affected. Alternative 2 allows for a small amount of halibut mortality that is not expected to substantially increase or decrease the amount of bycatch in the groundfish fisheries. Therefore, the effects of Alternative 2 on halibut bycatch in other directed fisheries are insignificant.

Marine Mammals

The directed and indirect effects of the activities under Alternative 2 are not likely to affect marine mammals at a population level due to the method of Pacific cod harvest and due to the short duration of the experiment. The only ESA listed marine mammal that has been identified as adversely affected by the groundfish fisheries are Steller sea lions. Pacific cod is an important prey species for Steller sea lions. The temporal and spatial dispersion of harvest of important prey species was implemented by the Steller sea lion protection measures. (NMFS 2001b, 2003) The only exemption this EFP would provide that may impact Steller sea lion is to allow for the harvest of Pacific cod outside of the TAC.

The harvest of additional Pacific cod allowed in this experiment will be outside of designated critical habitat, conducted by two hook-and-line vessels for one month in the summer, and is approximately one percent of the ABC and TAC for Pacific cod. The combined annual TAC and amount of Pacific cod allowed under the EFP would be well below the OFL for Pacific cod. The harvest by hook-and-line vessels is considered to be less intensive than harvest by trawl fisheries. This should result in a low rate of harvest that is dispersed between two vessels over a month time period, reducing the chance for localized depletion of Pacific cod prey. The summer is considered a less stressful time for foraging Steller sea lions (NMFS 2001b). Because of the timing, dispersion of harvest outside of critical habitat, relative small amount of P. cod and method of harvest, the activities under the EFP are entirely discountable with respect to Steller sea lions and their critical habitat.

The incidental take of marine mammals is not expected to increase with the increased harvest under the EFP to a level that would affect a marine mammal population trajectory by more than 10 percent. The spatial and temporal concentration of the fisheries is not expected to be changed by the activities under the EFP. The harvest of Pacific cod, Atka mackerel and pollock are not expected to exceed the harvest control rule due to the small amount of harvest under the EFP in relation to the TACs. The level of disturbance is expected to be the same for marine mammals with the activities under the EFP. Therefore, the direct and indirect effects of Alternative 2 on marine mammals are likely to be insignificant.

5.0 Cumulative Effects

Analysis of the potential cumulative effects of a proposed action and its alternatives is a requirement of the NEPA. An environmental assessment or environmental impact statement must consider cumulative effects when determining whether an action significantly affects environmental quality. The Council on Environmental Quality (CEQ) regulations for implementing NEPA define cumulative effects as:

> the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).
>
> Cumulative effects are thoroughly analyzed for the groundfish fisheries in the PSEIS in Chapter 4.0 (NMFS 2004). Section 4.1.4 describes the methodology used to do the cumulative effects analysis. In Section 4.5 and the accompanying tables in Appendix A, the current groundfish management regime is analyzed for effects on the environment, including cumulative effects for reach component of the environment. A summary of the cumulative effects of Alternative 1 of the

PSEIS is in Table 5.1. See Section 4.5 of the PSEIS for further details on the cumulative effects.

Only four environmental components were identified that potentially could be affected by Alternative 2: seabirds, groundfish, marine mammals and prohibited species. Alternative 1 in this EA is the status quo, and no additional cumulative effects are expected beyond those already identified in previous analyses (NMFS 2004, NMFS 2005). No additional cumulative effects on seabirds, groundfish, marine mammals, or prohibited species are expected from Alternative 2 because of the EFP conditions for mitigating potential impacts to seabirds and the limited duration of fishing that would be conducted outside of the 2005 TAC and PSC limits. No additional past, present or foreseeable future effects have been identified beyond those assessed in the 2005-2006 TAC Specifications EA (NMFS 2005).

If the experiments conducted under the EFP ultimately lead to federal action to require additional seabird protection measures in the federal hook-and-lines fisheries off Alaska, that action will be attended by the appropriate NEPA documents.

No additional past, present, or reasonably foreseeable cumulative impact issues have been identified that would accrue from Alternative 2.

6.0 Environmental Assessment Conclusions

Alternative 1 is the status quo. No EFP would be issued, and therefore, no additional effects would occur beyond those already identified and analyzed in the PSEIS (NMFS 2004) and in the 2005-2006 harvest specifications EA (NMFS 2004). For this reason, impact analyses in this EA were exclusively for Alternative 2. In addition to the PSEIS and the 2005-2006 harvest specifications EA, the significance of impacts of the actions analyzed in this EA were determined through consideration of the following information as required by NEPA and 40 CFR Section 1508.27:

Context: For the issuance of the EFP, the setting of the proposed action is the hook-and-line groundfish fisheries of the BSAI. The effects of the issuance of an EFP on society, within this area, are on individuals directly and indirectly participating in the hook-and-line groundfish fisheries and on those who use the ocean resources. Because this action may allow for potential future regulatory changes in the BSAI hook-and-line fisheries, this action may have regional impacts on society.

Intensity: Listings of considerations to determine intensity of the impacts are in 40 CFR §1508.28(b) and in the NOAA Administrative Order 216-6, Section 6. Each consideration is addressed below in order as it appears in the regulations.

Adverse or beneficial impact determinations for marine resources, including sustainability of target and nontarget species, damage to ocean or coastal habitat or essential fish habitat, effects on biodiversity and ecosystems, and marine mammals: No significant adverse impacts were identified for Alternative 2. No effects were expected on ocean or coastal habitat, EFH, biodiversity, or the ecosystem. Potential effects were limited to prohibited species, seabirds, groundfish, marine mammals and Pacific halibut, and those effects were determined to be insignificant.

Public health and safety will not be affected in any way not evaluated under previous actions. The EFP will not change fishing methods (including gear types), timing of fishing or quota assignments to gear groups, which are based on previously established seasons and allocation formulas in regulations.

Cultural resources and ecologically critical areas will not be affected in any way not evaluated under previous actions. This action takes place in the geographic area of the BSAI, generally from 3 nm to 200 nm offshore. The land adjacent to this area contains cultural resources and ecologically

critical areas. The marine waters where the fisheries occur contain ecologically critical areas. Effects on the unique characteristics of these areas are not anticipated to occur with this action.

Controversiality: This action involves the permitting of a project to improve seabird avoidance techniques in the hook-and-line fisheries. The hook-and-line fishing industry and the Council support this action, and no scientific controversial issues have been identified related to the EFP.

Risks to the human environment, including social and economic effects: Risks to the human environment by the BSAI groundfish fisheries are described in detail in the PSEIS (NMFS 2004). This action is limited in scope to a project that would last up to one year and with minimal amount of harvest of halibut outside the PSC limit and groundfish species outside of the TAC. The effect on the human environment from this additional removal of halibut and groundfish species is insignificant. Also, no significant adverse socioeconomic impacts were identified for Alternative 2.

Cumulatively significant effects, including those on target and nontarget species: Beyond the cumulative impact analysis in the PSEIS (NMFS 2004) and in the 2005-2006 Harvest Specifications EA, no additional past or present cumulative impact issues have been identified that would accrue from Alternative 2.

Districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places: This action will have no effect on districts, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places, nor cause loss or destruction of significant scientific, cultural, or historical resources. Because this action is 3 nm to 200 nm at sea, this consideration is not applicable to this action.

Impact on ESA listed species and their critical habitat: With the exception of the short-tailed albatross, no additional effects are expected on ESA listed species beyond those identified in the 2005-2006 harvest specification EA (NMFS 2005) and the PSEIS (NMFS 2004). The EFP carries a condition to mitigate potential impacts to short-tailed albatross, and thus the effect is determined to be insignificant. The USFWS concluded an informal section 7 consultation with NMFS on February 23, 2005 when it concurred with a NMFS determination that the IWG experiments are not likely to adversely affect ESA-listed species.

This action poses **no known violation of Federal, State, or local laws or requirements for the protection of the environment.** Issuance of the EFP would be conducted in a manner consistent, to the maximum extent practicable, with the enforceable provisions of the Alaska Coastal Management Program within the meaning of Section 30(c)(1) of the Coastal Zone Management Act of 1972, and its implementing regulations.

This action poses **no effect on the introduction or spread of nonindigenous species** into the BSAI beyond those previously identified because it does not change fishing, processing, or shipping practices that may lead to the introduction of nonindigenous species.

Comparison of Alternatives and Selection of a Preferred Alternative

Alternative 1 is the status quo and does not provide for the issuance of an EFP for development of hook-and-line seabird avoidance measures. Alterative 2 would provide for an EFP that that purpose. No significant impacts have been identified for Alternative 2. Alternative 2 is the preferred alternative.

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